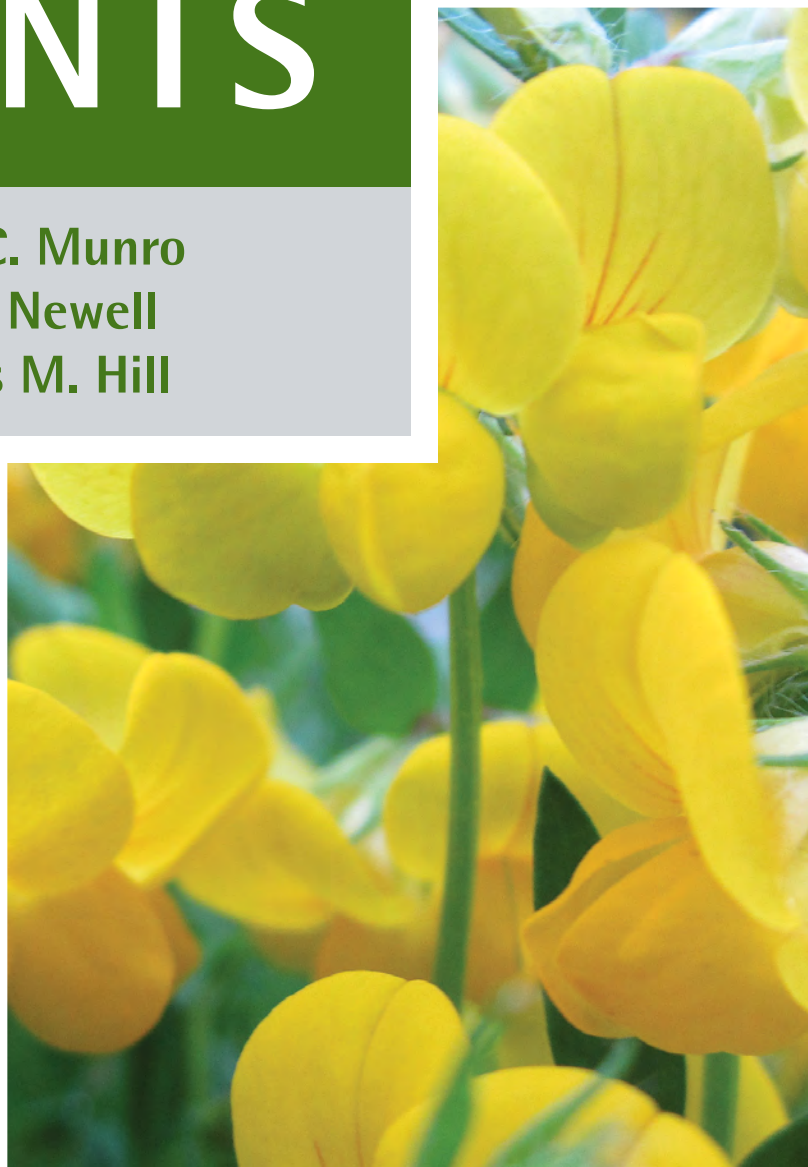




# NOVA SCOTIA PLANTS

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## FOREWORD

Our small province is still offering the botanist and naturalist plenty of challenge and opportunities for new discoveries. With a renewed interest in our plant communities by agencies involved in species protection as well as land development, comes the need for increased documentation. We have attempted in this publication to be as complete and inclusive as possible, accepting submissions as recently as October 1, 2014, 29 days before launch!

I knew soon after the publication of **Roland's Flora of Nova Scotia** (1998) that an eBook was inevitable. Aside from the additional species records gained from countless hours spent in the field, publishing technology was evolving rapidly, embracing the digital delivery.

No document of this size could come together without a great deal of input from many, nearly all of it volunteer efforts. It represents a fine example of horizontal collaboration between The Nova Scotia Museum, Provincial Library staff and the Wildlife Division of the Department of Natural Resources. Continued partnerships with the College of Geographical Sciences and Acadia University effectively delivered content as well as provided students with real work experience. Most of the images were crowd-sourced. And we were successful in illustrating all but 200 plants with at least one image.

I am indebted to everyone who contributed in any way to the manuscript. In particular I want to acknowledge my co-authors, Ruth Newell and Nick Hill who rose to the challenges presented, usually on very short notice. Sherman Boates and Pam Mills began the project with me by supplying digital distribution maps and saw it through to completion by creating updated maps and introductory comments. Our common thread has been and always will be Acadia University's Biology Department. Heartfelt thanks to you all.

Aside from digital maps, I knew we needed to embrace web delivery, and visuals become critical on that platform. After talking with some colleagues and fellow naturalists, I realized that the naturalists who use the book, may also be a source of images. When we pled for donated image use, I was stunned, surprised and pleased at the responses. Each image used has its photographer credited. In addition, their names appear in the metadata for each family of plants, if their images appear in that family. All donated images are appreciated. It was predictable that some of our most beautiful wildflowers would be repeatedly photographed but I am indebted to a number of people who also documented the difficult groups. Roger Lloyd, dried grasses, sedges and willows never looked so artful as they do through your lenses. Thank you for all of your efforts.

Sean Blaney and David Mazerolle, you do know how envious I am, of all the hours you spend in the field documenting species and sites for the Atlantic Canada Conservation Data Centre, I hope? Many thanks for use of your photographs and for your collegiality over the years. Alain Belliveau contributed lots of pictures, especially whilst employed with the Mersey Tobeatic Research Institute in southwestern NS. Now that you've joined Sean and David, I know we'll see more. Thank you.

Martin Thomas, you are my hero. Thank you for every last image you sent; they numbered in the hundreds. I hope retirement allows you even more outdoor time. The next edition may come sooner than you think!

Retirement also allowed Ross Hall, Wildlife Biologist, DNR time to explore his neighbourhoods. I am glad you enjoyed the aquatic plants, as few others were able. Thank you for the use of your images. Not-yet-



retired Forestry staff of Department of Natural Resources contributed image use where possible: Eugene Quigley and Peter Neily, thanks.

A few of the plant portraits used were 35mm slides from the Collection of the Nova Scotia Museum. Alex Wilson, Mary Primrose and Reta Cook slides were used.

There were many photographers and naturalists who passed through the Museum inquiry program and kindly agreed to share their images when asked. Thanks to you as well.

To all those unnamed here, I am no less grateful for all of your support, patience and friendship over 20+ years and four books.

The use of the Open Journal System (OJS) is provided through Dalhousie University and is maintained locally by the Nova Scotia Museum Publications Committee. Thank you Laura Bennett for steering this committee, and Dyan Perley Bader for providing very simple solutions for templating and uploading the manuscript. I have enjoyed working with you.

Laura Bennett and Stephanie Smith, Manager of Collections and Director, Interpretation, Collections and Infrastructure (ICI): thanks for believing in the project and supporting my dedicated time.

We have made all efforts to eliminate inconsistencies, spell check and scientifically edit the material. I will assume responsibility for any errors or omissions in the edits, translation and uploads.

Readers, we welcome your comments, images and reports. Our contact information is available on these pages. We know you're out there perusing the plants and we know the next edition is not far off. You too can be a part of it!

~ Marian C. Munro

## A Brief History of Botanical Exploration in Nova Scotia

Many people have contributed to the exploration and documentation of Nova Scotia's wild flora over the last two centuries, either by collecting plant specimens for herbaria, creating herbaria and/or by writing papers or floras. The contributions of only a few are described below. It should be noted that contributors to our knowledge of the flora of Nova Scotia are not limited to professional botanists but have included naturalists, amateur botanists, students or anyone with an interest in our wild flora. Herbarium curators welcome observations on or documented specimens of wild plant species from the general public.

### *George Lawson (1827 – 1895)*

Considered by some as the “father of Canadian botany”, George Lawson was professor of chemistry and natural history at Dalhousie University and also served as Secretary of Agriculture for Nova Scotia. He was an avid supporter of the Nova Scotia Institute of Science. He studied and promoted the study of the wild flora of Nova Scotia to amateur botanists. Lawson wrote both the “Fern Flora of Canada” and “The School Fern-flora of Canada” in 1889 in which he gives an account of the current state of knowledge of Nova Scotia's fern flora in the 1800's.

### *John Macoun (1831 – 1920)*

As a young man and school teacher in Ontario, he became obsessed with botany and although he had little formal training, soon captured the attention of professional botanists. He ultimately became Dominion Botanist in 1881 with the Geological Survey of Canada. He was a prolific collector of plant specimens and cataloguer of Canadian flora and fauna for many field seasons. He spent a number of summers collecting plants in Nova Scotia in the late 1800's.

### *Alexander H. MacKay (1848 – 1929)*

MacKay was an educator who became the principal of the Pictou Academy and eventually the Superintendent of Education for Nova Scotia. He pursued botanical and zoological research and developed a herbarium of native plants. He strongly promoted the inclusion of the study of natural history in the school curriculum and was responsible for developing a plant watch program which ran from 1898 to 1923. This program involved having rural school children document flowering dates of a select group of plant species every year. This data is still kept at the Nova Scotia Museum and today offers some insight on the topic of climate change.



*Margaret S. Brown (1866 – 1961)*

Margaret's lifelong hobby was the study of the mosses and liverworts of Nova Scotia. In spite of having limited formal training in the field of bryology, she corresponded and exchanged moss collections with professional bryologists around the world, participated in several field expeditions with botanist Dr. N.L. Britton and his wife, bryologist Elizabeth G. Britton of the New York Botanical Gardens, and published a number of papers in *The Bryologist* and *The Proceedings of the Nova Scotian Institute of Science*. One such publication was on the "Liverworts and Mosses of Nova Scotia". Margaret's many collections now reside in herbaria around the world.

*Merritt Lyndon Fernald (1873 – 1950)*

M. L. Fernald was a Harvard University Professor, Director of the Gray Herbarium and author of the 7<sup>th</sup> and 8<sup>th</sup> editions of *Gray's Manual of Botany*. During his years at Harvard, he published and collected extensively and was considered an expert on the plants of temperate eastern North America. In the summers of 1920 and 1921 he conducted botanical expeditions to southwestern Nova Scotia, using Yarmouth as a base. Throughout these two summers in the province, he was often joined for short periods by his students or various botanical colleagues. As a result of these botanical investigations, Fernald became the first to report extensively on the occurrence of the Atlantic Coastal Plain Floral Element in our province. The results of these expeditions to Nova Scotia are published in the journal *Rhodora* and make for very interesting reading (Fernald, M.L. *The Gray Herbarium Expedition to Nova Scotia*, 1920. *Rhodora* 23: 89–111; 130–171; 184–195; 223–245; 257–278; 284–300). Herbarium specimens resulting from these botanical forays to Nova Scotia currently reside in the Gray Herbarium at Harvard University and at the E.C. Smith Herbarium of Acadia University.

*George E. Nichols (1882 – 1939)*

Nichols, an eminent American bryologist, published a significant paper on the ecology of the vascular flora of northern Cape Breton Island in 1918. He also published several papers on the bryophytes of Nova Scotia (1916, 1918).

*Lily May Perry (1895 – 1992)*

Lily May Perry received a B.Sc. with Honours in 1921 from Acadia University. She went on to receive a PhD. in the United States and worked at both the Gray herbarium at Harvard University and the Arnold Arboretum where among other projects, she studied the medicinal plants of Southeast Asia. In 1929, she and Dr. Muriel V. Roscoe spent a month on St. Paul Island, 12 mi off the northern tip of Nova Scotia documenting the vascular flora of this rugged, remote island. A number of new records for the province

were discovered at this time. Duplicate sets of specimens currently reside at the E.C. Smith Herbarium of Acadia University and Harvard University.

*John S. Erskine (1900 – 1981)*

John Erskine was a teacher in the Annapolis Valley for many years. He was a keen student and observer of the fields of natural history and archaeology and spent his summers travelling the province studying plants and archaeological sites. He indeed wrote about being able to discern old Acadian sites by means of the particular plant species occurring at these locations. He collected botanical specimens extensively for the Nova Scotia Museum. He wrote prolifically about his botanical findings over the years. Two of his documents were “The Hepatics or Liverworts of Nova Scotia” and “An Introductory Moss Flora of Nova Scotia” (1968).

*Albert E. Roland (1911? – 1991)*

A.E Roland taught botany for many years at the Nova Scotia Agricultural College (now the Faculty of Agriculture, Dalhousie University). He was also Provincial Botanist for the Nova Scotia Department of Agriculture and Marketing. He was the first to write a comprehensive book on Nova Scotia’s wild flora entitled the Flora of Nova Scotia (Roland, 1944). The second edition of The Flora of Nova Scotia was co-authored with E. Chalmers Smith of Acadia University (Roland and Smith, 1969). Dr. Roland was working on a third edition of the Flora of Nova Scotia when he passed away in 1991. This edition was subsequently completed through the efforts of Marian Zinck and the Nova Scotia Museum and co-published in 1998 with Nimbus Publishing. Other books by Dr. Roland include “The Ferns of Nova Scotia” (1944) and “Geological Background and Physiography of Nova Scotia (1982). Dr. Roland’s plant specimens are currently housed in a number of Canadian herbaria.

*E. Chalmers Smith (1912 – 1992)*

Chalmers Smith was a Biology professor and later, Vice President Academic at Acadia University from 1947-1975. Some of his botanical course offerings included The Flora of Nova Scotia and Plant Ecology. Over the years, he and his students collected thousands of botanical specimens from throughout the province of Nova Scotia with special attention given to Cape Breton Island where rare arctic alpine species had been poorly documented. Many of these specimens/collections are housed in the herbarium at Acadia University. Dr. Smith and his students published numerous articles on the flora of Nova Scotia many of which were published in Rhodora ( a journal of the New England Botanical Club promoting the study of the flora of New England and adjacent areas). Dr. Smith collaborated with Dr. A.E. Roland on the 2<sup>nd</sup> edition of “The Flora of Nova Scotia” (1969). In 1970, Acadia University named the university herbarium, the E.C. Smith Herbarium in honour of Dr. Smith and his accomplishments.



*Sam P. vander Kloet (1942 – 2011)*

Dr. Sam vander Kloet was a Biology Professor and Director of the E.C. Smith Herbarium at Acadia University from 1972 until he retired in 2001. Following his retirement, he remained on at Acadia as University Botanist collecting plant specimens for both the E.C. Smith Herbarium and the Harriet Irving Botanical Gardens and conducting research. During his career, Sam travelled and collected plant specimens all over the world and was recognized internationally as a global authority on blueberries (*Vaccinium* spp.). He published extensively and mentored many. His boundless enthusiasm inspired many students to continue in the field of botany including the authors of this e-flora.

*Atlantic Canada Conservations Data Centre (ACCDC) – 1997 to present*

The ACCDC was established in Atlantic Canada in 1997. It is a non-government organization which gathers and maintains data on species and ecological communities of conservation concern. This information is utilized for conservation planning and decision making and research in Atlantic Canada. Sean Blaney is the director of the ACCDC and senior botanist. Since 1997, ACCDC staff has conducted extensive field work which has generated thousands of specimen based records and been responsible for the discovery of a substantial number of new records from throughout Atlantic Canada.

~ Ruth E. Newell

## THE FLORAL ELEMENTS OF NOVA SCOTIA

Nova Scotia is a peninsula, nearly a collection of islands, whose long axis parallels eastern North America. The climates and the vegetation of the province are markedly different from its southern tip at the latitude of southern Maine to its northern tip in line with northern New Brunswick. The southern flora of the tri-counties—Yarmouth, Digby and Queens—contains more than a hundred species of a "flora" whose main range occurs on the unglaciated Atlantic Coastal Plain of the eastern United States. The flora in the two counties that form the northern tip of Cape Breton includes arctic-alpine plants and disjunct populations of wide-ranging boreal species. So the Coastal Plain and the Arctic-Alpine represent the two extremes of biogeographic origin present in our flora. They include many of the rarest and at risk plants in the province. Other elements in our flora have been described by two of the giants of Nova Scotian botany, Albert E. Roland and E. Chalmers Smith. In the **Flora of Nova Scotia** (1969), the authors divided the flora into the following seven elements or groupings: Arctic-Alpine and Boreal Disjuncts, Boreal, Canadian, Alleghanian, Southwestern (*viz.* Atlantic Coastal Plain), Seashore, and Introduced Plants and Weeds. The first five divisions relate to a biogeographic origin of the species of the element, the latter two refer to common habitat or habit. Introduced plants stand out as simply not being from around here since they include plants of a diversity of origins.

The arctic-alpine/boreal disjunct element, includes plant species that grow in cool climatic conditions in Nova Scotia, but have their main ranges or population based in arctic, alpine or boreal zones. Many of the distributions of these species appear relic; their presence in an area may reflect an extensive post-glacial colonization of a denuded landscape and a subsequent retraction of these ranges in the warm Hypsithermal period thereafter. Roland and Smith (1969) listed nearly 60 of these plants that in the main occur in ravines, dripping cliffs, bogs and barrens, and forest at high elevation northern Cape Breton, or in various near sea-level habitats around the province that cooled by the Gulf of St. Lawrence, the Labrador Current or upwellings of the Bay of Fundy. In the case of *Geum peckii*, the eastern mountain avens, demonstrates the paradox of an arctic-alpine relic whose Canadian distribution depends on sea-level wetlands on Brier Island at the very southern end of Nova Scotia. The Nova Scotian sea-level population is disjunct from the only other global location, the White Mountains of New Hampshire. The Bay of Fundy gives the Nova Scotian setting cool summer temperatures (average for July from 15–17°C) and many fog-bound days, in common with its alpine New Hampshire counterpart.

The boreal element includes species whose main range occurs in the Boreal Forest Region, a climatic zone whose southern border is defined by a mean July temperature below 18°C. Species belonging to the boreal element in Nova Scotia occur broadly beyond this July isotherm condition and major constituents of peatland communities throughout the province are principally composed of woody boreal elements such as the trees, *Picea mariana* (black spruce) and *Larix laricina* (larch), and shrubs, *Chamaedaphne calyculata* (leatherleaf), *Ledum groenlandicum* (Labrador tea) and *Myrica gale* (sweet gale). Common boreal peatland sub-shrubs include *Empetrum nigrum* (crowberry), *Rubus chamaemorus* (bakeapple), *Vaccinium oxycoccos* (small cranberry), *Cornus canadensis* (bunchberry) and herbs include *Trichophorum cespitosum* (deergrass), *Carex magellanica* (bog sedge), and *Eriophorum* spp. (*E. polystachion* and *E. chamissonis*—common and rusty cottongrasses). The Boreal Forest in its main range has been shaped by fire, and boreal fire-adapted assemblages in Nova Scotia include *Pinus*



*banksiana* (jack pine), *Arctostaphylos uva-ursi* (bearberry) and *Vaccinium vitis-idaea* (foxberry) as well as various short-lived, deciduous forest trees (*Betula papyrifera*, *Betula populifolia*, *Populus tremuloides*). The long-standing practice of short-rotation forestry has greatly increased the abundance of the latter species as well as that of *Abies balsamea* (balsam fir).

The Canadian Floral Element is the background flora according to Roland and Smith (1969). These are our most common forest plants with temperate, eastern North American affinity. The herbs of this group are found in forests dominated by red spruce, hemlocks, white pines or even upland mixed woodlands dominated by tolerant hardwoods (e.g. American beech, red and sugar maples, yellow birch). Our typical woodland, Canadian Element herbs include: *Maianthemum canadense*, *Trientalis borealis*, *Clintonia borealis*, *Aralia nudicaulis*, *Trillium undulatum*, *Michella repens*, *Streptopus rosea*, *Cypripedium acaule*, and *Medeola virginiana* (ie. wild lily of the valley, starflower, yellow clintonia, wild sarsaparilla, painted trillium, partridge berry, rosy twisted-stalk, moccasin flower and cucumber-root). As noted by Lucy Braun (1950), it is most often the forest herbs that most reliably reflect forest soil conditions and the consistent appearance of these species throughout woodlands in Nova Scotia delimits the Acadian Forest (*sensu* Halliday, 1937) as well as the combinations of forest trees. In terms of strict biogeography, the defining tree of the Acadian Forest and the Canadian Element is *Picea rubens*. Other trees assigned to the Canadian element such as yellow birch, white ash, red maple, eastern hemlock, white pine or sugar maple have solid southern ranges into the southern Appalachian forest and some extend to the Gulf of Mexico.

The Alleghanian Element in the Nova Scotian botanical tradition, is equivalent to the Carolinian flora of Ontario, the Rich Mesophytic, or the Appalachian Deciduous Forest. These are all descriptors of hardwood associations on base-rich soils. This element has never been static, despite the view of Lucy Braun (1950) that the Mixed Mesophytic was an evolutionary cauldron of this diverse flora because this southern Appalachian zone had never been glaciated. She did, however, appreciate that there was a shift from mixed hardwood forests of no dominance to sugar maple/beech forests coincident with the Wisconsin glaciation line. These maple/beech forests on poor upland soils are found throughout the northern Appalachian hardwood forests of Maine and they occur throughout the Cobequid Hills of Nova Scotia. Under poor soils, the herb flora is restricted to various of the Canadian Element herbs described above as well as ferns. The most common shrub is Canadian Element, *Lonicera canadensis*, American fly-honeysuckle. In Nova Scotia, many members of the Alleghanian Element are rare because this association is restricted to rich soils of floodplain forests or a few cove forests of western Cape Breton. There has been a large loss of the principal habitat base, the floodplain forest, of this Element but these forests have a wide collection of hardwoods (elm, ironwood, black cherry, sugar maple, red maple, yellow birch, white ash), shrubs (chokecherry, *Prunus virginiana*; American hawthorn, *Crataegus chrysocarpa*; and highbush cranberry, *Viburnum opulus*) and herbs. Again, it is the herb community that identifies the Alleghanian Element in Nova Scotia (Hill and Garbary, 2010). It is distinctive for its large fraction of large seeded species (*Caulophyllum thalictroides*, *Triosteum aurantiacum*, *Sanguinaria canadensis*, *Arisaema trifolium*, *Allium tricoccum*—blue cohosh, horse gentian, bloodroot, jack-in-the-pulpit, and wild leek), and vernal herbs, many characteristic of the cove forests described by Braun for the southern Appalachians (e.g. *Viola pubescens*, *Uvularia sessifolia*, *Trillium cernuum*, *Dicentra cucullaria*, *Cardamine diphylla*, *Tiarella cordifolia*, *Claytonia caroliniana*, *Hepatica americana*, *Erythronium americanum*—yellow violet, bellwort, nodding trillium, dutchman's breeches, toothwort, Alleghany foamflower, Carolina spring beauty, hepatica and trout lily). This Element

may have enlarged its range in the province during the Hypsithermal and then retracted to the floodplain and rich soil areas described. There is evidence that the recent anthropogenic land use has subsequently further undermined this element as the current records for a few notable rarities (e.g. *Adiantum pedatum*, *Hepatica americana*, *Viola canadensis*—maidenhair fern, hepatica and Canada violet) show sharp declines.

All of the above species occur in rich soils and all of these areas lie west of the "Meguma" line on mainland Nova Scotia which separates hard resistant rock types from that which weathers to produce base-rich soils. The same situation applies in the more complex geological patterns in Cape Breton, the Alleghanian Element is particularly rich along the River Denys and in productive hardwoods around Mabou. Soil calcium is a particular indicator of the richness of the flora of the Appalachian Deciduous Forest, here or throughout eastern North America. Soil calcium depends upon the underlying rock substrate, but it is also clear that it may be vulnerable to the decades of acid precipitation that has stripped calcium throughout eastern North America (Jeziorski *et al.*, 2008). A guild of calciphiles has long been known to occur on Carboniferous gypsum outcroppings laid down on ancient seafloor between Windsor and Cape Breton. This flora was introduced in John Erskine's "In Forest and Field" in the essay "Plaster Rock" (Erskine, 1976). The flora contains no particular trees but there are shrubs (*Cornus rugosa*, *Dirca palustris*, and *Shepherdia canadensis*—round-leaved dogwood, leatherwood, and sheperdia), rare orchids (*Cypripedium calceolus* and *C. arietinum*—yellow lady's slipper and ram's head lady's slipper) and other herbs (*Erigeron hyssopifolius*, *Packera paupercula*, *Cystopteris bulbifera*—hyssop-leaved fleabane, balsam ragwort, and bulbet fern) that are unique in Nova Scotia to a small area of unquarried gypsum landscape.

The Atlantic Coastal Plain Flora in Nova Scotia is largely restricted to wetlands in the southwest of the province. These habitats, formed on a basis of quartzite, slate and granite, are infertile and acidic (normal pH range from 4 to 5), the opposite of the conditions required by the Alleghanian Element or the gypsum flora. It is important to note that Nova Scotia is not part of the Atlantic Coastal Plain geological province which is based on unglaciated sediments that were eroded from the Appalachian Mountains and deposited in a marine environment in Triassic time (Christensen, 1988). Despite this, our glaciated province contains an internationally significant assemblage of Atlantic Coastal Plain plants that are disjunct from their main ranges that may occur to the north of the geological province in glaciated New England or over the unglaciated Coastal Plain that extends from New York to Florida and then west along the Gulf of Mexico. The repeating pattern observed for many of these plant species in our province shows a distribution with its northern limit in southwestern Nova Scotia and its main range largely restricted to east coast United States. Nova Scotian populations are the disjunct outliers, a phenomenon also observed in the flora of various states (and Ontario) with wetlands bordering the Great Lakes. Keddy (2010) was first to point out that the coastal plain plants in Nova Scotia only occurred in naturally stressed and disturbed habitats because they were through long evolution adapted for slow growth under infertile conditions. The flora was restricted to such habitat in Nova Scotia because the plants are naturally poor competitors and are eliminated from more fertile regions. The two most exceptional rivers for Atlantic Coastal Plain Flora diversity and rarity in Nova Scotia are the Medway with nationally rare, yellow flowered monocots, goldencrest (*Lophiola caroliniana*) and redroot (*Lachnanthes tinctoria*) and the Tusket with its globally rare Plymouth gentian (*Sabatia kennedyana*) and pink coreopsis (*Coreopsis rosea*). The Tusket River was formally recognized by the Canadian Botanical Association in 2012 as a river of special conservation concern. The restriction of the coastal plain

flora to southwestern Nova Scotia has been related to the infertility associated with the predominating rock types (above) as well as to the more mild winter climate in the southwest. Plants of southern origin should be more prevalent in southwest Nova Scotia. In addition, several rare coastal plain plants are restricted to river lakeshores that are protected in winter by high water levels that keep plants insulated until late May. In addition to species of coastal plain herbs, southwestern Nova Scotia has the province's only monocot vine, the cat-brier (*Smilax rotundifolia*) and a complex of both common (e.g. inkberry, *Ilex glabra*) and rare (poison sumac, *Toxicodendron vernix*; sweet pepperbush, *Clethra alnifolia* ; and maleberry, *Lyonia ligustrina*) shrubs. The commingling of these southern coastal plain plants with northern boreal plants astonished the great Harvard botanist, Merritt Fernald on his first trip to southwestern Nova Scotia (Fernald, 1921).

Exceptional cases of rare and disjunct Atlantic Coastal Plain plants in Nova Scotia are not confined to lakeshores, neither are they wholly restricted to the southwest. A globally significant population of New Jersey rush (*Juncus caesariensis*) was discovered in Cape Breton fens, forty years before its original collection was rediscovered in the E.C. Smith Herbarium (Newell and Newell, 1992). The coastal plain flora is common in bogs and fens from the diminutive curly-grass fern (*Schizaea pusilla*), to pink orchids, the grass pink (*Calopogon pulchellus*) and rose pogonia (*Pogonia ophioglossoides*), and common shrubs (bog huckleberry, *Gaylussacia dumosa*; bayberry, *Morella pensylvanica*). The most unusual occurrence is that of the thread-leaved sundew, *Drosera filiformis*, restricted to a few plateau bogs near Shelburne. This plant is Endangered in Canada but is a common element in the New Jersey Pine Barrens and our variety (*Drosera filiformis* var *filiformis*) ranges from Cape Cod to northern Florida. The thread-leaved sundew belongs to a burgeoning number of plants that have been discovered since the publication of the Roland and Smith, **Flora of Nova Scotia** in 1969. In the years that followed an attempt to mine the peat for its energy potential, Landry and Cwynar (2005) discovered evidence using <sup>14</sup>C analysis on peat surrounding macrofossil seeds of this species, that the plant had been in residence in one bog a minimum of 4000 years before present. There have been various theories about how the coastal plain species arrived in Nova Scotia. Older theories suggested that the coastal plain flora were the first plants to colonize Nova Scotia after glaciation because during glaciation, sea levels were lower and there would have been a land bridge between the Cape Cod area and southwest Nova Scotia. During deglaciation, the ice sheet over the province melted and as sea levels rose, populations of Atlantic Coastal Plain and Boreal plants colonized the newly exposed landscape (Roland and Smith, 1969). The most recent examination of the evidence by Clayden *et al.* (2010) disputes the offshore boggy refugium hypothesis, citing a lack of correlation between the stages and dates of sea level rise and the availability and proximity of land that could allow a step by step colonization via an offshore route. Although this refutation undermines a convenient "Just So" story, it is in keeping with our understanding that the distribution of coastal plain plants reflects current day conditions (e.g. Hill and Keddy, 1992) and it must rest on research to identify the critical environmental factors that control distributions. Without such an understanding, we have limited ability to protect and manage current habitat or to restore former habitat.

The Coastal Plain geological province contains a variety of habitat in addition to wetland and there is a disjunct assemblage of xeric plants of Atlantic Coastal Plain affinity that occur on sand and rock barrens habitat in Nova Scotia. Broom crowberry (*Corema conradii*) and golden heather (*Hudsonia ericoides*) occur on rock outcrops on the Atlantic coast but also on the esker and wind-formed dunes of the Triassic sands of the Kingston Sand Barrens (Roland, 1980). These

two plants become established from seed shortly after fire and fire is required to maintain the assemblage. Other notable plants in this coastal plain, Broom Crowberry mat are of wide geographic origin: the boreal mountain sandwort (*Minuartia groenlandica*, the Greenland Stitchwort) and pinweed (*Lechea intermedia*). The latter plant has a Canadian Flora distribution as does a plant new to the Maritimes, forked blue curls (*Trichostema dichotomum*) discovered in 2013 (C.S. Blaney). There are differences between the sand and the rock barrens community. On the rock barrens, the boreal jack pine (*Pinus banksiana*) has a high percentage of trees with serotinous cones that require heat to release seeds. The Sand Barrens has wide areas dominated by bearberry (*Arctostaphylos uva-ursi*) and succession without fire leads to a domination by white and red pine or the invasive Scot's pine. The lack of fires in the Sand Barrens imperils a declining population of the provincially Endangered Canadian frostweed (*Helianthemum canadense*) which as recent work has revealed may be a genetically distinct sub-population unlike Queens County plants that have been clustered with New England or Quebec populations (Yorke *et al.*, 2011).

Roland and Smith (1969) recognized a sixth assemblage, or floral element, in the plants that are restricted to its seashores. Roland was also a redoubtable geologist who described in his **Geology of Nova Scotia** (1980), the post-glacial dynamics of this coast. Although the current flora is not a stand-alone conservation document, it must be noted that in this period of crust subsidence accompanied with real sea level rise, the fraction of the province's coastal perimeter that qualifies as unmodified may be at its lowest level. The securement, however, of whole islands along the Eastern Shore, will allow the assemblages belonging to this seashore flora to adjust to the projected changes in sea-level without the added disruption from local anthropogenic shoreline disturbances. The seashore community is an amalgam of elements of the boreal and the exotic floras mixed together with saltmarsh plants that are generally distributed in such habitat, the length of the eastern North Atlantic shore from Georgia to Nova Scotia. The boreal seashore community's treeline includes three boreal conifers (balsam fir, white spruce and black spruce) as well as the mat-forming black crowberry. This ground-hugging evergreen heath is circumboreal and is best developed on exposed Atlantic coasts filling in where white spruce has been blown over. On these same exposed coasts are small boreal shrubs (*Vaccinium vitis-idaea*, *Gaultheria hispidula*—foxberry and snowberry) along the inland face and various boreal herbs including the rare or uncommon *Rhodiola rosea*, *Carex viridula* var *saxilittoralis*, *Senecio pseudo-arnica*, and *Sagina nodosa* (roseroot, little green sedge and beach ragwort and knotted pearlwort). The exotic flora is best developed on seashores of unstable boulders or between the sea and the dune grasses on sand beaches. This flora is mixed with native annuals such as sea rocket (*Cakile edentula*) and fowler knotweed (*Polygonum fowleri*) and the exotic annuals (e.g. wild radish, pigweed) appear to predominate where seaweed wrack is extensive.

The saltmarsh flora extends into these seashore communities as outlined. The saltmarsh ecosystem has been much reduced historically, particularly along the early settled Fundy coast where as much as 80% of this habitat may have been lost to dyking. There are three major areas of saltmarsh in the province that can be assigned as the Fundy, Tusket and Petpetswick areas. These marsh areas in sheltered embayments on fine sediment, are colonized by the same two dominants, the low marsh American cordgrass (*Spartina alterniflora*) and high marsh, saltmarsh hay (*Spartina patens*). A suite of saltmarsh grasses, oddities, and forbs occur in the upper marsh but the Tusket marshes additionally contain a group of southern Atlantic Coastal Plain species that are rare on a national level (Mersey Tobeatic Research Institute, 2011). These include two



rare sedges (Beaked Spikerush, *Eleocharis rostellata*; and Olney's Bulrush, *Schoenoplectus americanus*), and two Endangered species, the Saltmarsh False-Foxglove (*Agalinus maritima*) and the Groundsel tree (*Baccharis halimifolia*).

The final floral element, the introduced plants and weeds, is distinguished by its lack of any single area of origin or of any particular habitat type. Although "introduced" is often a synonym for exotic, MacDougall (2003) discusses the evidence for northward introductions of plants by indigenous groups during the Holocene. Indeed, some extremely patchy distributions in Nova Scotia (e.g. *Zizia aurea*, golden alexanders; *Allium tricoccum*, wild leek) as well as wide distributions of species with poor reproductive abilities (*Apios americana*, groundnut; *Fraxinus nigra*, black ash) give credence to this process. While the cultural tracks of particular native plants are difficult to follow in regions where they naturally occur, there is a group of plants brought by the Acadians that have naturalized and clearly stand out as exotic in our flora. The occurrence of a group of such plants (e.g. *Daphne mezereum*, daphne; *Inula helenium*, elecampane; *Tanacetum vulgare*, tansy; and *Lysimachia nummularia*, creeping jenny) together in a locality suggests an early Acadian settlement. Introduced or exotic plants, account for at least a third of all plants recorded for Nova Scotia, although as Blaney notes (Hill and Blaney, 2010) this may overemphasize their contribution since many records are of waifs and most of the exotic species are infrequent. Exotics make up a similar proportion of the floras of the provinces and states neighbouring Nova Scotia. In eastern Canada, the overwhelming majority of exotic plants are of Eurasian origin. Historically, the plants of greatest concern were those listed under the Noxious Weed Act of Nova Scotia. This list has changed since 1986 and today it includes nine mainly perennial plants that might pose threat to agriculture, and one poisonous plant, the rare thorn-apple (*Datura stramonium*). The most common arable land, annual weeds are exotics (e.g. *Ambrosia artemisiifolia*, *Raphanus raphanistrum*, *Chenopodium album*) as are almost all of the beneficial plants found in both hayland and pastures. The current focus on exotic plants is for the threat they pose as invasive plants that disrupt native ecosystems. In a recent review of the region's exotic and invasive vascular plants, Hill and Blaney (2010) listed four current pests and eleven potential pests. According to the definition of "invasive" set out by these authors, two plants from the current list (*Frangula alnus* and *Pinus sylvestris*) and one plant from the list of potential pests (*Rosa rugosa*) have infiltrated native habitat in sufficient numbers to alter the dynamics of these communities. Despite the remarkable spread of *Frangula alnus* throughout early successional upland forests and swamps, there is as yet no peer reviewed research on any aspect of its biology in this region. There have been distributional studies of the impact of rugosa rose on seashore communities (Hill and Garbary, 2010) and of Scots pine on sand heath communities (Catling and Carbyn, 2005).

The invasive plants considered above as well as several others of concern (e.g. *Phalaris arundinacea*, *Alliaria petiolata*, *Rhamnus cathartica*, and *Poa nemoralis*) have expanded in habitats whose successional paths have been greatly modified by anthropogenic disturbances. The footprint of the nearly 800 exotics in this region, largely reflects human activity. The conservation outlook for plant biodiversity in the region is tied to the conservation management of habitat. Over eastern North America, more land is now in forest than any time in the past century, however that forest is relatively young and where forests have grown back from widespread agriculture, a time lag in the regeneration of diversity will be linked to regeneration of forest soils and conditions as well as to the limitations of seed dispersal. In Nova Scotia, such a return from agriculture to forest has occurred in all areas with agricultural soils, however whether these more fertile sites will support forest herb diversity, will depend upon the

protection of these soils from short-rotation forestry. Similarly, forestry policies that affect what are now mature forests, have large potential impacts on a suite of slow-growing orchids (*Goodyera pubescens*, *G. oblongata*, *Platanthera hookeri*, *P. macrophylla*, *P. orbicula*, *Listera convallarioides*). The Wetland Policy has the potential to prevent further losses of various high diversity habitats such as river floodplain, freshwater marshes and saltmarsh. Estimates of habitat losses are only available for the latter, but similar losses might be expected to have occurred in freshwater marsh and floodplain, two of the most naturally fertile, freshwater wetland types. There is wide recognition of the international significance of the Atlantic Coastal Plain wetland habitats in southwestern Nova Scotia yet this flora will require an ongoing commitment to maintaining water quality in these river systems.

Much of the flora can be safeguarded by passive management, habitat acquisition, and ensuring habitat connectivity but there are elements in the flora, in the Atlantic Coastal Plain Flora and the Boreal Flora in particular, that require active management. Not enough is known of the impact of fire on Nova Scotian coastal plain wetlands. Nova Scotia has one of the two largest populations of the globally imperilled, Long's Bulrush (*Scirpus longii*), a New Jersey Pine Barrens plant, that requires fire for flowering. There has been no regeneration of this fire-dependent bulrush from seed in Canada for a century, since the last fire in its Queens County fen at the turn of the 20<sup>th</sup> Century. Another fire-dependent community occurs on granite barrens along the Atlantic coast. Periodic wild fires have ensured the continuance of *Corema conradii*, *Lechea*, *Hudsonia ericoides*, *Minuartia groenlandica*, *Carex adusta* and *Pinus banksiana* in barrens near Herring Cove but elsewhere as at the Kingston Sand Barrens, the globally rare, broom crowberry (*Corema conradii*) community is in decline. Fire suppression and housing development have combined to greatly reduce barrens habitat area and its integrity, threatening the rare, eastern Canadian population of *Helianthemum canadense* (Canada frostweed).

**Nova Scotia Plants** is a record of the plants known to occur in the province. Thousands and thousands of records have been added through the work of amateur and professional botanists alike. There has also been invaluable support for exploration through government programs (Nova Scotia Department of Natural Resources, The Nova Scotia Museum), university research, community group involvement and the work of the Atlantic Canada Conservation Data Centre. As well, systematic plant surveys have been increasingly required for environmental assessment, resource use and land stewardship purposes. This has enabled us to build beyond the general occurrence and distribution for plant species to, in some cases, detailed mapping of rare species, habitats, threats and ecosystem features and functions. Further, experimental studies including genetic analysis are helping us better understand the taxonomy and ecology of the province's flora. This increased knowledge and understanding has helped us address growing threats to plants and their habitats that result from climate change, development, resource use and other anthropogenic activities. As a result of recent tools for protecting plant species and ecosystems including the Nova Scotia Endangered Species Act (1998) and the General Status of Wildlife program, many species of plants are formally protected by law because they are at high risk of extinction in the province. Many others are protected through stewardship efforts at sites where there are serious conservation concerns. Nova Scotia's ambitious Protected Area and Parks System Plan has identified and protected many areas of crown land that support endangered plants and rare plant communities. Expanded private land acquisition efforts by the Nature Conservancy of Canada, the Nova Scotia Nature Trust and others have also resulted in the protection of very significant examples of the province's flora.

Finally, local community-based environmental stewardship groups like the Mersey Tobeatic Research Institute, have helped many private landowners identify, appreciate and care for important plant species and habitats. This new eFlora will be available to almost all Nova Scotians and will continue to support our fascination, appreciation and efforts to ensure that the province's remarkable treasury of plants will be around for future Nova Scotians to study and enjoy.

Our understanding of the plants of Nova Scotia and the floral elements described in this introduction clearly show that through the efforts of many, much has been learned. However, some of the most exciting finds will continue to be made despite the fact that there are fewer and fewer areas that have escaped the botanist's boot.

~ Nicholas M. Hill and J. Sherman Boates

## REFERENCES

- Braun, E.L. 1950. **Deciduous forests of eastern North America.** Blakiston Company, Philadelphia, Penn.
- Catling, Paul M., and Susan Carbyn. 2005. Invasive Scots Pine (*Pinus sylvestris*) replacing *Corema*, *Corema conradii*, heathland in the Annapolis valley, Nova Scotia, Canadian Field-Naturalist 119(2): 237–244.
- Christensen, N.L. 1988. Vegetation of the southeastern coastal plain. In: M.G. Billings and W.D. Billings. **North American Terrestrial Vegetation.** Cambridge University Press, New York.pp. 315–363.
- Clayden, S.R., M.C. Munro, C.S. Blaney and S.P. VanderKloet. 2010. Vascular flora of the Atlantic Maritime Ecozone: some new perspectives. Chapter 10 in: **Assessment of Species Diversity in the AME.** Edited by D.F.McAlpine and I.M. Smith. NRC Research Press, Ottawa, Canada, pp. 197–213.
- Erskine, J. 1976 **In Forest and Field.** The Nova Scotia Museum, Halifax, Nova Scotia.
- Fernald, M.L. 1921. Contributions from the Gray Herbarium of Harvard University. New Series LXVII. Notes on the flora of western Nova Scotia 1921. *Rhodora* 23: 153–171.
- Garbary, D.J., N. M. Hill and A. G. Miller. 2013. Invasion of *Rosa rugosa* into coastal plant communities on Brier Island. Canadian Field Naturalist 127: 319–331
- Halliday, W.E.D. 1937. *A forest classification for Canada.* Bulletin 89. Canada Department of Mines and Resources; Lands, Parks and Resources Branch, Forest Service, Ottawa.
- Hill, N.M. and D.G. Garbary. 2010. Habitat may limit herb migration at the northern edge of the Appalachian deciduous forest. *Botany* 89: 635-645 (doi:10.1139/B11-055).

- Hill, N.M. and C.S. Blaney. 2010. Exotic and invasive vascular plants of the Atlantic Maritime Ecozone. Chapter 10 in: **Assessment of Species Diversity in the AME**. Edited by D.F. McAlpine and I.M. Smith. NRC Research Press, Ottawa, Canada, pp. 197–213
- Hill, N.M. and P.A. Keddy. 1992. Prediction of rarities from habitat variables: coastal plain plants on Nova Scotian lakeshores. *Ecology* 73: 1852–1859
- Jeziorski, A., Yan, N.D., Paterson, A.M., Turner, M.A., Jeffries, D.S., DeSellas, A.M., *et al.* 2008. The widespread threat of calcium decline in fresh waters. *Science* (Washington, D.C.), 322(5906): 1374–1377. doi:10.1126/science.1164949. PMID:19039134.
- Keddy, P.A. 2010. **Wetland Ecology: Principles and Conservation**. Cambridge University Press.
- Landry, M. and L.C. Cwynar. 2005. History of the endangered thread-leaved sundew (*Drosera filiformis*) in southern Nova Scotia. *Canadian Journal Botany* 83: 14–21.
- MacDougall, A.C. 2003. Did Native Americans influence the northward migration of plants during the Holocene? *Journal of Biogeography* 30: 633–647.
- Mersey Tobeatic Research Institute. 2011. Atlantic Coastal Plain Flora in Nova Scotia. Identification and Information Guide.
- Newell, R.E. and R.B. Newell, 1992. COSEWIC status report on New Jersey Rush, *Juncus caesariensis*, in Canada. Committee on the Status of Endangered Wildlife in Canada. 19 pp.
- Roland, Albert E. 1998. Roland's Flora of Nova Scotia. Nimbus Publishing and the Nova Scotia Museum.
- Roland, A.E. 1980 **Geological Background of Nova Scotia**. Nova Scotian Institute of Science, Halifax, NS.
- Roland, A.E. and E.C. Smith 1969. **The Flora of Nova Scotia**. Nova Scotia Museum, Halifax, NS.
- Yorke, A.F., S. Mockford, and R.C. Evans. 2011. Canada Frostweed (*Helianthemum canadense* L. Michx.; Cistaceae) at the northeastern limit of its range: implications for conservation. *Botany* 89: 83–89.

# Pteridophyta

## Key to ferns and allies

- A. Fronds linear, blade not expanded; sporangia embedded in leaf bases, at or below the substrate; submerged or in vernal pools. Isoëtaceae
- aa. Fronds with blades expanded, sporangia not embedded in leaf bases; terrestrial or aquatic emergent. B
  - B. Fronds less than 2cm long, scalelike, with a single unbranched vein; sporangia in terminal cones, or single in blade axils. C
    - C. Stipes and branches jointed, hollow and often rough to touch; fronds reduced and fused to form a sheath, tips free; sporangia in terminal cones. Equisetaceae
    - cc. Stipes and branches not jointed, nor rough; blades opposite or spirally arranged; sporangia various. D
      - D. Sporangia axillary and single, with blades unmodified, or if modified aggregated into cylindrical strobili; spores of one size, less than 50 microns in size; plant greater than 4cm tall. Lycopodiaceae
      - dd. Sporangia in flattened or 4 sided strobili; spores of 2 sizes; clusters of 1–4 megaspores more than 300microns in diameter; microspores too small and numerous to count; less than 4cm tall. Selaginellaceae
  - bb. Fronds exceeding 2cm in length , veins branching, or fronds threadlike and curly; sporangia clustered, but not forming a cone, may cover blade surface. E
    - E. Plants less than 30cm tall; fertile frond on a long stipe; sporangia terminal, in 2 rows or in a comb shape, plants less than 10cm tall. F
      - F. Fronds threadlike, curly, without blades; fertile fronds ending in tiny comblike structures. Schizaeaceae
      - ff. Fronds with expanded blade; fertile fronds ending in a spike, of 2 rows of sporangia. (*Ophioglossum*) Ophioglossaceae in part
    - ee. Plants more than 10cm tall; fronds with expanded blades; fertile fronds not as above. G
      - G. Sporangia borne on specialized stipes but not on blade surfaces. H
        - H. Plants less than 30cm tall; local; fronds divided into sterile and fertile portions; fertile stipes attached near the base of the sterile portion. (*Botrychium*) Ophioglossaceae, in part
        - hh. Plants robust and much taller than 30cm; common; fronds with fertile portion of the sterile frond, or completely separate. Osmundaceae
      - gg. Sporangia borne on blade surface. I

I. Sori elongated, parallel to midrib of pinnae, extending full length of pinnae or chainlike; indusia opening inward.	Blechnaceae
ii. Sori nearly round, many per pinnae; indusia if present opening outward, towards margins.	J
J. Stipes with tiny scales but no hairs; sori marginal or nearly so; indusia cuplike or formed by rolled margins.	Dennstaedtiaceae
jj. Stipes with scales; indusia absent, or if present various, but not cuplike; sori marginal or not, or replaced by inrolled margins.	K
K. Sori elongated along veins, never marginal; indusia long and narrow.	L
L. Scales latticed; sori on one side of veins only.	Aspleniaceae
II. Scales not latticed; sori on both sides of veins, or curved around the end of vein.	Dryopteridaceae
kk. Sori not elongate, sometimes marginal, or sporangia covering surface; indusia absent if sporangia elongated along veins.	M
M. Blades once-pinnate, pinnae nearly entire; indusia absent.	Polypodiaceae
mm. Blades more than once-pinnate; indusia present or absent, or fertile fronds separate.	N
N. Sori with false indusia of rolled margins.	Pteridaceae
nn. Sori never covered with rolled margins.	O
O. Blades or parts pubescent; sori on lower blade surface.	Thelypteridaceae
oo. Blades or parts not pubescent; fertile fronds separate. ( <i>Onoclea</i> , <i>Matteucia</i> ).	Dryopteridaceae, in part

## Conifers

A. Seeds borne singly, in a pulpy fruitlike structure; plants dioecious; needles not aromatic when crushed.	Taxaceae
aa. Seeds in compound cones; leaves aromatic when crushed; plants monoecious.	B
B. Cone scales overlapping, alternate, woody; leaves alternate or in bundles, linear.	Pinaceae
bb. Cone scales and leaves opposite; cones distinct or berrylike; leaves needlelike or scalelike and overlapping.	Cupressaceae

# Angiosperms

## Dicots

### Woody plants (includes shrubs, trees, woody vines and trailing plants)

1. Plants trailing or climbing. 2
  2. Plants merely trailing or twining, not rooting at the nodes or tips; tendrils and prehensile leaf rachises absent. 3
    3. Flowers 2-lipped (*Thymus*). Lamiaceae
    3. Flowers regular (not 2-lipped). 4
      4. Stems trailing or arching, sparsely armed with thorns; an uncommon garden escape (*Lycium*). Solanceae
      4. Stems trailing, unarmed; usually of native habitats. 5
        5. Flowers blue; fruit a follicle; plants having milky juice (*Vinca*). Apocynaceae
        5. Flowers white or pink; fruit a berry or fleshy capsule; plants lacking milky juice (*Vaccinium* in part; *Gaultheria* in part; *Epigaea*). Ericaceae
  2. Plants climbing by means of tendrils or by rooting at the nodes or tip or by prehensile leaf rachises. 6
    6. Vines with tendrils. 7
      7. Stems well armed with prickles; leaves simple, entire; tendrils arising from petioles. Smilacaceae
      7. Stems unarmed; leaves simple or compound, serrate; tendrils arising from the stem. Vitaceae
    6. Vines without tendrils, having roots along the stems or stem tips or climbing by means of a prehensile leaf rachis. 8
      8. Vines climbing by means of a curling leaf rachis (*Clematis*). Ranunculaceae
      8. Vines with stems producing roots. 9
        9. Vines rooting at the branch tips; stems with prickles (*Rubus*, in part). Rosaceae
        9. Vines with roots along the stem; stems not armed with prickles (*Toxicodendron*). Anacardiaceae
1. Plants not trailing or climbing. 2
  2. Plants with alternate leaves. 3
    3. Plants dioecious (stamens and pistils on separate flowers on separate plants). 4
      4. Flowers with corolla absent and calyx minimal or absent; inflorescence a catkin or catkin-like. 5
        5. Trees or shrubs; twigs without resin dots. Salicaceae
        5. Shrubs; twigs dotted with resin. Myricaceae
      4. Flowers with calyx and corolla present; inflorescence not as above. 6
        6. Leaves compound and present at flowering. Anacardiaceae
        6. Leaves simple, or not present at flowering. 7
          7. Lvs 3–8 mm long, present at flowering. Empetraceae
          7. Lvs greater than 8 mm in length, or absent at flowering. 8
            8. If pistillate flowers present. 9
              9. Perianth not differentiated into a calyx and corolla, or lacking. 10

10. Style undivided, bearing one stigma.	Aquifoliaceae
10. Style divided, bearing 2–4 stigmas.	11
11. Lvs unsymmetrical at base.	Ulmaceae
11. Lvs symmetrical at base.	Rhamnaceae
9. Perianth composed of a calyx and corolla, calyx sometimes inconspicuous.	12
12. Inflorescence terminal.	Anacardiaceae
12. Inflorescence axillary.	13
13. Style short with a nearly sessile stigma.	Aquifoliaceae
13. Style not as above.	Rhamnaceae
8. If staminate flowers present:	
14. Inflorescence terminal.	Anacardiaceae
14. Inflorescence axillary.	15
15. Stamens alternate with the sepals.	Rhamnaceae
15. Stamens opposite the sepals.	Aquifoliaceae
3. Plants not dioecious (flowers with both stamens and pistils or flowers unisexual with both staminate and pistillate flowers present on the same plant).	16
16. Fls unisexual (always), small and inconspicuous, usually occurring in catkins or catkin-like arrangements or in densely flowered, spherical heads.	17
17. Male flowers in dense, globose heads.	Fagaceae
17. Male flowers in ellipsoid or cylindric catkins.	18
18. Female fls occurring singly or in small clusters.	19
19. Lvs pinnately compound.	Juglandaceae
19. Lvs simple, sometimes lobed.	Fagaceae
18. Female flowers in catkins, heads or cone-shaped structures.	20
20. Female fls 2 or 3/bract.	Betulaceae
20. Female fls 1/bract.	Myraceae
16. Species (many) with perfect fls or fls individually large and conspicuous; fls not occurring in catkins or dense spherical heads.	21
21. Perianth absent, or in a single series, or calyx and corolla similar.	22
22. Lvs compound.	Araliaceae
22. Lvs simple.	23
23. Number of stamens > number of perianth lobes or parts.	24
24. Lvs glabrous beneath, or undeveloped at anthesis.	Thymelaceae
24. Lvs with silvery scales beneath.	Elaeagnaceae
23. Number of stamens equal to number of perianth parts.	25
25. Fls with one style (branched or unbranched).	26
26. Plants with terminal inflorescences.	Cornaceae
26. Plants with axillary or lateral inflorescences.	27
27. Style with one stigma.	28
28. Leaves without small scales; styles very short.	Aquifoliaceae



28. Leaves bearing small scales; styles long and slender.	Eleagnaceae
27. Styles with 2–4 stigmas.	Rhamnaceae
25. Fls with two styles.	Ulmaceae
21. Perianth consisting of a clearly defined calyx and corolla.	29
29. Ovaries 3–many; stamens > 10.	Rosaceae
29. Ovary 1.	30
30. Corolla irregular.	Ericaceae
30. Corolla regular or nearly so.	31
31. Petals united.	32
32. Number of stamens > number of corolla lobes.	Ericaceae
32. Number of stamens = number of corolla lobes.	33
33. Stamens partially joined to the corolla tube.	Diapensiaceae
33. Stamens not joined to the corolla tube.	34
34. Style very short with stigma nearly sessile.	Aquifoliaceae
34. Style not as above.	Ericaceae
31. Petals separate.	35
35. Ovary inferior or appearing so.	36
36. Number of stamens > number of petals.	37
37. Style one.	Ericaceae
37. Styles 2–5.	Rosaceae
36. Number of stamens = number of petals.	38
38. Petals 4.	39
39. Flowers white.	Cornaceae
39. Flowers yellow.	Hamamelidaceae
38. Petals 5.	40
40. Inflorescences racemes or corymbiform clusters.	Grossulariaceae
40. Inflorescences umbels.	Araliaceae
35. Ovary superior.	41
41. Lvs cylindric, < 1cm long.	Empetraceae
41. Lvs flat with blade >1 cm long.	42
42. Flowers produced in the spring before leafout or in the autumn following leaf fall.	43
43. Sepals, petals and stamens each numbering 4, styles 2.	Hamamelidaceae
43. Sepals and petals each numbering 5.	44
44. Stamens 5, style 3.	Anacardiaceae
44. Stamens > 5, style 1.	Rosaceae
42. Flowers and leaves present simultaneously.	45
45. Stamens > twice as many as petals.	46
46. Flowers yellow.	Cistaceae
46. Flowers white to pink.	47
47. Flower clusters arising from a large bract.	Tilliaceae
47. Flowers clusters not arising from	Rosaceae

a large, conspicuous bract.	
45. Stamens not more than twice as many as petals.	48
48. Lvs compound.	Anacardiaceae
48. Lvs simple.	49
49. Number of stamens > number of petals.	50
50. Flowers yellow.	Cistaceae
50. Flowers white to pink.	51
51. Style exceeding the stamens in length; Inflorescence a dense elongate raceme.	Clethraceae
51. Style shorter than the stamens; inflorescence umbellate or a loose raceme.	Ericaceae
49. Number of stamens = number of petals.	52
52. Styles 2, separate; fls 4-parted, yellow.	Hamamelidaceae
52. Style 1, or 3-lobed, or 3-cleft.	53
53. Fls yellow and 6-parted; stems with spines.	Berberidaceae
53. Fls white to greenish, plants not spiny.	54
54. Stamens opposite the petals.	Rhamnaceae
54. Stamens alternate with the petals.	Aquifoliaceae
2. Plants with opposite lvs.	55
55. Plants flowering before leafout.	56
56. Flowers with both calyx and corolla.	57
57. Fls mostly unisexual, petals separate, stamens usually 8, ovary superior.	Aceraceae
57. Fls perfect, petals fused, stamens 5, ovary inferior.	Caprifoliaceae
56. Perianth a single series or lacking.	58
58. Plants with male or perfect flowers.	59
59. Stamens 2–4.	Oleaceae
59. Stamens 5–10.	60
60. Shrubs; calyx of 4 sepals or 4-lobed, spreading, yellowish.	Eleagnaceae
60. Trees; calyx of 5 sepals or 5-lobed, erect, often red.	Aceraceae
58. Plants with female flowers.	61
61. Flowers with a well-developed hypanthium, the sepals borne	Elaeagnaceae

at its margin and its opening more or less closed by the disk .	
61. Flowers with hypanthium absent.	62
62. Ovary noticeably two-lobed.	Aceraceae
62. Ovary not lobed.	Oleaceae
55. Plants flowering during or after leafout.	63
63. Leaves compound.	64
64. Corolla conspicuously.	Caprifoliaceae
64. Corolla absent.	65
65. Stamens usually 8; ovary with 2 lobes.	Aceraceae
65. Stamens 2–4; ovary not lobed.	Oleaceae
63. Leaves simple.	66
66. Dwarf, parasitic plants (primarily found growing on <i>Picea</i> spp.) with leaves reduced to scales.	Viscaceae
66. Plants not as described above.	67
67. Perianth a single series or with calyx and corolla not differentiated.	68
68. Leaves palmately lobed.	Aceraceae
68. Leaves not lobed, entire.	Elaeagnaceae
67. Perianth consisting of both a calyx and corolla with the calyx sometimes inconspicuous.	69
69. Stamens > corolla lobes or divisions.	70
70. Petals united.	Ericaceae
70. Petal separate.	71
71. Stamens = 10.	72
72. Leaves palmately lobed.	Aceraceae
72. Leaves pinnately lobed or lobes absent.	73
73. Leaves pinnately lobed or unlobed and serrate.	Hydrangeaceae
73. Leaves not lobed and entire.	Lythraceae
71. Stamens > 10.	74
74. Flowers white.	Rosaceae
74. Flowers yellow.	Cistaceae
69. Stamens = corolla lobes or divisions.	75
75. Corolla of separate petals.	76
76. Flowers occurring in terminal heads or cymes.	Cornaceae
76. Flowers axillary or in axillary clusters.	Rhamnaceae
75. Corolla of fused petals.	77
77. Ovary epigynous.	78
78. Flowers many in dense, globose heads; leaves entire.	Rubiaceae
78. Flowers not arranged as above; leaves entire, toothed or lobed.	Caprifoliaceae
77. Ovary hypogynous.	79
79. Corolla bilabiate ( <i>Thymus</i> ).	Lamiaceae
79. Corolla regular.	80
80. Stamens 2; corolla lobes 4.	Oleaceae
80. Stamens 4; corolla lobes 4 or 5.	Diapensia

## Herbs (Dicots) with alternate leaves

1. Leaves compound.	2
2. Flowers unisexual.	3
3. Leaves palmately compound.	4
4. Flowers umbellate ( <i>Sanicula</i> ).	Apiaceae
4. Flowers in spikes or panicles.	5
5. Perianth obvious; stamens many; pistils > 1 ( <i>Clematis</i> ).	Ranunculaceae
5. Perianth very small; stamens 5; pistil 1 ( <i>Cannabis</i> ).	Cannabaceae
3. Leaves pinnately compound.	6
6. Flowers umbellate.	Araliaceae
6. Flowers not umbellate.	7
7. Flowers in globose heads or short spikes.	Rosaceae, in part
7. Flowers solitary or in panicles.	Ranunculaceae, in part
2. Flowers perfect.	8
8. Perianth absent.	Ranunculaceae
8. Perianth present.	9
9. Perianth members in a single whorl.	10
10. Ovary inferior.	Rosaceae
10. Ovary superior.	11
11. Number of ovaries > 1 per flower.	12
12. Leaves stipulate.	Rosaceae
12. Leaves exstipulate.	Ranunculaceae
11. Number of ovaries = 1 per flower.	13
13. Stamens > twice as many as corolla lobes or divisions.	14
14. Perianth small, not brightly colored.	Ranunculaceae
14. Perianth conspicuous and colorful.	Papaveraceae
13. Stamens = corolla lobes or divisions, or sometimes > corolla lobes or divisions but never > 2x the corolla lobes or divisions	15
15. Stamens > corolla lobes.	Fabaceae
15. Stamens = number of corolla lobes.	Rosaceae
9. Perianth with both calyx and corolla present.	16
16. Flowers with 2 or more ovaries.	17
17. Hypanthium absent	Ranunculaceae
17. Hypanthium present.	Rosaceae
16. Flowers with 1 ovary.	18
18. Flowers epigynous.	19
19. Flowers occurring in long, interrupted, spike-like racemes ( <i>Agrimonia</i> ).	Rosaceae

19. Flowers occurring in umbels.	20
20. Styles 5 ( <i>Aralia</i> ).	Araliaceae
20. Styles 2 or 3.	Apiaceae
18. Flowers hypogynous.	21
21. Flowers irregular.	22
22. Calyx composed of 2 separate sepals.	Fumariaceae
22. Calyx composed of 4 or more sepals which are often united.	23
23. Stamens enclosed by the lowermost 2 petals which are connate along their lower margins.	Fabaceae
23. Stamens not enclosed; petals separate.	Geraniaceae
21. Flowers regular.	24
24. Number of stamens > number of petals or corolla lobes.	25
25. Stamens > twice as many as petals ( <i>Actaea</i> ).	Ranunculaceae
25. Stamens = twice as many as petals.	26
26. Petals 3.	Limnanthaceae
26. Petals 4 or more.	Oxalidaceae
24. Number of stamens = number of petals.	27
27 Corolla polypetalous.	Violaceae
27. Corolla sympetalous.	28
28. Corolla rotate. ( <i>Solanum</i> ).	Solanaceae
28. Corolla funnelform or salverform ( <i>Menyanthes</i> ).	Menyanthaceae
1. Leaves simple or dissected (divided into linear segments).	29
29. Flowers unisexual.	30
30. Plants climbing.	Cucurbitaceae
30. Plants not climbing or vining.	31
31. Flowers with petals and sepals absent or with sepals only.	32
32. Flowers in small clusters in leaf axils.	33
33. Pistillate flowers.	34
34. Sepals and bracts scarious.	Amaranthaceae
34. Sepals (if present) and bracts herbaceous ( <i>Atriplex</i> , <i>Chenopodium</i> ).	Chenopodiaceae
33. Staminate flowers.	35
35. Flowers or flower clusters subtended by bracts.	Amaranthaceae
35. Flowers or flower clusters without bracts ( <i>Atriplex</i> ).	Chenopodiaceae,
	in part
32. Flowers in terminal clusters above the leaves.	36
36. Perianth with 6 divisions in two series. ( <i>Rumex</i> ).	Polygonaceae
36. Perianth divisions 5 or less, or perianth absent.	37
37. Sepals sharply pointed and scarious, occurring with acute, scarious bracts.	Amaranthaceae
37. Sepals lacking one or more of the above features.	38
38. Plants with pistillate flowers or fruit.	39
39. Ovary with 3 compartments (locules); fruit a capsule with same number of compartments and	Euphorbiaceae

with 3 or 6 seeds.	
39. Ovary with one compartment; fruit one-seeded.	Chenopodiaceae
38. Plants with staminate flowers.	40
40. Sepals $\pm$ united.	Euphorbiaceae
40. Sepals separate.	Chenopodiaceae
31. Flowers with both calyx and corolla.	41
41. Leaves sessile or nearly so ( <i>Sedum</i> ).	Crassulaceae
41. Leaves distinctly petiolate ( <i>Rubus</i> , <i>Dalibarda</i> ).	Rosaceae
29. Flowers with functional stamens and pistils.	42
42. Sepals and/or petals absent or ephemeral.	43
43. Flowers epigynous.	44
44. Stamens and perianth divisions 5.	Santalaceae
44. Stamens = 4; perianth with 3 or 4 divisions.	45
45. Leaves with prominent stipules. ( <i>Alchemilla</i> ).	Rosaceae, in part
45. Leaves exstipulate.	46
46. Stamens 3; perianth divisions 3 ( <i>Proserpinaca</i> ).	Haloragaceae
46. Stamens 4; perianth divisions 4.	47
47. Style 1; leaves lanceolate or linear, margins essentially without teeth ( <i>Ludwigia</i> ).	Onagraceae
47. Styles 2; leaves oval to round; margins with rounded teeth ( <i>Chrysosplenium</i> ).	Saxifragaceae
43. Flowers hypogynous.	49
48. Ovaries > 1 per flower (sometimes partially united).	49
49. Leaves with prominent stipules ( <i>Alchemilla</i> ).	Rosaceae
49. Leaves exstipulate.	Ranunculaceae
48. Ovary 1 per flower.	50
50. Flowers lacking both calyx and corolla; leaves dissected; aquatic plants of rapidly flowing water ( <i>Podostemum</i> ).	Podostemaceae
50 Plants not as above.	51
51. Stamens > twice as many as perianth divisions or lobes.	52
52. Leaves entire.	Nymphaeaceae
52. Leaves lobed.	Papaveraceae
51. Stamens = twice as many as perianth divisions or lobes.	53
53. Styles = 2.	54
54. Leaves scale-like; plants succulent, occurring in salt marshes ( <i>Salicornia</i> ).	Chenopodiaceae
54. Leaves not scale-like; plants not as above.	55
55. Stipules sheathing the stem.	Polygonaceae
55. Stipules absent.	56
56. Stamens = number of tepals.	Chenopodiaceae
56. Stamens > number of tepals ( <i>Chrysosplenium</i> ).	Saxifragaceae
53. Styles = 1.	57
57. Stamens > divisions of perianth.	58
58. Plants lacking chlorophyll; leaves scale-like ( <i>Monotropa</i> ).	Monotropaceae
58. Plants with green foliage.	59

59. Perianth 5-merous ( <i>Helianthemum</i> ).	Cistaceae
59. Perianth 3- or 4-merous.	60
60. Perianth divisions 3 (cleistogamous flowers of <i>Helianthemum</i> ).	Cistaceae
60. Perianth 4-merous.	Fumariaceae
57. Stamens = parts of the perianth.	61
61. Perianth 6- or 8-merous; stamens 6 or 8.	Berberidaceae
61. Perianth 4- or 5-merous; stamens = 5.	62
62. Stamens 4 or 5 (= to number of sepals).	63
63. Leaves not lobed.	Santalaceae
63. Leaves lobed ( <i>Alchemilla</i> ).	Rosaceae
62. Stamens 1–3 (< number of sepals).	64
64. Leaves lobed; flowers in terminal heads.( <i>Alchemilla</i> ).	Rosaceae
64. Leaves mostly not lobed; flowers not as above.	Violaceae
42. Sepals and petals both present.	65
65. Flowers with number of ovaries = 2.	66
66. Style 1, sometimes branched.	67
67. Ovaries = 5; petals separate or nearly so; stamens many.	Malvaceae
67. Ovaries = 4; petals connate; stamens 2–5.	Boraginaceae
66. Styles equal to number of ovaries.	68
68. Sepals = 3; petals = 3.	69
69. Aquatic plants with floating leaves ( <i>Brasenia</i> ).	Cabombaceae
69. Terrestrial plants; leaves deeply pinnately lobed ( <i>Floerkea</i> ).	Limnanthaceae
68. Sepals or petals >3.	70
70. Leaves succulent.	Crassulaceae
70. Leaves not succulent.	71
71. Flowers lacking a hypanthium; sepals separate to their base.	Ranunculaceae
71. Flowers with a hypanthium, sepals and petals occurring along its margin.	72
72. Pistils = petals.	Rosaceae
72. Pistils < petals.	Saxifragaceae
65. Flowers with a single ovary.	73
73. Flowers epigynous.	74
74. Stamens > petals.	75
75. Style 1.	76
76. Terrestrial plants; corolla conspicuous.	Onagraceae

76. Aquatic or mud-loving plants; corolla very small ( <i>Myriophyllum</i> ).	Haloragaceae
75. Styles = 2.	77
77. Styles 2.	Saxifragaceae
77. Styles > 2.	Portulacaceae
74. Stamens = petals (or corolla lobes).	78
78. Petals distinct, not joined.	79
79. Petals and stamens 2 ( <i>Circaea</i> ).	Onagraceae
79. Petals and stamens 4 or 5.	80
80. Petals 4 ( <i>Myriophyllum</i> ).	Haloragaceae
80. Petals 5.	81
81. Flowers in panicles or cymes.	Saxifragaceae
81. Flowers occurring in umbels.	Apiaceae
78. Petals connate.	82
82. Corolla irregular ( <i>Lobelia</i> ).	Campanulaceae
82. Corolla regular.	83
83. Corolla 2-3 mm wide ( <i>Samolus</i> ).	Primulaceae
83. Corolla generally much larger than 3 mm.	Campanulaceae
73. Flowers hypogynous.	84
84. Stamens > petals or corolla divisions.	85
85. Flowers irregular.	86
86. All or some of the sepals petal-like in size, color or consistency, or modified to form a spur.	87
87. Spur absent; leaves entire.	Polygalaceae
87. Spur present; leaves with marginal teeth.	Balsaminaceae
86. Sepals not petal-like; usually green.	88
88. Lower 2 petals joined along their lower margin, enclosing the stamens.	Fabaceae
88. Lower 2 petals not joined, not enclosing the stamens.	89
89. Lower petals smaller than the upper.	Resedaceae
89. Lower petals larger than the upper.	90
90. Styles 2 ( <i>Saxifraga</i> ).	Saxifragaceae
90. Style 1 ( <i>Geranium</i> ).	Geraniaceae
85. Flowers regular.	91
91. Leaves reduced to scales; plants lacking chlorophyll.	Monotropaceae
91. Leaves not reduced to scales; plants green.	92
92. Sepals 2.	93
93. Leaves entire and fleshy ( <i>Portulaca</i> ).	Portulacaceae
93. Leaves serrate or lobed; not fleshy.	Papaveraceae
92. Sepals = 3.	94
94. Stamens > 2x the number of petals.	95
95. Style 1.	Cistaceae
95. Style 2-several.	Malvaceae
94. Stamens = 2x the number of petals.	96
96. Stamens > the number of petals but <2x the number of petals.	97
97. Sepals 4; petals 4.	Brassicaceae



97. Sepals 5; petals 3 ( <i>Lechea</i> ).	Cistaceae
96. Stamens = 2x the number of petals.	98
98. Style 1.	99
99. Sepals similar in size and shape.	Pyrolaceae
99. Sepals not all of the same width or size, sometimes fused in pairs.	Cistaceae
98. Styles = 2.	100
100. Styles 2.	Saxifragaceae
100. Styles 4 or 5.	Crassulaceae
84. Stamens = petals or corolla divisions.	101
101. Flowers with separate petals.	102
102. Leaves dissected.	Geraniaceae
102. Leaves simple to lobed.	103
103. Leaves palmately lobed.	Saxifragaceae
103. Leaves entire, toothed or pinnately lobed.	104
104. Styles 4 or 5.	Linaceae
104. Styles = 1.	105
105. Flowers irregular.	Violaceae
105. Flowers regular.	106
106. Petals and sepals each numbering 4 ( <i>Coronopus, Lepidium</i> ).	Brassicaceae
106. petals and sepals each numbering 5.	107
107. Lvs pinnately lobed. ( <i>Erodium</i> ).	Geraniaceae
107. Leaves not lobed, entire or serrate ( <i>Parnassia</i> ).	Saxifragaceae
101. Flowers gamopetalous.	108
108. Flowers regular; stamens = corolla lobes.	109
109. Twining parasitic herbs with leaves reduced to scales.	Cuscutaceae
109. Plants not as described above.	110
110. Stamens opposite corolla lobes.	Primulaceae (in part)
110. Stamens alternate to the corolla lobes.	111
111. Ovary conspicuously 4-lobed.	Boraginaceae
111. Ovary not obviously lobed.	112
112. Ovary consisting of one locule; leaves scale-like ( <i>Bartonia</i> ).	Gentianaceae
112. Ovary with 2-4 locules.	113
113. Ovary with 3 locules.	114
114. Plants twining.	Convolvulaceae
114. Plants not twining.	115
115. Stamens arising from the corolla tube.	Polemonaceae
115. Stamens occurring at the sinuses between the corolla lobes.	Diapensiaceae
113. Ovary with 2 or 4 locules.	116
116. Fruit a berry.	Solanaceae

116. Fruit a capsule.	117
117. Capsule with 4 seeds.	Convolvulaceae
117. Capsule many-seeded.	118
118. Corolla saucer-shaped; flowers occurring in a congested, spike-like inflorescence ( <i>Verbascum</i> ).	Scrophulariaceae
118. Corolla funnelform.	Solanaceae
108. Flowers irregular or stamens < corolla lobes.	119
119. Functional stamens 5.	120
120. Ovary strongly 4-lobed ( <i>Echium, Anchusa</i> ).	Boraginaceae
120. Ovary not lobed.	121
121. Corolla saucer-shaped ( <i>Verbascum</i> ).	Scrophulariaceae
121. Corolla funnelform ( <i>Hyoscyamus</i> ).	Solanaceae
119. Functional stamens 2 or 4 (sterile stamens may also be present).	122
122. Corolla with spur at its base.	123
123. Calyx deeply 5-lobed.	Scrophulariaceae
123. Calyx 2-parted ( <i>Utricularia</i> ).	Lentibulariaceae
122. Corolla lacking a spur.	124
124. Plants lacking chlorophyll; leaves reduced to scales.	Orobanchaceae
124. Plants green; leaves not scale-like; stamens 2 or 4.	Scrophulariaceae

## Herbs (dicots) with opposite or whorled leaves

1. Leaves compound.	2
2. Flowers unisexual.	3
3. Leaves palmately compound.	4
4. Inflorescence an umbellate ( <i>Panax</i> ).	Araliaceae (in part)
4. Inflorescence a spike or panicle ( <i>Cannabis</i> ).	Cannabaceae
3. Leaves pinnately compound.	5
5. Stamens many; pistils > 1 ( <i>Clematis</i> ).	Ranunculaceae, in part
5. Stamens 3; pistil = 1.	Valerianaceae
2. Flowers having both functional stamens and pistils.	6
6. Flowers with sepals (often petaloid), petals absent ( <i>Anemone</i> , <i>Clematis</i> ).	Ranunculaceae
6. Flowers with sepals and petals.	Geraniaceae
1. Leaves simple or dissected (divided into linear segments).	7
7. Flowers or fruit in dense heads subtended by a set of bracts (involucre).	8
8. Flowers with stamens absent or present, with connate anthers.	Asteraceae
8. Flowers with stamens present; anthers not connate.	9
9. Leaves whorled.	10

10. Flower heads subtended by 4 large petaloid bracts; mature fruit red ( <i>Cornus</i> ).	Cornaceae
10. Flowers heads not subtended by large petal-like bracts; fruit not red at maturity.	Euphorbiaceae
9. Leaves opposite.	11
11. Plants lactiferous.	Euphorbiaceae
11. Plants not lactiferous.	12
12. Ovary 4-lobed.	Lamiaceae
12. Ovary not 4-lobed.	Dipsaceae
7. Flowers or fruits not arranged as above.	13
13. Leaves whorled.	14
14. Stem with 1 whorl of leaves.	15
15. Stamens obvious, distinct and separate, not fused to the style; fruit < 1 cm long ( <i>Trientalis</i> ).	Primulaceae
15. Stamens hidden within the floral parts, connate and fused to the style; fruit >1 cm long ( <i>Asclepias</i> ).	Asclepiadaceae
14. Stems with 2 or more whorls of leaves.	16
16 Leaves dichotomously dissected (leaf segments linear).	Ceratophyllaceae
16. Leaves not dichotomously dissected.	17
17. Perianth lacking; aquatic plants of freshwater or brackish habitats ( <i>Hippuris</i> ).	Hippuridaceae
17. Perianth present; terrestrial or wetland plants.	18
18. Flower irregular.	19
19. Calyx with one of the sepals petaloid, saccate and bearing a short spur ( <i>Impatiens</i> ).	Balsamineaceae
19. Calyx spurless ( <i>Veronica</i> ).	Scrophulariaceae
18. Flower regular.	20
20. Corolla 3 or 4-parted, with united petals.	Rubiaceae
20. Corolla = 5-parted, or 3–4-parted and petals separate, or petals absent and sepals 5.	21
21. Flowers gamopetalous.	22
22. Stamens hidden; plants lactiferous.	Asclepiadaceae
22. Stamens obvious; plant not lactiferous ( <i>Lysimachia</i> ).	Primulaceae
21. Corolla with separate petals or with sepals only present, petals lacking.	23
23. Flowers with perianth of 5 sepals ( petals absent) ( <i>Mollugo</i> ).	Molluginaceae
23. Flowers with both calyx and corolla.	24
24.Sepals and petals attached to rim of perianth tube.	Lythraceae
24. Sepals and petals not attached to rim of perianth tube.	Caryophyllaceae
13. Leaves opposite.	25
25. Leaves toothed or lobed.	26
26. Corolla present.	27

27. Flowers spurred.	28
28. Sepals 3, petaloid, one with a spur ( <i>Impatiens</i> ).	Balsaminaceae
28. Sepals 5, not petaloid, spur absent.	Scrophulariaceae
27. Flowers spurless.	29
29. Corolla with joined petals.	30
30. Flowers epigynous.	Valeriaceae
30. Flowers hypogynous.	31
31. Ovary 4-lobed; stems usually 4-sided (square)	32
32. Flowers arranged in a spike or raceme; pedicels <1mm; calyx <5 mm ( <i>Verbena</i> ).	Verbenaceae
32. Flowers not arranged as above or if so, pedicels > 1mm or calyx > 5mm.	Lamiaceae
31. Ovary lobes = 2.	Scrophulariaceae
29. Corolla with separate petals.	33
33. Ovary enclosed within a hypanthium; petals 2 or 4.	34
34. Anthers with terminal pores.	Melastomataceae
34. Anthers not releasing pollen through terminal pores.	Onagraceae
33. Ovary superior, not surrounded by a hypanthium; petals generally = 5.	35
35. Leaves < 1 cm long, fringed with hairs ( <i>Saxifraga oppositifolia</i> ).	Saxifragaceae
35. Leaves > 1 cm in length, leaves without a marginal fringe.	36
36. Stamens = 10; leaves lobed.	37
37. Flower 1; leaves 2 ( <i>Podophyllum</i> ).	Berberidaceae
37. Flowers = 2; leaves > 2 ( <i>Geranium</i> ).	Geraniaceae
36. Stamens < 10; leaves without lobes ( <i>Sedum</i> ).	Crassulaceae
26. Corolla absent.	38
38. Flowers terminal, solitary or in few-flowered cymes ( <i>Chrysosplenium</i> ).	Saxifragaceae
38. Flowers in axillary inflorescences; if terminal, not solitary or in cymes.	39
39. Flowers imperfect; individual pistillate flowers enclosed by 2 broad bracts ( <i>Atriplex</i> ).	Chenopodiaceae
39. Flowers imperfect; individual pistillate flowers not enclosed by 2 bracts.	Urticaceae
25. Leaves entire.	40
40. Corolla gamopetalous.	41
41. Corolla obviously irregular.	42
42. Ovary 4-parted or lobed.	Lamiaceae
42. Ovary not as above.	43
43. Flowers epigynous ( <i>Triosteum</i> ).	Caprifoliaceae
43. Flowers hypogynous.	Scrophulariaceae
41. Corolla regular or only slightly irregular.	44
44. Plants lactiferous.	45
45. Flowers in umbels ( <i>Asclepias</i> ).	Asclepiadaceae

45. Inflorescence not umbellate.	Apocynaceae	
44. Plants not lactiferous.		46
46. Corolla with 4 lobes.		47
47. Ovary inferior.	Rubiaceae	
47. Ovary superior.		48
48. Stamens 2 ( <i>Veronica</i> ).	Scrophulariaceae	
48. Stamens = 4.		49
49. Leaves linear, = 1 cm long, = 3 mm wide ( <i>Plantago psyllium</i> ).	Plantaginaceae	
49. Leaves not linear, or < 1 cm long or > 3 mm wide.	Gentianeaceae	
46. Corolla with 5 lobes.		50
50. Stamens 2 or 4.		51
51. Ovary 4-lobed.	Lamiaceae	
51. Ovary without lobes.	Scrophulariaceae	
50. Stamens 5.		52
52. Flowers with 2 ovaries, 1 style ( <i>Vinca</i> ).	Apocynaceae	
52. Flowers with 1 ovary.		53
53. Stigmas 3, corolla pink or white, salverform.	Polemoniaceae	
53. Stigmas < 3, corolla not as above both in color and in shape.		54
54. Ovary with 1 compartment.	Primulaceae	
54. Ovary with 2 compartments (partition may not be complete).	Gentianeaceae	
40. Corolla of separate petals or just united at the base or absent.		55
55. Corolla present.		56
56. Petals = 4.		57
57. Sepals 2.		58
58. Leaves > 4 mm long ( <i>Montia fontana</i> ).	Portulacaceae	
58. Leaves mostly = 4 mm ( <i>Elatine minima</i> ).	Elatinaceae	
57. Sepals = 3.		59
59. Flower hypogynous; ovary not enveloped by a hypanthium.		60
60. Flowers solitary; petals green or white.		???
60. Flowers in clusters (cymes or panicles); petals yellow, white or reddish.		61
61. Petals 3, sepals 5 ( <i>Lechea</i> ).	Cistaceae	
61. Perianth 4–5-merous.		62
62. Corolla yellow; sepals unequal; stamens many.	Clusiaceae	
62. Corolla white; sepals uniform; stamens 4. ( <i>Radiola</i> ).	Linaceae	
63. Stamens 8; pollen released through terminal pores in the anthers ( <i>Rhexia</i> ).	Melastomataceae	
63. Stamens 4 or 8; anthers lacking terminal pores.	Onagraceae	
56. Petals = 5.		64

64. Petals and sepals arising from the rim of a hypanthium.	Lythraceae
64. Petals and sepals arising at the base of the ovary; hypanthium lacking.	
65. Calyx 2-merous.	Portulacaceae
65. Calyx 4–5-merous.	66
66. Leaves fleshy; carpels partially separated ( <i>Sedum</i> ).	Crassulaceae
66. Leaves not fleshy (although leathery in ( <i>Saxifraga oppositifolia</i> ); carpels united their full length.	67
67. Leaves fringed with hairs; petals purple ( <i>Saxifraga oppositifolia</i> ).	Saxifragaceae
67. Leaves without marginal hairs; petals not purple.	68
68. Corolla yellow.	Clusiaceae
68. Corolla various colours but not yellow.	69
69. Ovary 1-locular.	Caryophyllaceae
69. Ovary with 4 or more locules.	Linaceae
55. Corolla absent.	70
70. Plants producing a milky sap.	Euphorbiaceae
70. Plants not producing a milky sap.	71
71. Calyx imitating a corolla is appearance ( <i>Glaux maritima</i> ).	Primulaceae
71. Calyx green, not imitating a corolla is appearance.	72
72. Flowers solitary, axillary.	73
73. Sepals 5 ( <i>Sagina</i> ).	Caryophyllaceae
73. Sepals 4 or absent.	74
74. Sepals absent ( <i>Callitriche</i> ).	Callitrichaceae
74. Sepals present.	75
75. Leaves linear, < 3mm wide ( <i>Sagina</i> ).	Caryophyllaceae
75. Leaves not linear, width = 3mm.	76
76. Flowers with a 4-sided hypanthium, lacking a floral disc; ovary 4-locular ( <i>Ludwigia</i> ).	Onagraceae
76. Flowers lacking a hypanthium, having an 8-lobed disc; ovary 2-locular ( <i>Chrysosplenium americana</i> ).	Saxifragaceae
72. Flowers in terminal clusters (inflorescences).	77
77. Plants succulent; leaves reduced to scales ( <i>Salicornia</i> ).	Chenopodiaceae
77. Plants not modified as above.	Caryophyllaceae

## Herbs (dicots) with basal leaves only (cauline leaves absent)

1. Flowers imperfect.	2
2. Inflorescence of many small flowers sharing a common receptacle.	Asteraceae
2. Inflorescence of multiple small flowers not on a common receptacle.	3
3. Inflorescence a spike.	Plantaginaceae
3. Inflorescence an open panicle ( <i>Rumex</i> ).	Polygonaceae
1. Flowers perfect.	4
4. Leaves hollow, pitcher-shaped (modified for trapping insects).	Sarraceniaceae
4. Plants generally not as above, if insectivorous, leaves flat, not hollow.	5
5. Stamens usually 2x as many as petals.	Saxifragaceae
5. Stamens = petals.	6
6. Flowers gamopetalous.	7
7. Stamens < petals.	8
8. Flowers irregular ( <i>Pinguicula</i> ).	Lentibulariaceae
8. Flowers regular ( <i>Limosella</i> ).	Scrophulariaceae
7. Stamens = petals.	9
9. Flowers 4-merous; corolla not petaloid, dry and papery.	Plantaginaceae
9. Flowers 5-merous; corolla petaloid.	10
10. Style 1.	Primulaceae
10. Styles usually 5.	Plumbaginaceae
6. Flowers not gamopetalous, petals distinct.	11
11. Leaves with stalked, sticky glands; plants insectivorous.	Droseraceae
11. Leaves without sticky glands, plants not insectivorous.	Violaceae
12. Leaves lobed.	Violaceae
12. Leaves entire, serrate or with undulate margins.	13
13. Flowers irregular.	Violaceae
13. Flowers regular ( <i>Parnassia</i> ).	Saxifragaceae

## Monocots

1. Plants small, thalloid (not differentiated into leaves and stems); floating or sometimes stranded on shore; flowers unisexual and occurring within reproductive pouches borne on the thallus.	Lemnaceae
1. Plants not thalloid - plant body differentiated into stem and leaves.	2
2. Perianth absent or, if present, never petal-like in color or texture.	3
3. Flowers occurring in the axils of scales and usually hidden by them; perianth absent or presenting as bristles or small scales; flowers occurring in spikes, spikelets or heads.	4
4. Plants with basal leaves only; scapes bearing a single, terminal buttonlike head.	Eriocaulaceae
4. Plants either with cauline leaves, or with sheathing scales only or with more than 1 spike, spikelet of flower head per stem.	5

5. Leaves 2-ranked; leaf sheaths split lengthwise on side opposite the blade (open sheath); stems rounded or flat, internodes usually hollow.	Poaceae
5. Leaves usually 3-ranked; leaf sheaths not split lengthwise (closed sheath); stems often triangular in cross-section, internodes with pith, not hollow.	Cyperaceae
3. Flowers not in the axils of bracts, or, if so, then not concealed by the bracts.	6
6. Plants aquatic; leaves submerged or floating; flowers submerged, or floating or raised slightly above the water surface.	7
7. Flowers inconspicuous, axillary and solitary or in small clusters.	8
8. Leaves alternate (the uppermost sometime opposite).	9
9. Freshwater plants (occasionally occurring in brackish conditions); flowers 4-merous.	Potamogetonaceae
9. Plants of saline or brackish habitats; perianth absent; stamen 1 or 2; ovaries 1–4.	10
10. Leaves 0.5 mm wide; flowers perfect; fruit exert.	Ruppiaceae
10. Leaves 3–10 mm wide; flowers unisexual; fruit not exert.	Zosteraceae
8. Leaves opposite.	11
11. Ovary 1, 2–4 stigmas; fruit 1; leaves 1–2 cm long.	Najadaceae
11. Ovaries 4, each with 1 stigma; Fruits 2–4; Leaves 3–10 cm long.	Zannichelliaceae
7. Flowers in spikes or heads.	12
12. Flowers perfect; the inflorescences all similar.	Potamogetonaceae
12. Flowers unisexual in dense spherical heads, the pistillate heads below the staminate.	Sparganiaceae
6. Terrestrial or shallow water plants; leaves and flowers emersed.	13
13. Flowers occurring in a crowded spike (spadix) subtended by a single, large, often colourful bract (spathe); leaves not grasslike.	Araceae
13. Inflorescence not subtended by a single, large colorful bract; leaves narrow, ribbon- or grass-like.	14
14. Flowers arranged in a dense spike.	15
15. Spike terminal on stem.	16
16. Flowers perfect; spike uniform from top to bottom.	Juncaginaceae
16. Flowers unisexual; spike with pistillate flowers below and staminate flowers above.	Typhaceae
15. Spike appearing laterally on the stem.	Acoraceae
14. Flowers not arranged as above.	17
17. Flowers unisexual; inflorescence with pistillate heads below and staminate heads above.	Cyperaceae
17. Flowers perfect; flowers all similar.	Juncaceae



2. Perianth always present with the inner series and sometimes the outer series petaloid.	18
18. Flowers unisexual.	19
19. Perianth of 3 green sepals and 3 white or pink petals; stamens =6.	Alismataceae
19. All perianth parts similar.	20
20. Plants aquatic; stamens (2)3–12.	Hydrocharitaceae
20. Plants terrestrial; stamens 3–6.	21
21. Leaves ovate to suborbicular, net-veined; climbing plants with tendrils.	Smilacaceae
21. Leaves mostly narrow with venation parallel; plants not climbing, lacking tendrils.	Liliaceae
18. Flowers perfect.	22
22. Flowers hypogynous.	23
23. Flowers with > 1 ovary.	24
24. Pistils 3; both basal and alternate leaves present.	Scheuchzeriaceae
24. Pistils > 3; leaves all basal.	25
25. Perianth of 3 sepals (green) and 3 petals (white or pink); flowers in panicles; fruit an achene.	Alismataceae
25. Perianth of 6 tepals (pink); Inflorescence umbellate; fruit a follicle.	Butomaceae
23. Flowers with 1 ovary.	26
26. Flowers irregular.	Pontederiaceae
26. Flowers regular.	27
27. Flowers with a distinct calyx and corolla.	28
28. Stamens usually 3.	Xyridaceae
28. Stamens 6 ( <i>Trillium</i> ).	Liliaceae
27. Flowers with perianth divisions all similar.	29
29. Inflorescence and perianth white-woolly.	Haemodoraceae
29. In florescence and perianth not white-woolly.	Liliaceae
22. Flowers epigynous.	30
30. Aquatic plants; leaves underwater or floating.	Hydrocharitaceae
30. Plants of dry land, marshes or bogs.	31
31. Inflorescence white-woolly.	Haemodoraceae
31. Inflorescence not woolly.	32
32. Flowers regular.	33
33. Stamens 3.	Iridaceae
33. Stamens 5 or 6.	Liliaceae
32. Flowers irregular.	Orchidaceae

## Glossary

abscission – the act of shedding leaves, flowers or other plant parts at the point of formation of a narrow zone of thin-walled cells

abortive – failing to complete development

acaulescent – without a stem or apparently so

achene – a small dry indehiscent one-seeded fruit; a thin wall surrounds the seed

acorn – the fruit of an oak tree

acrid – harsh or sharp, somewhat corrosive

actinomorphic – radially symmetrical

acuminate – usually applied to the description of a leaf tip: tapering or narrowing to a slender tip

acute – having a sharp tip

adnate – the joining of different (unlike) plant parts

adventive – an introduced species that is not well established

aggregate fruit – a fruit resulting from the fusion of ovaries that were separate during flowering

albino – without pigmentation

alluvial – pertaining to material deposited by flowing water such as rivers, streams, etc.

ament – see catkin

annual – a plant that lives only one growing season, sprouting the following year from seed

anther – the pollen producing part of a stamen

anthesis – the flowering period of a species

antrorsely – pointing forward or upwards as in the barbs on the floral bristles of *Rhynchospora fusca*

apetalous – without petals

apomictic – to reproduce by apomixis

apomixis – non- sexual reproduction

appendage – a naturally occurring projection from any part of a plant

appressed – pressed closely to a plant part as for example, hairs on a stem or a leaf

arboriform – with the shape of a tree

arctic-alpine – a floral element or grouping of plants generally found only in alpine and/or arctic habitats

arcuate – arching

areole – a small defined area such as those on leaves enclosed by anastomosing veins

aril – an often brightly colored, fleshy, seed covering developing from the ovule stalk, e.g. Yew (*Taxus canadensis*)

aristate – having a bristle-like awn

armature – a protective structure such as thorns, prickles, etc.

attenuate – narrowing to a slender point

auricle – a lobe (often ear-shaped)

autogamous – capable of self-fertilization

awl-shaped – having the shape of an awl (tapering from the base to a slender point)

awn – a bristle-like tip

axil – the angle (upper) formed where a leaf or branch attaches to the stem.

axillary – occurring in an axil

baccate – fruit a berry (or berrylike)

barb – a sharp projection

basal – occurring at the base of a plant as for example, basal leaves

berry – a fleshy fruit with several to many seeds

biennial – a plant that only lives for two years or seasons

bifurcate – split into two branches or parts (two-pronged)

bilabiate – two-lipped

bilaterally symmetrical – generally applied to flowers which can only be divided along one plane to obtain mirror images

bilocular – with two locules

biseriate – arranged in two rows or two whorls

bisexual – with both sexes present in the same flower

bract – a small scalelike leaf; flowers are often subtended by bracts

bracteate – having bracts

bracteole – a small bract

bristle – a stiff hair

bulbiferous – bearing bulbils

bulbil – a small bulb sometimes occurring in leaf axils or inflorescences of some plants

bulbous – bearing bulbs or resembling bulbs

burr – a rough, prickly seed covering

calciphile – a plant that thrives on calcium-rich soil

callus – in grasses, the firm thickening at the base of the lemma

calyx – a collective term for all of the sepals on a single flower

campanulate – shaped like a bell as for example, a campanulate flower

canescent – having a grayish or whitish pubescence

capitate – headed

capsule – a type of dry fruit, splitting open when ripe and composed of more than one carpel

carpel – a modified leaf of an angiosperm which bears ovules; a pistil consists of one or more carpels

caryopsis – an often small dry fruit with the single seed contained within fused to its wall

catkin – a cylindrical inflorescence of small non-showy flowers; flowers either all staminate or all pistillate, usually wind-pollinated; also called aments

caudex – a short vertical persistent stem located at or just below the soil surface from which new shoots appear each year as for example in perennials

caulescent – having a leafy stem

cauline – pertaining to the stem

cespitose – forming dense clumps

chaff (chaffy) – small thin dry scales; the flower heads of some members of the Asteraeae are described as being chaffy or having chaff

ciliate – having marginal hairs

circinnate – coiled with the tip at the center e.g., unfurled fern fronds

circumscissile – dehiscing or splitting in a horizontal line as around a capsule which results in the upper part coming off like a lid

clasping – to encircle partly or completely as a leaf encircling a stem at its base

clavate – shaped like a club

claw – the abruptly narrowed base of petals, sepals or tepals in some flowers

cleft – split or divided approximately halfway to a midrib or the base

cleistogamous – [a plant that produces ]self-fertilizing flowers that never open

colonial crown in botany

– forming colonies

colony – a group of plants connected by rhizomes, roots or stolons

column – a group of united filaments; in the Orchidaceae, the structure formed by the united filaments and style

coma – a tuft of hairs as found on some seeds

commissural groove – the line along which two carpels join (may apply to other structures as well)

compound leaf – a leaf divided into two or more leaflets

concave – curved inwards

cone – an aggregation of sporophylls on an axis (see strobilus)

conical – cone-shaped

connate – the joining of like structures such as petals

convex – curved outwards

cordate – heart-shaped as the base of a leaf

corm – a short, leafless, underground stem, thickened for food storage

corolla – the collective petals of a flower

corona – a ring of petaloid structures located between the petals and the stamens representing either modified petals or modified stamens

corymb – a flat-topped racemose inflorescence

corymbiform - in the shape of a corymb

cosmopolitan – occurring worldwide

costa – a main vein or rib

costal groove –depression running the length of the costa, in some ferns

cotyledons – the seed leaf or leaves ; provide nourishment to the seedling until true leaves are formed

crenate – having rounded teeth as along a leaf margin

crenulate – finely crenate

crown – a ring of structure sitting atop another structure; or the sum of all above ground parts of a woody plant

cuneate – wedge-shaped with the narrow end at the point of attachment

cupiform – cup-shaped

cupulate - shaped like a cupule

cylindric – cylinder-shaped

cyme – a broad, flattish inflorescence in which the terminal flower blooms first

deciduous – a plant that loses its leaves completely once a year

decumbent – with a prostrate base and upward curving tip

decurrent – extending downwards from point of insertion as e.g., a leaf base forming an adnate wing on the stem axis below its point of attachment to the stem

decussate – leaves on a stem occurring in opposite pairs, each pair at right angles to those above and below

dehiscent – opening upon maturity

deltate (deltoid) – shaped like an equilateral triangle –ate is for flat structures; -oid for 3D structures

dendroid – treelike; tree-shaped

dentate – with outward spreading pointed teeth

denticulate – finely dentate

digitate – palmately compound with the leaflets originating from a common point somewhat like the fingers on a hand

dimorphic – with two different forms or shapes

dioecious – with male and female flowers occurring on separate plants

disarticulate – separating at a predetermined point or joint

disciform – in the form of a disk

discoïd – resembling a disk; in the Asteraceae, flower heads composed only of disk flowers

disk floret (disc floret) – the central tubular flowers found in some of the Asteraceae

dissected – divided or cut into narrow segments

distal – further away

distichous – in two vertical rows

distylic – having two different mature style lengths relative to other flower parts in different plants of the same species

divaricate – branching widely

dorsal – pertaining to the back

dorsiventral – flattened so as to have a back and front

double-serrate – coarse serrations that have fine marginal teeth

drupe – a fleshy fruit with a hardened inner wall which surrounds usually one seed.

eglandular – without glands

elliptic – widest at the middle and more or less equally narrowed to both ends

emarginate – having a small notch at the tip

emergent – term applied to a plant growing or extending out of the water

endemic – a species whose global distribution is limited to a very small geographic area

entire – with no teeth e.g., leaves with smooth edges

ephemeral – short-lived such as plants that appear, flower and fruit and die back in one season such as Spring

epicalyx – a series of bracts located immediately below the calyx

epigynous – an inferior ovary (with the perianth and stamens attached at the summit of the ovary)

evergreen – plants that remain green all winter

exserted – extending beyond an opening

falcate – sickle-shaped; curved and flat, gradually tapering

farinose – covered with mealy powder

fascicle – a tight bundle or cluster

fertile – capable of reproducing

filament – the stalk of a stamen

filiform – thread-like

flaccid – limp, weak

fleshy – thick and juicy, not dry

floret – a small flower; an individual flower of a head of flowers such as in the Asteraceae or of a grass spikelet

floricane – the second year flowering stems of the genus *Rubus*

foliose – having numerous or crowded leaves

follicle – a single carpel derived fruit that dehisces along a single suture

fornix– (pl. fornices) a small, arch-shaped appendage in the throat of a corolla in some plants

frond – a fern leaf

funnelform – funnel-shaped as some corollas

galeate – shaped like a galea (a helmet-shaped part of a perianth such as the upper lip of some two-lipped corollas), or having a galea

gelatinous – composed of gelatin

gemmae – small vegetative buds that are capable of developing into new plants; an asexual propagule

geniculate – abruptly bent or twisted

glabrate – lacking hairs

glabrescent – becoming glabrous

glabrous – lacking pubescence

gland – a protuberance or depression secreting a sticky, viscous substance

glandular – bearing glands

glaucous – having a whitish appearance due to the presence of a layer of wax

glomerule – a small, compact cyme or head

glume – one of the two lowermost bracts of a grass spikelet

glutinous – covered with a sticky substance

halberd-shaped – see hastate

halophyte – occurring in saline habitats

hastate – arrow-shaped with two outward pointing basal lobes

head – a dense cluster of sessile or nearly sessile flowers located on a short axis or receptacle

hemiparasitic – a parasitic plant capable of carrying out photosynthesis due to the presence of some chlorophyll

heterophyllous – bearing two types of leaves

hirsute – having coarse often bent hairs



hispid – having coarse firm or bristly hairs (hairs firmer and sharper than in the case of hirsute pubescence)

holoparasitic – a parasitic plant completely dependent on another organism for its food

hypogynous – having the point of attachment of the floral parts below the ovary

imbricate - overlapping

indehiscent – remaining closed at maturity

indumentum– a hairy covering

indusium – the flap of tissue covering the sorus in ferns

inferior ovary – see epigynous

inflorescence – the arrangement of flowers on a plant

inserted – attached to (point where an organ originates)

integument – outer layer(s) of an ovule that develop into the seed coat

involucre – a group of bracts below an inflorescence

involute – rolled inward resulting in the lower surface of a structure being exposed

irregular – a flower with dissimilar petals and/or sepals

keel – a sharp, central ridge; the two united lower petals of flowers in the Fabaceae family

labellum – lip; the name applied to the distinctive lower petal of an orchid flower

lacunae – empty spaces in plant tissue; commonly found in aquatic plants

lacustrine – associated with lakes

lanceolate – lance-shaped

latex – a milky juice occurring in some plants

leaflet – a small leaf; a subdivision of a compound leaf

legume – a fruit found in the Fabaceae consisting of a single carpel, more than one seed and dehiscing along both sutures

lenticels – corky areas on young bark and roots where gas exchange occurs

ligulate – having a ligule; in the Asteraceae, flower heads composed solely of ligulate florets are referred to as ligulate

ligule – the flattened part of a ray floret in the Asteraceae; also the appendage occurring at the junction of a leaf sheath and blade in many grasses and sedges

lobate – bearing lobes

locule – a compartment of an ovary containing ovules/seeds

mealy – covered with a granular substance

megaspore – a spore that develops into a female gametophyte

lemma – one of a pair of bracts that subtend individual flowers in the grass family

-merous – suffix used to refer to number of parts present

microspore – a spore that develops into a male gametophyte (a microspore is usually smaller than a megaspore)

midrib – the central main vein of a leaf

monoecious – having pistillate and staminate flowers on the same plant

monogeneric – a family made up of only one genus

monomorphic – having one form or shape

monotypic – a genus having a single species

mycorrhizal – a plant having a symbiotic relationship between its roots and a fungus

mycotrophic – having a modified appearance e.g., lacking chlorophyll, in connection with a mycorrhizal association

nectar – a sweet liquid produced by a plant for the purposes of attracting pollinating insects

node – the point on a stem where one or more leaves are attached; the sections of stem between nodes are called internodes

nut – a dry, indehiscent, hard-walled fruit usually containing one seed

nutlet – a small nut

oblanceolate – lance-shaped but with the broadest part above the middle and tapering from there to the base

oblong – shaped like a rectangle with rounded corners

obovate – ovate-shaped but with the broadest part at the distal end

ochrea – a stem sheath arising at the nodes in the Polygonaceae

orbiculate – circular in outline

ovary – the lower part of a pistil, contains the ovules

ovate – egg-shaped with the broader end at the base

ovule – the part of the ovary that develops into a seed upon fertilization

palate – a projection or bump on the lower lip of a corolla that closes or narrows the throat

palea – the second bract of a pair of bracts that subtend a grass flower

palmate –divided or lobed from a common point

paludal – relating to marshes or fens

panicle – a branched inflorescence in which the terminal flower opens last, the flowers within a panicle are pedicellate

paniculate – arranged in a panicle or resembling a panicle

papillae – short, rounded projections

papillose – having papillae

pappus – the modified calyx of the Asteraceae

pectinate – comblike

pedicel – a flower stalk

pedicellate – borne on a pedicel

peduncle – the stalk of an inflorescence

pedunculate – borne on a peduncle

peltate – having the supporting stalk of a structure, such as a leaf or bract, attached to the lower surface rather than to the margin

pendulous – hanging

perennial – a plant that with a life span of greater than two years

perfect flower – a flower with functional stamens and functional pistils

perfoliate – a leaf whose base is joined to and surrounds the stem

perianth – a collective term for all of the sepals and petals of a flower

perigynous – pertaining to a flower which has the calyx, corolla and stamens arising from a floral cup which is not joined to the ovary

petaloid – petal-like

petiolate – having a petiole

petiole – a leaf stalk

phenology – the flowering period of a plant; the study of periodic events in the life cycle, such as flowering or fruiting

phyllary – a bract of the involucre in the Aster family

pilose – with fine, soft long hairs

pinna (pl. pinnae) – one of the primary divisions of a pinnately compound frond (fern leaf)

pinnate- having the leaflets of a compound leaf arranged along the length of the rachis

pinnatifid – deeply cut or lobed in a pinnate fashion

pinnule – the ultimate division of a bi-pinnately compound leaf or pinnately-compound?

pistil – the female part of a flower consisting of an ovary, style and stigma

pistillate – a flower bearing female parts only

plicate – folded in a fanlike manner folded back and forth upon itself like a fan

pollen- the male gametophytes of flowering plants, produced and released from the anthers

pollinia (sing. pollinium) – a coherent group of pollen grains transported as a unit during pollination

pome – a fleshy fruit developing from an inferior ovary, with a papery core enclosing several seeds, e.g. an apple

prickle – a slender, sharp often weak outgrowth originating from the epidermis or bark

prickly – having prickles

primocane – first year cane of *Rubus* spp., usually non-flowering

procumbent – prostrate on the ground or trailing but not rooting

proximal – at the base; nearest

puberulent – pubescent with very small soft straight erect hairs

pubescent – having hairs present

quadrangle –having four sides

raceme – an elongate unbranched inflorescence of stalked flowers

racemiform – having the general form of a raceme

racemoid – pertaining to a raceme ?

rachis – the axis of an inflorescence or compound leaf

radially symmetrical – applied to flowers which can be divided along more than one plane to obtain mirror images

radiate – a flower head bearing both ray and disk flowers (Asteraceae); spreading outwards in all directions from a common point

radical – an embryonic root

ramet – an individual forming part of a clone

rank – a vertical row

ray – a strap-shaped flower of the Asteraceae; a branch of an umbellate inflorescence

receptacle – the expanded tip of a stem to which the parts of a flower are attached or to which all of the flowers are attached as in the Asteraceae

reflexed – abruptly bent downward

regular flower – see actinomorphic

reniform - kidney-shaped

resupinate – turned or twisted so as to be upside-down (e.g., Orchidaceae flowers)

reticulate – resembling a net

retorse – bent or directed backward or downward

revolute – having the margin rolled outwards towards the lower side

rhizome – an underground stem

rib – one of the main veins of a leaf

rosette – a basal circular cluster of leaves

rostellum - a small beak-like projection; often used in reference to a projection on the stigma in the Orchidaceae.

rotate – used to describe a flattened circular corolla

rugose- wrinkled; with the venation appearing sunken into the leaf surface

rugulose – finely wrinkled

saccate – having the shape of a sac or pouch

sagittate – arrowhead shaped with downward pointing basal lobes

salverform – a corolla with a slender tubular base and abruptly expanded flat limb

samara – a winged, indehiscent one-seeded fruit

saprophyte – a plant that lives on dead organic matter – often lacking chlorophyll

scale – a very small and dry leaf or bract

scape – a leafless flower stalk arising from the ground (may bare bracts)

scarious – often applied to bracts or leaflike parts that are membranous, not green and often translucent

schizocarp – a dry fruit which splits into several one-seeded segments at maturity as for example in the Apiaceae

secund – one-sided; often used to describe flowers occurring along one side of a floral branch only due to the twisting of the flower stalks

septum (septa)– a wall or partition

serrate – with marginal, sharp, forward pointing teeth

serrulate – with small serrate teeth

sessile - without a stalk

seta – a bristle

setaceous – bearing bristles

setaeiform – bristle-shaped

sheath – the basal portion of a grass leaf that encircles the stem

silique – a dry elongate fruit consisting of two compartments separated by a partition; characteristic of the Brassicaceae

simple- applied to a leaf that is not divided into leaflets

sinus – the indentation between leaf or corolla lobes

salverform – a term used to describe corollas with a slender tube which abruptly expands into flat, spreading petal tips

sorus (plural: sori) – a group or cluster of sporangia usually applied to ferns

spadix – a thickened, fleshy spike, often enclosed or partially so by a spathe

spathe – a large, single bract enclosing an inflorescence (monocot families only)

spatulate – spoon-shaped

spike – an elongate un-branched inflorescence with sessile flowers

spikelet – a small spike; in grasses, the smallest floral unit including subtending bracts

spine – a slender, firm, sharp-pointed structure representing a modified leaf or stipule

spinule – small spine-shaped structure

spinulose – having spinules

spiny – having spines

sporophore – spore-bearing branch

sporophyll – a leaf (often modified) which bears or subtends spore-producing structures (sporangia)

spur – a tubular projection from a petal or sepal

stamen – the male (pollen-producing) part of a flower consisting of a filament and anther

staminate – flowers bearing stamens (functional pistils absent)

staminodes – sterile a stamen that is sterile or modified to the extent that it does not produce pollen

standard – the uppermost and often the largest petal of the flower type typical of the Fabaceae

stellate --star-shaped

sterile – not fertile; vegetative only, no sexual parts.

stigma (pl. stigmata, stigmas) – that part of the pistil that receives the pollen

stipe – stalk; often applied to the stalk of fern frond

stipitate – having a stipe

stipule – one of a pair of small leaflike structures found at the base of a leaf or petiole in some species

stobilus (strobili)- a cone or conelike structure bearing sporophylls

stolon – a runner; horizontal stem capable of producing a new plant at its tip

stoloniferous – bearing stolons

stramineous – straw-colored

striate – having fine, longitudinal lines

strigose – having appressed, sharp, stiff hairs

style –tropophore

the stalk of a pistil; that portion of a pistil between the stigma and ovary

subproximal – almost or somewhat proximal

subtend – occurring below and close to such as a bract subtending a flower

subulate – shaped like an awl; tapering to a point

succulent – thick and fleshy

superior ovary – an ovary with petals, stamens and sepals attached below it

suture – a seam or line of dehiscence

sympatric – occurring in the same geographic area

sympetalous – having the petals in a flower united to some degree

taproot – the main root extending straight downwards in the soil

tendrill – a slender twining plant part by which a plant is able to cling to a supporting structure

tepall – a perianth part when there is not differentiation between sepals and petals

terete – round or nearly round in cross section

turion – a bulb-like offset

ternate – occurring in 3's

thorn – a sharp-tipped modified branch

thyrsel – a panicle composed of small cymes in a raceme-like arrangement

tomentose – with tomentum

tomentum – with matted, woolly hairs

translator – the connecting structure between pollinia of adjacent anthers in the family Asclepiadaceae

translucent – thin enough to allow the passage of light but not thin enough to be able to see clearly through

trichome – hair-like structure

trophophore –in ferns – sterile segment,

truncate – having the apex or end ending abruptly or having the appearance of being cut off

tuber – a thickened underground stem serving for food storage and reproduction

tubercles – a small surface projection or protuberance

tubiform – in the shape of a tube

turgid – swollen

umbel – a type of inflorescence where all of the peduncles or pedicels arise from a common point

umbellate – bearing umbels or umbel-like

umbelliferous – bearing umbels

unilocular – with one compartment or chamber an in an unilocular ovary

urceolate – shaped like an urn

valve – one of the units a capsule splits into at maturity; a mature discrete unit of a capsule, at maturity

vascular bundle – strand of conducting tissue

vein – a strand of vascular tissue as in a leaf

veinlet – a small vein



velum – a membranous covering as present over the sporangium in Isoëtes

velutinous – with a velvety covering of hairs

venation – pattern of veins on leaf blade

ventral – the inner surface of a plant part

verticil- a whorl of like plant parts such as leaves or flowers

vestigial – a plant part having a reduced size and function

villous – having long, soft hairs (not matted)

viscid – sticky

whorl – a ring of 3 or more similar structures (such as leaves) occurring at a node or another common point

wing – a flat projection from the side or tip of a plant structure

zygomorphic – bilaterally symmetrical

## Aspleniaceae

### Spleenwort Family

This is a monogeneric family of diverse ferns. Our two species are both of rocky habitats, arising and spreading on fibrous roots. Stipes are very scaly, the fronds pinnate with a few scales and glandular pubescence. Sori are arranged along the veins. Indusia are present, with one side attached.

#### ***Asplenium* L.**

As described above. There are 700 species worldwide, two in NS.

Key to species

A. Rachis dark reddish brown throughout.

*Asplenium trichomanes*

aa. Rachis dark, only at the base.

*A. trichomanes-ramosum*

#### ***Asplenium trichomanes* L.**

**Maidenhair Spleenwort; doradille chevelue**



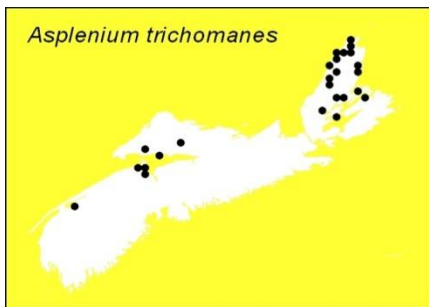
*Photo by Carl Munden*

Small tufted plants arise from a compact rhizome. Stipe and rachis are reddish-brown and persistent. Scales are blackish with a lighter border. Pinnae are ovate, nearly opposite, toothed. Sori are long and narrow.

Frequents damp shady cliffs and talus, especially on acidic rocks such as granite, basalt and sandstone.



Photo by Roger Lloyd



Rare and local in Cape Breton. Locally abundant at Big Intervale, Margaree. Few mainland NS locations: scattered in the Cobequids and in Annapolis and Kings counties.

Elsewhere from NS to AK, variously south to CA, TX and FL; Eurasia, Africa and Australia.

STATUS: YELLOW-listed.

***Asplenium trichomanes-ramosum* L.**  
**Green Spleenwort; doradille verte**



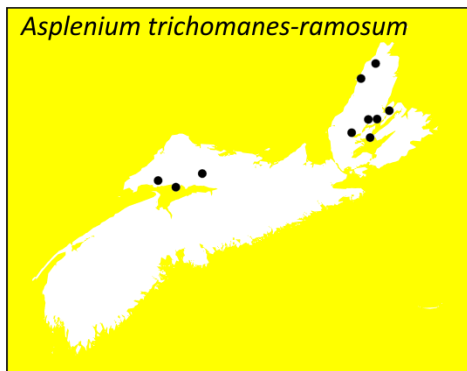
Photo by Sean Blaney

A very small fern resembling *Woodsia*, but for the elongated sori. Stipe and rachis are green, with a few opposite pinnae. Scales are reddish-brown to black.

Also found along shady streams, cliffs, rocks such as limestone and other basic substrates.



Photo by Roger Lloyd



Scattered in the Cobequids and western Cape Breton.

Ranges from Greenland; NF to ON, south to WI and NY; west coast. Eurasia.

STATUS: YELLOW-listed.

## Blechnaceae

### Chain Fern Family

Mostly distributed in the south-temperate and tropical zones, 250 species in 10 genera belong here. NS has a single genus of coarse ferns. Rhizomes and stipes bear scales at least at the base. Blades may be reddish when young, and are also once or twice-pinnate. The veins remain separate on the sterile fronds and join to form the sori-bearing secondary veins, on the fertile fronds. Sori are elongated; indusia are present. Spores are kidney-shaped.

### *Woodwardia* Smith

#### Chain Ferns

Fourteen species of terrestrial ferns comprise the genus, with ours associated with the coastal plain. Fronds are deciduous with sori arranged in chainlike rows. Stipes tend to be brown-scaly.

## Key to species

A. Fronds once pinnate, slightly serrate; fertile fronds with much narrower pinnae.

*Woodwardia areolata*

aa. Fronds twice-pinnate; sterile fronds resemble fertile fronds.

*W. virginica*

### ***Woodwardia areolata* (L.) Moore**

#### **Dwarf Chain Fern; woodwardie aréolée**



*Photo by David Mazerolle*

Pinnae are shallowly toothed. Fertile fronds have very narrow pinnae with the sori in two rows along the midrib. Veins unite to form areoles. Plants produce several sterile fronds. Superficially resembles *Onoclea*, a very common species. The alternative arrangement of sterile pinnae should separate it from *Onoclea*, whose sterile pinnae are opposite.



*Photo by Alain Belliveau*

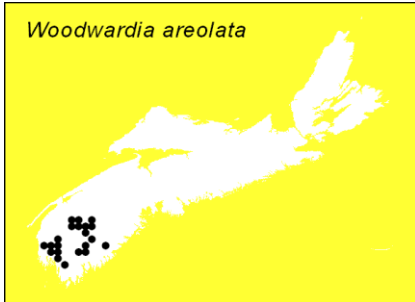
Slow-developing in spring; easiest to see and identify in August. Spores produced July to October.

Frequents swamps, bogs and above rivers and lakeshores.

Local in Shelburne and Yarmouth counties.

A coastal plain species it is found in NS; ME to TX. Rare inland to MI.

STATUS: YELLOW-listed.



### ***Woodwardia virginica* (L.) Sm.**

#### **Virginia Chain Fern; woodwardie de Virginie**



*Photos by David Mazerolle*



*Photo by David Mazerolle*

More robust than the previous species, its sterile fronds are twice-divided. Pinnules have minute teeth pointing distally. Sterile and fertile fronds are similar. Veins unite to form areoles. Resembles *Osmunda cinnamomea* but for the netted venation on the pinnules and its rhizomatous nature, rather than the cespitose nature of Cinnamon Fern. The blackened stipe and chainlike sori arrangement should serve to confirm it.

Spores July to September.

Lacustrine, in standing water, wooded swamps. Colonial and may form pure stands.

Common in southwestern NS, from Yarmouth to Halifax counties. Less so from Kings Co. east to Cape Breton.

NS to ON, south to TX and FL; Bermuda.

## **Dennstaedtiaceae**

Although the family once included most of the ferns, it is now restricted to those ferns with their sori at or near the margins of the pinnae. Indusia are present and may be one of two types. The outer is a false indusium formed of the inrolled margins and the inner indusium, is the true indusium. Stipes and blades are pubescent, scales are usually absent. Rhizomes are long-trailing.



## Key to genera

A. Blades broadly triangular; sori continuous, along the margins; plant generally branched.

*Pteridium*

aa. Blades narrowly triangular, lanceolate or ovate; sori distinct, not joined; plant not branching.

*Dennstaedtia*

## ***Dennstaedtia* Bernh.**

A tropical genus of about 70 species. The single Nova Scotian species follows.

### ***Dennstaedtia punctilobula* (Michx.) Moore**

#### **Hay-scented Fern; dennstaedtie à lobules ponctués**



*Photo by Sean Blaney*



Light green fronds arise from slender, creeping rhizomes. Stipes are pale brown and smooth, with minute pubescence covering the rachis and the lower blade surface. Plant forms large colonies of light-green deciduous fronds, bearing tiny round sori on lower surfaces, near the toothed margins. Cup-shaped indusia are present.

Easily detected by the sweet fragrance, reminiscent of newly mown hay, owing to presence of coumarin.

Our only truly pubescent fern, producing spores from July to October.

A weedy fern that frequents dry locations, as on hillsides, roadsides and openings in forests. Said to be allopathic to some tree species. Sometimes referred to as a native invasive.

Very common throughout.

Found from NF to ON, south to GA and AR.

Photo by Sean Blaney

## ***Pteridium* Scop.**

### **Bracken**

Circumboreal in distribution, it is probably Canada's most common fern species. Monotypic, the species has several varieties; only one reaches NS. Care must be taken not to confuse the croziers of this species with those of the edible Ostrich Fern.

## ***Pteridium aquilinum* (L.) Kuhn.**

### **Bracken; fougère-aigle**



Photo by David Mazerolle

A tall, coarse fern, it arises from an extensive rhizome. Fronds are divided, often into three blades, each arising at right angles to the stipe. Sori are borne on lower surfaces of the pinnules, at or near the irregular margins. Undersurfaces of the blades may be sparsely pubescent. Not all pinnae are fertile. Eastern North America hosts var. *latiusculum* (Desv.) Underw.

Spores produced in summer.

Generally grows in barren soils as found after fire, barrens, open conifer woods and pastures.

Common throughout the province.

NF to MB, south to WY, TX and FL; AB; BC.

## **Dryopteridaceae**

### **Wood Fern Family**

A large family of perennial ferns from creeping stems. Sixty genera worldwide include 3000 species. The plants are terrestrial, occasionally growing on rock. Stems are creeping or erect, and sometimes branched. Scales may or may not be present. Blades are circinnate in bud and may be dimorphic in some genera. Petioles often have persistent scales. Leaves sometimes have simple blades or may be from 1–5 times pinnate. Blades may be covered with indument of scales, glands or pubescence especially on the



rachises. Sori are borne on the lower surface of the blades, on the veins or terminating a vein. Indusia are sometimes present.

#### Key to genera

A. Fertile fronds vastly different from sterile fronds.	B	
B. Sterile blades deeply and irregularly divided; fertile blades twice-pinnate; sori enclosed in small round pinnules.		<i>Onoclea</i>
bb. Sterile and fertile blades once-pinnate; sori on linear pinnae, enclosed by hardened pinnae margins.		<i>Matteuccia</i>
aa. Fronds all same size, although fertile pinnae may be smaller than the sterile pinnae on the same frond.	C	
C. Indusia scale-like and segmented, completely surrounding sori.		<i>Woodsia</i>
cc. Indusia attached centrally or marginally and not segmented, or absent.	D	
D. Sori elongated, straight or hooked at one end; indusia present.	E	
E. Costal grooves shallow; stems long-creeping; blades once pinnate.		<i>Deparia</i>
ee. Costal grooves deep; rhizomes short-creeping or erect; blades twice-pinnate.		<i>Athyrium</i>
dd. Sori not as above; indusia present or absent.	F	
F. Indusia attached at distinct point, round or kidney-shaped.		<i>Dryopteris</i>
ff. Indusia absent, or if present, laterally attached, hoodlike and arching.	G	
G. Indusia kidney-shaped, attached at the sinus.		<i>Dryopteris</i>
gg. Indusia attached by a central stalk		<i>Polystichum</i>
H. Indusia present, may be inconspicuous; rhizomes reclining, creeping; scales < 5mm long.		<i>Cystopteris</i>
hh. Indusia absent.	I	
I. Rhizomes long, blades broadly triangular; petioles longer than the blades; scales absent.		<i>Gymnocarpium</i>
ii. Rhizomes short or arching; scales > 5mm long; blades ovate or lanceolate; stipes		<i>Athyrium</i> , in part

shorter than the blades and  
very  
scaly at the base; scales more  
than 5mm long.

## ***Athyrium* Roth**

A worldwide genus, only two species are native to North American. Fronds arise from erect or short-creeping rhizomes. They are deciduous, with the stipe half the blade length or less. Stipe bases are swollen and toothed, persisting over the winter as a food storage structure (tropophore).

### ***Athyrium filix-femina* (L.) Roth Northern Lady Fern**



*Photo by Sean Blaney*

Ours have the fronds twice pinnate, with nearly alternating dentulate pinnules. Pinnules adjacent the rachis are often smaller than distal ones. Sori are straight or curved, arranged in rows, and covered by toothed pubescent indusia. Stipes are brittle, bearing scales only at the base. These plants have been named ssp. *angustum* (Willd.) RT Clausen.

Frequents borders, of roads, forests, wetlands, thickets or pastures.

Common throughout.

NF to SK, south to NC and MO; CO. Greenland.

## ***Cystopteris* Bernh. Bladder Ferns**

A genus of 20 species, five are found in Nova Scotia. Monomorphic fronds are deciduous, arising on long stipes, up to three times the blade length. Trophopods are present. Blades are at least once pinnate; the pinnae reduce in size distally. Smooth plants although they may be sparsely pubescent in the axils. Sori

arranged in single rows central on the toothed pinnules. Indusia form a hood above the sori. These may be persistent or deciduous at maturity. Readily forms hybrids, complicating identification.

#### Keys to species

- |  |                            |
|--|----------------------------|
| A. Blades widely deltoid ovate; lowermost pinnae with unequal sides; rhizomes cordlike, long-creeping; frond bases > 10mm apart.                                     | <i>Cystopteris montana</i> |
| aa. Blades elliptic-deltate; proximal pinnae equal; rhizomes not cordlike, short-creeping; bases of fronds < 5mm apart.  | B                          |
| B. Rachis, costae, indusia and veins of distal pinnae sparsely to densely pubescent with glandular hairs; blades lanceolate; rachis and costa usually with bulblets. | C                          |
| C. Only later fronds fertile; stipes reddish when young, aging green or straw-coloured; spores 33–38μ.   | <i>C. bulbifera</i>        |
| cc. Distal pinnules only sparsely pubescent; nearly all with sori; stipes not reddish; spores 38–60μ.  | <i>C. laurentiana</i>      |
| bb. Glandular pubescence absent; blades ovate; bulbets absent.   | D                          |
| D. Pinnae at acute angles to rachis; pinnae margins with round teeth.  | <i>C. tenuis</i>           |
| dd. Pinnae typically at 90degrees to rachis; margins serrated.   | <i>C. fragilis</i>         |

### ***Cystopteris bulbifera* (L.) Bernh.**

#### **Bulbet Bladder Fern**



*Photo by David Mazerolle*



A delicate species, the blades are twice-pinnate; pinnules are toothed. Tips of the fronds are long-attenuate. Frequently the frond bears small bulbs distally, at the base of a pinnule, up to the size of a small pea. Internodes are less than 5mm long.

Spores produced from June to September.

Fertile or calcareous soils, where it forms dense colonies in forested gypsum sinkholes.

Local, Kings and Cumberland counties to eastern Cape Breton.

NF to ON, south to GA and AZ.

*Photo by Sean Blaney*

***Cystopteris fragilis* (L.) Bernh.**

**Brittle Fern**



*Photo by David Mazerolle*



*Photo by Sean Blaney*

Delicate and fragile this fern has smooth stipes, which are usually darker in colour at the base. Scales, if present, are scattered at the base. Blade is smooth, with lowermost pinnae widely separated from the upper ones. Pinnae are oriented 90 degrees to rachis.

Often frequents higher altitudes than others of the genus. Associated with waterfalls, ravines, deciduous forests and moist cliffs.

Scattered from Digby Neck and Cumberland County to northern Cape Breton. So far unknown in southwestern NS.

NF to AK, south to NC and CA; Eurasia.

***Cystopteris laurentiana* (Weatherby) Blasdel**  
**Laurentian Bladder Fern**



Internodes are very short, usually less than 5mm long. Occasional glandular hairs are found especially on specimens with large spores. Our *C. fragilis* specimens should be examined for inclusion here.

Cliff ledges, cracks and crevices, especially calcareous rock.

So far known only from Victoria and Inverness counties.

Species ranges from NF to ON, south to IA, IL and PA.

***Cystopteris montana* (Lam.) Berhn. Ex Desvaux, Mountain Bladder Fern** was recently recorded from Victoria and Inverness counties. The presence of it is still considered to be dubious in Nova Scotia.

***Cystopteris tenuis* (Michx.) Desv.**  
**McKay's Brittle Fern**



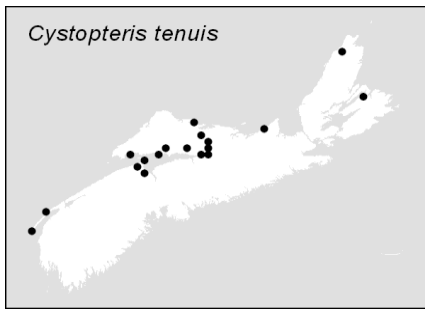
Smooth stipes arise from creeping rhizomes, with short internodes. Fronds clustered at the top of the stems. Stipe bases persistent. Scales are black or tan. Pinnae attached at acute angle to rachis. Indusia lack glands.

Limited to shady rock on cliff-faces or beneath forests.

From Brier Island, Digby Co. to Kings and Colchester counties. Cape Breton.

NS to ON, south to AL, AR and NV.

Photo by Roger Lloyd



## ***Deparia* Hooker & Greville**

A genus of 50 species worldwide; our single species was once included in *Athyrium*. Fronds are narrowly elliptic to lanceolate. The sterile and fertile fronds are similar and deciduous. Stipe is less than half the length of the blade. Its swollen base may be dark red with two rows of teeth. Scales are light brown. Sori elongated, straight or hooked. Indusia have thickened margins.

### ***Deparia acrostichoides* (Swartz) M. Kato**

#### **Silvery Spleenwort**



Photo by Sean Blaney

Very long fronds arise from the rhizome. Blades are lanceolate, each pinna long and tapering to a point. Sori placed at a 45-degree angle to the midrib and on either side of it. Upon maturity, they turn silvery.

July to September.

Deciduous forests, seepy slopes and streamsides in alluvial soils.





Photo by Roger Lloyd

From Annapolis County to northern Cape Breton, less frequent along the Atlantic.

Elsewhere from NS to ON, south to GA and LA; eastern Asia.

## ***Dryopteris* Adanson**

### **Wood Ferns**

Temperate ferns, they are best developed in Asia. They may be evergreen or deciduous. Often difficult to separate because of frequent hybridisation. Hybrids are excluded from the key below, being generally intermediate in form to their parents.

- |   |                            |
|---|----------------------------|
| A. Plants aromatic; blades densely scaly, glandular; old fronds persisting; fronds to 25cm in length.   | <i>Dryopteris fragrans</i> |
| aa. Plants not aromatic; blades smooth or sparsely scaly and not glandular or only slightly so; old fronds not persisting; fronds exceeding 25cm in length. | B                          |
| B. Blades 2–3-times pinnate at base.  | C                          |
| C. Innermost lower pinnules shorter than adjacent pinnules on basal pinnae.   | <i>D. intermedia</i>       |
| cc. Innermost lower pinnules longer than those adjacent.  | D                          |
| D. Lower basal pinnule on each basal pinna closer to the upper basal pinnule, rather than to  | <i>D. carthusiana</i>      |

second upper one.

dd. Lower basal pinnule closer to the second upper pinnule rather than the upper proximal one.

*D. campyloptera*

bb. Blades pinnate to twice-pinnate at the base.

E

E. Sori marginal or nearly so; stipes with dense tuft of tawny scales at the base.

*D. marginalis*

ee. Sori midway between margins and midribs of pinnules; stipes with tan or dark brown scales at the base.

F

F. Stipes <1/4 length of fronds; scales mixed in size and shape.

*D. filix-mas*

ff. Stipes to 1/3 length of frond; scales broad to narrow but not hairlike.

*D. cristata*

### ***Dryopteris campyloptera* (Kunze) Clarkson**

#### **Eastern Spreading Wood Fern; dryoptère arquée**



*Photo by Sean Blaney*

Larger and more triangular than others of the genus. Deciduous, the frond forms an arching crown above the stout scaly rhizome. Stipe is shorter than the blade and not glandular. Pinnae borne on short stalks. Spreading habit.

Most abundant under maple, especially where moist and cool.

Along the Fundy shores and in Cape Breton. Few Yarmouth County collections, but generally not Atlantic.

NF to QC, variously south to NC.

Hybrids form with *D. expansa* and with *D. intermedia*.



***Dryopteris carthusiana* (Vill.) Fuchs**

**Spinulose Wood Fern; dryoptère spinuleuse**



*Photo by Ross Hall*

Lanceolate blades borne atop brown, scaly stipes. Pinnules are attached at an angle. Pinnules have spine-tipped teeth. Inner lower pinnules of the basal pinnae are longer than the adjacent ones.

Produces spores from June to August. Damp woods.

Scattered from Lunenburg and Queens counties to northern and eastern Cape Breton.

NS to YT, south to OR, AR and GA.

Will form hybrids with five other species. In particular, *D. X triploidea* Wherry (*D. intermedia* X *carthusiana*) has been collected from Shelburne to Inverness counties. Ranges from NS to ON and New England south to NC, KY and MN.

***Dryopteris cristata* (L.) Gray**

**Crested Shield Fern; dryoptère à crêtes**



Narrow fertile fronds and glossy sterile fronds will separate this species. Basal pinnae are reduced in size and deltate. Fertile frond pinnules turned 90 degrees to rachis. Firm and erect, this species does not form solid colonies, rather occurs in small numbers.

In wet alder thickets, swamps and bogs. Can persist in sunny locales.

Scattered throughout but not abundant.

NF to BC, south to ID, MO and AL. Europe and western Asia.

*Dryopteris X boottii* (Tuckerm.) Underw. is a hybrid with this

Photo by Sean Blaney

and *D. intermedia*. A frequent hybrid in Canada. In NS we have widely scattered localities. Ranges from NF to ON and WI, south to VA, WVA and TN.

***Dryopteris filix-mas* (L.) Schott.**

**Male Fern; dryoptère fougère-mâle**



Photo by Sean Blaney

With narrowly lanceolate fronds reaching 1m in length, this fern is unmistakable. Pinnae are toothed; the stipe short and heavily scaled. Resembles *D. marginalis*, but is not as leathery in texture.

Spores produced from late June to early September.

Deciduous forests and ravines. Characteristic of the deciduous forest of north-central Cape Breton.

Frequent around Aspy Bay and Bay St. Lawrence, Victoria Co.

Greenland; NF to ON south to IL and PA; in the west BC to SK, south to CA and TX. Ireland and Eurasia.

***Dryopteris fragrans* (L.) Schott**

**Fragrant Wood Fern;**

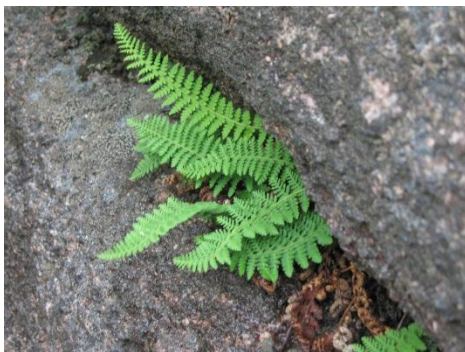


Photo by Sean Blaney

Small distinctive fern with glandular fronds. Plants have a pleasing aroma. Dried persistent fronds distinguish it from *Woodsia*.

Spores produced from June to September.

Look for it in dryish cliff overhangs and in crevices along streams or waterfalls.



*Photo by Sean Blaney*

Not common. Scattered along the Cobequids between Earlton and Parrsboro and streamside in northern Cape Breton.

An arctic species, NF to AK south to MN and mountainous NY; western Asia.

STATUS: YELLOW-listed.

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***Dryopteris intermedia* (Muhl.) Gray**  
**Evergreen Wood Fern; dryoptère intermédiaire**



*Photo by Sean Blaney*

Fronde are lacy in appearance with bluish-green leaves persisting into the winter. Basal proximal pinnules are shorter than the adjacent ones. Stipe is scaly near the base. Indusium and base of the pinnae slightly glandular pubescent.

Frequents a variety of woodland habitats. Our most common wood fern.

Throughout the province.

Forms hybrids with eight other species, distinguished by their glandular indusia, costae and costules.

Ranges from NF to ON, south to GA and AL.

***Dryopteris marginalis* (L.) Gray**

**Marginal Wood Fern; dryoptère à sores marginaux**



*Photo by Sean Blaney*

Fronds are dark green above and grey-green below, standing up to 60cm. Often evergreen, fronds borne on very chaffy stipes. Scales are long and narrow. Pinnules are deeply toothed and acute. Named for its conspicuously marginal sori.

Grows in drier habitat than other wood ferns, in shady undisturbed ravines. Typical in deciduous or rocky forests; calcareous regions.

Common in its habitat throughout.

NS to ON, south to AL and MS; BC; Greenland.

***Gymnocarpium***

**Oak Fern**

North-temperate in distribution, we have a single species of the eight oak ferns. Creeping rhizomes bear deciduous fronds on slender stipes. Rarely pubescent, but they may bear tiny glands. Sori are round and without indusia.

***Gymnocarpium dryopteris* (L.) Newm.**

**Common Oak Fern**



*Photo by Martin Thomas*

Colonial, the fronds reach less than 40cm tall. Blades are thin and deltate in outline, usually with three glabrous branches.

Associated with dry, rocky deciduous forests.

Scattered throughout the province.

Greenland; NF to AK, south to OR, AZ and MD; Eurasia.



## ***Matteuccia* Todaro**

### **Ostrich Fern**

A single species of this genus reaches Nova Scotia. All are tall, coarse ferns with the mature fertile frond much shorter and very different in appearance. The vernacular name refers to the resemblance of the fertile frond to an ostrich feather when mature. The unfurled sterile blade resembles a fiddlehead (a character shared by all ferns), hence the other common name.

### ***Matteuccia struthiopteris* (L.) Todaro**

#### **Ostrich Fern; Fiddlehead Fern**



*Photo by Sean Blaney*

One of our larger ferns, reaching a metre or more in height, The pinnae at the base of the blade are drastically reduced in size. Veins are straight not forked. Sterile blades are much longer than the stipes. Fertile fronds are much shorter, with the sori in rows along the edge, their margins hardened and rolled over them.

Rich floodplains, along rivers and small streams, in seeps above cliffs; strongly colonial.

Mostly northern and western, although there are collections from Kejimikujik National Park, and several Kings County localities.

NF to AK, south to VA, MO and BC.



*Photo by David Mazerolle*

## ***Onoclea* L.**

### **Sensitive Fern**

A monotypic genus, it is limited to the northern hemisphere. Plants bear two distinctly different fronds. Fertile fronds are long-persistent over several seasons; sterile frond, is irregular in outline and strongly deciduous, turning brown at the least frost. They are borne together on creeping rhizomes.

## ***Onoclea sensibilis* L.**

### **Sensitive Fern**



*Photo by Sean Blaney*

Sterile fronds have long pinnae with wavy margins, indistinct from the rachis, oppositely arranged. Fertile fronds have greenish pinnules that turn dark at maturity. Sori are borne in rows within the tightly rolled margins of the pinnules. Fertile frond resembles that of Ostrich Fern, but for the beadlike appearance of the pinnae, whereas the Ostrich fern has featherlike appearance.

Grows in wet soils as along streams, in swampy woods, ditches and elsewhere with a high watertable. Strongly colonial.

Common throughout NS.

Ranging from NF to MB, south to TX and FL.

## ***Polystichum* Roth**

### **Christmas Ferns**

These worldwide evergreen ferns total about 180 species. Sterile and fertile pinnae are borne on the same blade. Stipes equal blades in length or shorter. Pinnae are serrated; scales are present. Sori have persistent peltate indusia. Three species are found in Nova Scotia.

#### **Key to species**

A. Fertile pinnae contracted; sori indistinct, completely covering lower surface.

*Polystichum acrostichoides*

aa. Fertile pinnae not contracted; sori distinct.

B

B. Fronds only once-pinnate.

*P. lonchitis*

bb. Fronds twice-pinnate.

*P. braunii*

***Polystichum acrostichoides* (Michx.) Schott**

**Christmas Fern; Holly Fern; polystic faux-acrostic**



*Photo by Sean Blaney*

Ferns form a crown of dark green fronds, close to the ground. There is a sharp lobe at the base of the pinnae and the margins are serrated. Sori are borne on the lower surface of the reduced distal pinnae.

Found in moist woods, especially of beech and maple; thickets and slopes, throughout the province.

Ranges from NS to ON, south to FL and TX.

*P. Xpotteri* Barr is a named hybrid between this and the next species. Collections extant from Colchester County and Cape Breton. Leaves are narrower than those of *P. brauni* and the sporangia are misshapen.

***Polystichum braunii* (Spenner) Fee**

**Braun's Holly Fern; polystic de Braun**



*Photo by Sean Blaney*

Fronds are scaly, to 1m in length. Pinnules appear to be in pairs, with awned teeth. Sori arranged in two ranks along the midrib. North American plants have been separated from the typical variety of Europe, as var. *purshii* Fern.

Favours deciduous forests, ravines and seepy slopes.

Common in northern Cape Breton, and at Folly Lake, Colchester Co. Found along the north mountain from Annapolis County to Cape Blomidon, Kings Co., in the Cobequids, eastward to western and central Cape Breton.

NF to ON, south to MN and PA; in the west AK, BC and ID.  
Eurasia.

***Polystichum lonchitis* (L.) Roth**  
**Holly Fern; polystic faux-lonchitis**



*Photo by Rodger Lloyd*

This fern has very long and narrow fronds arising from short, scaly stipes. Pinnae are slightly curved upwards, their margins serrated. This is a small species with lustrous dark green fronds, of restricted distribution in NS.

Alkaline soils, on gypsum or limestone, rocky and shady spots.

Northern Cape Breton: Cape North, Bay St. Lawrence to Whycocomagh and River Denys.

Elsewhere from NF to ON south to NY; AK and NT south to AZ; Greenland. Eurasia.

STATUS: YELLOW-listed.

***Woodsia* R. Brown**

Small ferns of the north-temperate or tropical high altitudes, there are 30 species. These plants are usually associated with rock. Compact and creeping, all fronds are similar and may be deciduous or evergreen.. Rows of sori on distal pinnules only.

**Key to species**

A. Blades and rachis smooth or nearly so; proximal pinnae fan-shaped, wider than long; mature stipes green or stameneous.

*Woodsia glabella*

aa. Blades or rachis lightly pubescent or scaly; proximal pinnae longer than wide, triangular; mature stipes reddish brown or dark purple.

B

B. Lanceolate scales absent on lower pinnae surfaces; largest pinnae

*W. alpina*



with 1–3 pairs of pinnules.

bb. Lanceolate scales very common on lower surfaces; largest pinnae with 4–9 pairs of pinnules.

*W. ilvensis*

***Woodsia alpina* (Bolton) SF Gray**  
**Alpine Woodsia; woodsie alpine**

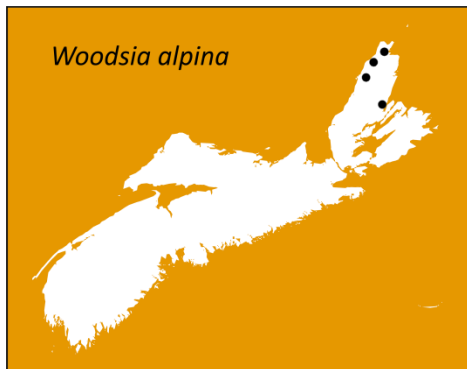


*Photo by Sean Blaney*

A caespitose species it has smooth blades. Bases of the stipes are sparsely scaly. The middle pinnae have 2–3 lobes.

Dry cliffs. An arctic species.

It is confined to northern Cape Breton: North Aspy River, Cheticamp River, Big Southwest Brook, Inverness County and Indian Brook, Victoria County.



Arctic regions. NF to AK, south to BC and NY; Ireland and Eurasia.

***Woodsia glabella* R. Br.**  
**Smooth Woodsia; woodsie glabre**



*Photo by Sean Blaney*

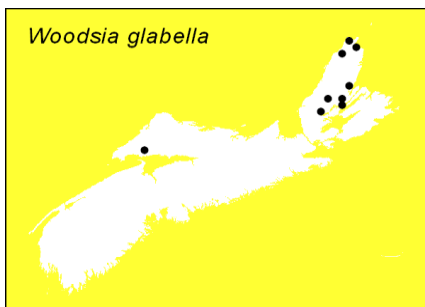
Fronds are smooth, with but a few sessile glands. The stipe is green or yellowish, but not brown. The small pinnae are sessile, nearly round and shallowly lobed.

A very rare fern, only found on vertical cliffs or streamside.

Mainland Nova Scotia has a single locality at Jeffers Brook,



Photo by Roger Lloyd



Cumberland County. The remainder of known sites are in northern NS: Big Southwest Brook, Lockhart Brook, and on Sky Glen Mountain.

Arctic, NF to AK, south to BC, MN and NY; Iceland and Eurasia.

STATUS: YELLOW-listed.

***Woodsia ilvensis* (L.) R. Br.**  
**Rusty Woodsia; woodsie d'Elbe**



Photo by Sean Blaney

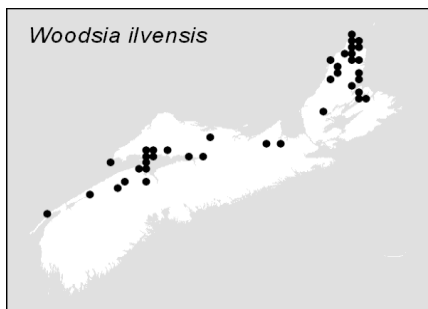
Larger than our other *Woodsias*, it is easily separated on the jointed stipes. Blades are scaly. Sori nearly covering undersurfaces of blades.

Less restricted in habitat on cliffs and ledges, talus slopes.

From Digby Neck to Truro and Halifax. Northward through



Photo by Roger Lloyd



the Cobequids to Cape Breton.

Elsewhere from NF to AK, south to NC and BC; Eurasia.

## Equisetaceae

### Horsetails

Another ancient family of plants, there is but a single extant genus. Annual or perennial, all have jointed hollow stems, marked by ridges. Coarse texture is further enhanced by the presence of silica crystals in the epidermis. Leaves are reduced to scales forming whorls, which may or may not be photosynthetic. Branches when present are also in whorls. Sporangia are arranged on whorled stalks forming a terminal cone. Plants reproduce by spores and creeping rhizomes. Sterile hybrids produced with some species. Key below is based on sterile stems after Magee and Ahles (1999).

A. Stems evergreen, unbranched, or with only short sparse apical branches.	B
B. Stems >3mm in diameter; sheath teeth soon deciduous.	<i>Equisetum hyemale</i>
bb. Stems <3mm in dia.; sheath teeth persistent.	C
C. Sheath teeth 3; stems branched and twisted.	<i>E. scirpoides</i>
cc. Sheath teeth 5 or >5; stems stiffly erect.	<i>E. variegatum</i>
aa. Stems deciduous, often branching.	C
D. Lateral branches further branched; sheath teeth on the main stem joined and fused into 3–4 lobes.	<i>E. sylvaticum</i>
dd. Lateral branches simple; sheath teeth all distinct.	E
E. Sheath teeth below the lower branches on the main stem usually white-hyaline.	<i>E. pratense</i>
ee. Sheath teeth below the lower branches of the main stem mostly black or dark brown.	F
F. Sheath teeth on main stem white on the margins.	<i>E. palustre</i>
ff. Sheath teeth on main stem brown or black.	G
G. Stems to 4mm in dia.; central cavity of stem two-thirds its dia.; branches solid.	<i>E. arvense</i>
gg. Stems >4mm; central cavity four-fifths the dia; branches hollow.	<i>E. fluviatile</i>

***Equisetum arvense* L.**

**Field Horsetail; prêle des champs**



This pale green horsetail produces separate sterile and fertile stems. Sheath teeth are dark brown. Sterile stems are branching, especially at the top of the plant. Cones are brown and yellow, terminal on deciduous stems.

Vegetative stems appear later in the season. Spores produced in May.

Common throughout in low-lying fields, banks and often weedy, especially in heavy rich soils.

Especially common from Digby, Kings and Colchester counties to Cape Breton.

Photo by Roger Lloyd

Widely found in northern hemisphere.



Photo by Roger Lloyd

***Equisetum fluviatile* L.**

**Water Horsetail; prêle fluviatile**



Photos by Roger Lloyd

This large robust species produces its terminal cones atop the mostly unbranched stems. Branches if present, are long and spindly.

Spores produced midsummer.

Frequents the edges of ponds and streams.

Common throughout the province.

NF to AK, south to OR and VA. Eurasia.





*Photo by Roger Lloyd*

***Equisetum hyemale* L.**

**Scouring Rush; prêle d'hiver**



*Photo by Jamie Ellison*

Our largest most robust species, the hollow unbranched stems may reach 60cm in height. Nodes have untoothed sheaths, bearing a dark band around the base and furrowed longitudinally. Colonial, it is conspicuous where found.

Grows in sandy, gravelly soil, on banks or in low areas; often in calcareous regions.

Scattered, mostly from Digby County, through the Annapolis Valley, northward to Cape Breton.



Photo by Ross Hall

NF to AK, south to Central America; Eurasia.

***Equisetum X litorale* Kuhl.**  
**prêle littorale**



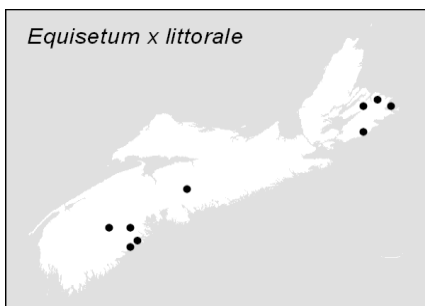
Photo by Roger Lloyd

Stems are hollow, with elongated sheaths at the nodes. Teeth number 7–14, dark and narrow. The plant branches mostly from the midsection. Hybrid of *E. arvense* and *E. fluviatile*, it is found wherever those species occur together. It resembles *E. palustre*, the long primary internode and solid branches should separate it.

Although cones mature in early summer, the misshapen spores are not dispersed.

Frequents ditches, meadows and streamsides, Queens County to Cape Breton.

NF to BC, south to CA, IL and VA.



***Equisetum palustre* L.**  
**prêle des marais**



*Photo by Sean Blaney*

Stems hollowed only slightly, less than  $\frac{1}{2}$  the diameter.  
Branches are recurved, arising only from the midstem  
nodes. Teeth dark 5–10, with papery white margins.

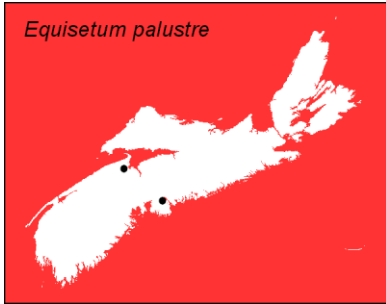
Of wetlands, marshes and swamps. A single collection each  
from Kings County and Halifax Co.

Elsewhere across Canada, south to C, IL and NY. Eurasia.



*Photo by Roger Lloyd*





***Equisetum pratense* Ehrh**  
**Meadow Horsetail; prêle des prés**



*Photo by Sean Blaney*



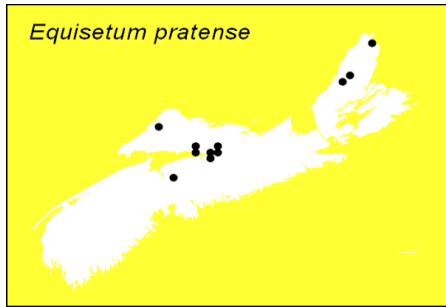
Sterile stems are hollow in the centre, at least one-third the diameter. Fertile stems unbranched and brown, becoming green and branching after spores mature.

Uncommon and limited to alluvial thickets, pastures and treed streambanks, including gravelly bars.

Known from several streams in Hants, Colchester and Cumberland counties, in addition to Victoria and Inverness Cos.

NF to AK, south to CO, IL and NJ.

Photo by Roger Lloyd



***Equisetum scirpoides* Michx.**

**Dwarf Scouring Rush; prêle faux-scirpe**



Prostrate at the base, this plant has many wiry ascending sterile stems. Sheaths have only three teeth. Cones are merely 5mm in height.

Wooded banks and mossy slopes. Typical of alkaline habitats and often overlooked.

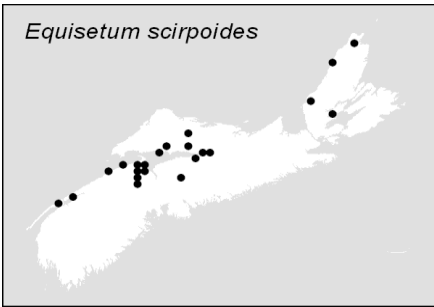
Photo by Sean Blaney



Not often seen in the Atlantic counties. Annapolis County to Cumberland County and northern Cape Breton.

Ranges from NL to AK, south to WY, IL and NY. Eurasia.

Photo by Roger Lloyd



***Equisetum sylvaticum* L.**  
**Wood Horsetail; prêle des bois**



Photo by Roger Lloyd

Similar to *E. arvense*, but for its reddish sheaths and branching stem branches. Cones developing early and persisting throughout the season.

Spores in June.

Wet soils and shady conditions.

Common throughout the province, Digby Co. to Cape Breton.

NF to AK, south to WY, IL and NC; Eurasia.

***Equisetum variegatum* Schleicher**  
**prêle panachée**



*Photo by Sean Blaney*



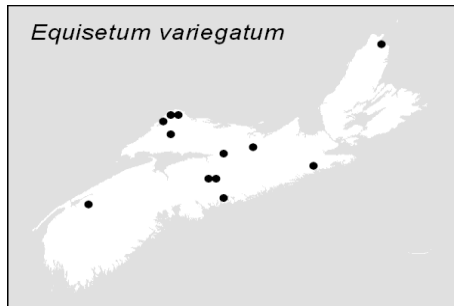
*Photo by Roger Lloyd*

Evergreen stems, are carried stiffly erect and only branching near the base. Ridges on the stem are furrowed, bearing two rows of siliceous tubercles. Sheaths are slightly recurved and with a black stripe at the tip.

Of wetlands or wet seeps.

Wide-ranging in NS, with disjunct localities: Halifax County, Cumberland Co., Victoria Co.

Circumboreal to UT, IL and NJ.



## Isoëtaceae quillwort family

### *Isoëtes* L.

These aquatic or amphibious plants are cosmopolitan, numbering about 150 species. Leaves are linear, pointed and straight or recurved, arising from a corm-like rhizome. Sporangia are produced in the hollow bases of the leaves, with outer leaves bearing megaspores and inner leaves bearing microspores. It is difficult to separate the species. A microscope is required to measure the spores and determine the adornments. Habitat and velum structure will aid in the determination.

#### Key to species

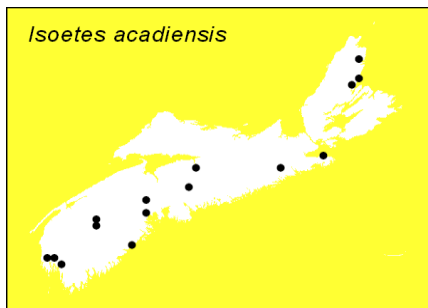
- |   |                        |
|---|------------------------|
| A. Megaspores with spines.  | <i>Isoëtes tenella</i> |
| aa. Megaspores without spines, but ridged.  | B                      |
| B. Megaspores with rounded ridges and a smooth band around the distal side of the equatorial ridge.     | <i>I. acadiensis</i>   |
| bb. Megaspores with branching ridges, rough or pointed crests, equatorial zone with various adornments. | C                      |
| C. Velum covering the entire sporangium.  | <i>I. prototypus</i>   |
| cc. Velum covering < half the sporangium.   | D                      |
| D. Megaspores usually averaging > 600μ; leaves dark green, stiff.                                       | <i>I. lacustris</i>    |
| dd. Megaspores usually <600μ; leaves various.   | <i>I. tuckermanii</i>  |

***Isoëtes acadiensis* Kott**

(= *I. hieroglyphica* AA Eaton, in part)



Photo by Roger Lloyd



A dark green species, it soon fades to yellow–green at the base, possibly reddish. It is stiff in appearance with finer leaves than *I. echinospora*. Megaspores average 519 $\mu$  and the spiny microspores are 25–30 $\mu$  long.

In water up to depth of 1m, bordering lakes, ponds or along rivers.

Scattered from Yarmouth County to northern Cape Breton. Very common in Lake Kejimikujik, near exit of Grafton Brook.

Most frequent in NS, but ranging south to NJ.

***Isoëtes lacustris* L.**

Our largest species of quillwort, with upwards of 70 straight leaves abruptly tapering to sharp points. Megaspores large, averaging 700  $\mu$  in diameter with the ridges forming a honeycomb pattern. Microspores are kidney-shaped, averaging 42  $\mu$ , with evenly spaced papillae on their surfaces.

Frequents stony lake bottoms, often in deep water of oligotrophic lakes in the Precambrian Shield.

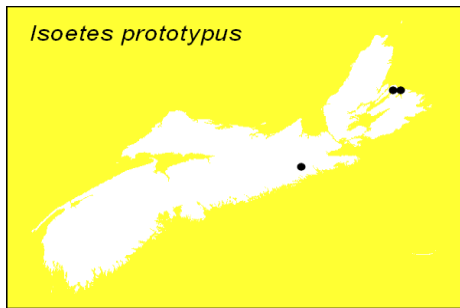
Scattered probably throughout. Collections from east branch of the Tusket River and the Clyde River in southwestern NS. Abundant in Ethel Lake, on Saint Paul Island and on the northern side of the province.

NF to NT, variously south to TN.

***Isoëtes prototypus* DM Britton**



Photo by Roger Lloyd



An evergreen species, it has dark green stiff leaves arising from a round rootstock. Sporangium is covered by a velum, containing white megaspores measuring 425–575 $\mu$  in diameter. Spores are produced in summer.

This is another deep–water species found in nutrient–poor waters.

Only a few localities known in NS: Sutherland’s Lake, Cumberland Co.; Economy Lake, Colchester Co.; Pottle Lake, North Sydney and Sandy Lake, Annapolis County.

Limited in range, from NS to NH.

***Isoëtes tenella* Léman  
(*Isoëtes echinospora* Dur.)**



The most abundant species in NS and in the rest of Canada. Megaspores are armed with spinules, 420–580 $\mu$  in diameter. The corm is bilobed.

Lakes and ponds, with good circulation and gravelly or muddy ponds.

Throughout the province.

NS to AK, south to CA and NJ; variously in middle America.



Photo by Roger Lloyd

***Isoëtes tuckermanii* A. Br.**



Photo by Roger Lloyd

Leaves are yellow-green and soft. Megaspores 460–650 $\mu$  in diameter; while the microspores average 27 $\mu$  in length.

Frequenting shallow quiet water and their sandy, peaty or muddy margins.

Scattered throughout on both Atlantic and Fundy coasts.

NF to ON, south to MD.

A large tufted hybrid has been named, *I. x harveyi*, thought to result from a cross between this and *I. lacustris*. It is common from Guysborough County and Cape Breton. Its spores are highly variable. Leaves are striking in appearance, succulent and long twisting.

## Lycopodiaceae

### clubmoss family

Upwards of 15 genera comprise this ancient family. Perennial herbs, they somewhat resemble coarse mosses. The solitary sporangia are borne either in a terminal strobilus or are axillary with leaves. Spores are of equal size. In Nova Scotia we have four genera.

A. Rhizomes absent; upright stems clustered; axillary sporangia; spores pitted.

*Huperzia*

aa. Rhizomes present; upright shoots alternate; sporangia aggregated into terminal strobili, spores with netlike pattern.

B

B. Strobili on leafy peduncles; mainly of wetland habitats.

*Lycopodiella*

bb. Strobili sessile or on peduncles with remote scant leaves; mainly of dry upland places.

C

C. Tips of stems 5–12mm in diameter; leaves in 6 ranks or more; leaves bristly, free for most of their length, not scalelike.

*Lycopodium*



cc. Distal shoots 2–6mm in diameter; leaves in 4–6 ranks, strongly overlapping (scalelike) and appressed along the stem with only tips free.

*Diphasiastrum*

## ***Diphasiastrum* Holub**

There are 15–20 species worldwide; numerous hybrids are possible. Generally these clubmosses are northern or subarctic in distribution. Nova Scotia has four species.

Rhizomes bear sparse leaves that are reduced to scales, rooting from the lower surfaces. Upright stems are flattened or angled, with 2–5 branches. Leaves are arranged in four ranks and of two sizes. Sporophylls are smaller than unspecialized leaves.

### Key to species

- |  |                                |
|--|--------------------------------|
| A. Plants < 12 cm tall; strobili sessile.  | <i>Diphasiastrum sitchense</i> |
| aa. Stems 8–50cm; strobili on peduncles.   | B                              |
| B. Branches square or angled, bluish.  | <i>D. tristachyum</i>          |
| bb. Branches flat; green.  | C                              |
| C. Lateral branches irregular, annual winter bud constrictions present; strobili 10–25mm tall, without sterile tips.             | <i>D. complanatum</i>          |
| cc. Lateral branches regular, fan-shaped, annual winter bud constrictions absent; strobili 20–40mm tall often with sterile tips. | <i>D. digitatum</i>            |

## ***Diphasiastrum complanatum* (L.) Holub** **lycopode aplati**



Photo by Alex Wilson

Flattened stems bear opposite tiny scalelike leaves. Subterranean rhizome is nearly leafless, with only a few scales. Plant tend to be sprawling. Peduncles are branched, with 1–2 strobili. The plant is rarely found in fruit.

Deciduous forests and brushy hillsides spreading out into abandoned fields.

Infrequent, scattered through the Cobequid hills southwest to the Annapolis Valley and east to Cape Breton.

Wide-ranging, from Greenland to AK, south to OR, WY and

NY. Circumboreal.

***Diphasiastrum digitatum* (Dillenius) Holub**

lycopode en éventail



Photo by Roger Lloyd

Another creeping species, most of the rhizome is above ground. Branches are regular and nearly opposite, fan-shaped. As in previous species, dimorphic leaves give the plant the appearance of being flat. Leaves are reduced to scales, clasping at the base. Terminal strobili are borne on long peduncles.

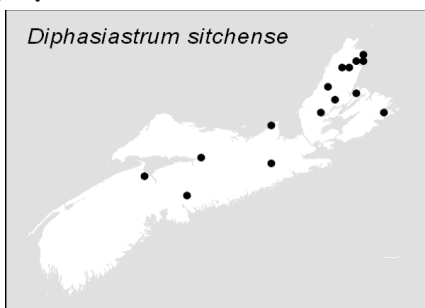
Frequently found throughout, in old-fields, pastures and mixed coniferous woods.

Eastern distribution from NF to ON, south to MO and GA. Endemic to North America.

Hybrids form with *D. digitatum* X *tristachyum* and have been named *D. X habereri*. Known from Boularderie Island, its most easterly record to date.

***Diphasiastrum sitchense* (Rupr.) Holub**

lycopode de Sitka



Its dark shiny leaves and round branches should separate it from the previous two species. Relatively short in stature, the leaves spiral around the branches. Strobili are borne on leafy branches.



Photo by Roger Lloyd



Photo by Roger Lloyd



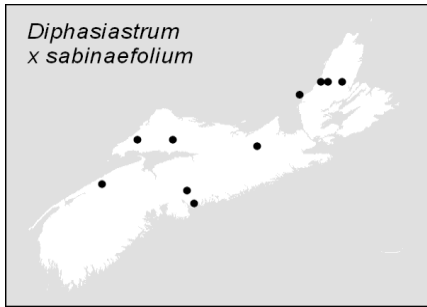
Commonly found on alpine and subalpine barrens or wooded slopes in northern NS.

Collected from Kings Co. to northern Victoria Co.

Across the continent from Greenland, south to OR and NY.  
Asia.

***Diphasiastrum* × *sabinifolium* (Willd.) Holub** (= *D. sitchense* X *tristachyum* ) is widespread and frequent in eastern Canada. This hybrid is commonly confused with *D. sitchense*. It is known from NF to ON, south to NY; AK.  
(lycopode à feuilles de genévrier)

Photo of *D. xsabinifolium* by Sean Blaney



***Diphasiastrum tristachyum* (Pursh) Holub**

**Ground–cedar; lycopode à trois épis**



Photo by Roger Lloyd

Rhizomes are subterranean and the erect stems are much-branched. Scalelike leaves are glaucous beneath. Peduncles long, with terminal branches, each with a terminal strobilus. Yellow scalelike leaves in the strobili.

Found in dry, sandy soil, gravelly banks, barrens or forests.

Scattered throughout, but common in Shelburne, Kings and Cumberland counties.

Ranges from NF to MB, variously south to MO, AL and GA. Europe.



Photo by Roger Lloyd

## ***Huperzia* Bernh.**

Commonly called fir-mosses, there are at least 10 species of this genus; three are known in NS. Leaves are appressed, not in ranks. Gemmae form amidst the leaves and shed at maturity. Sporangia are borne singly, sometimes basally on unmodified leaves.

### Key to species

- A. Leaves serrated, narrowly obovate; teeth 1–8, shiny. *Huperzia lucidula*
- aa. Leaves lanceolate, margins entire or with 1–3 teeth, not shiny. B
  - B. Shoots with weak annual constrictions; branches with gemmae forming in a single whorl at the end of annual growth. *H. selago*
  - bb. Shoots without constrictions; gemmae forming in 1–3 whorls throughout the mature shoots. *H. appalachiana*

## ***Huperzia appalachiana* Beitel & Mickel**

### **lycopode des Appalaches**



*Photo by Sean Blaney*

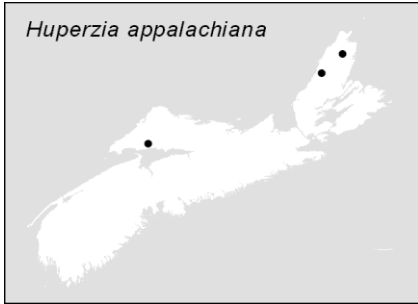
Shoots lack the constrictions of *H. selago*. Gemmae-producing branches are carried throughout the plant. Leaves have entire margins, their upper surfaces covered in stomata. Spores have concave sides.

Its alpine habitat should help to separate it. Found on damp acidic granite as on talus slopes or exposed cliffs.

In NS, known from the Fundy coast, Cumberland County (McAlese Brook and Moose River) and Kings County (Amethyst Cove). Also a collection from Clyburne Brook, Victoria Co. (at MT and CAN).

Disjunct populations from Greenland, NF to ON, south to MN and NY; VA to TN and south to GA.





***Huperzia lucidula* (Michx.) Trevisan**  
**Shining Fir–moss; lycopode brilliant**



*Photo by Sean Blaney*

A robust creeping species, it has larger leaves than most clubmosses. Their margins are shallowly toothed. Rows of long and short leaves alternate along the stem. The sporangia arise from the leaf axils, in alternating zones the length of the stems. The larger leaves with shiny appearance and papery texture serve to separate this species from most others.

Inhabiting deciduous forest soils, it may be found in uplands or in intervalles.

Found throughout the province, but more common on the northern side from Annapolis to northern Cape Breton.

Ranges from NF to MB, south to AR and GA; NM.



*Photo by Roger Lloyd*

***Huperzia selago* (L.) Bernh. ex Schrank & Martius**

**Fir Clubmoss**



Photo by Sean Blaney (with *H. appalachiana* on the right)

Paler in colour than *H. lucidula* it also branches from the compact base. Leaves are equal in length, crowding the stems. Their margins are entire. Sporangia are borne in leaf axils early in the season, followed by bands of sterile leaves.

Grows in rock crevices along streams and moist ravines.

Limited to the northern half of the province, as far west as Brier Island, Digby Co. Many localities clustered about the Bay of Fundy, inland to the south-facing slopes of the Cobequids and along the slopes of northern Cape Breton.

Greenland; across the continent to AK, south to BC, MN and NY.



Photo by Roger Lloyd

## ***Lycopodiella* Holub**

Creeping plants, their rhizomes are placed above the soil. Upright stems have very leafy and unbranched peduncles, terminating in a single strobilus. Two species are found in NS.

A. Fertile stems 3.5–6cm long; leaf margins entire.

*Lycopodiella inundata*

aa. Fertile stems mostly 8–35cm; leaf margins sparsely toothed.

*L. appressa*

### ***Lycopodiella appressa* (Chapman) Cranfill**

#### **lycopode apprimé**



*Photo by David Mazerolle*

The stems approach 30cm in length, with terminal strobili 1–3cm long.

Typically found on lacustrine beaches, in wet depressions or savannahs.

Associated with south and southwestern counties. Few records along the Atlantic to Boularderie Island.

NF to NS; ME to IL and KS, south to FL and TX; Cuba.



*Photo by Roger Lloyd*



***Lycopodiella inundata* Holub**

**Bog Clubmoss; lycopode inondé**



*Photo by David Mazerolle*

Small and compact, this sparsely branched plant is generally prostrate and shallow-rooted. Each branch is covered by appressed green leaves. Sporangia arise in the leaf axils of the terminal spike, with little differentiation from sterile sporophylls.

Frequently found in peatlands, sandy beaches and poorly drained areas, especially in acidic substrates with prolonged wetting.

More common in western counties, but found throughout.

NF to AK, south to CA, IA and NC.



*Photo by Roger Lloyd*

***Lycopodium* L.**

**Clubmosses**

Worldwide there are from 15–25 species of these trailing plants, generally subarctic or temperate. Six are found across NS. Stems may be rhizomatous or stoloniferous, upright, and branched or unbranched. Leaves are long and slender, toothed or entire and arranged in at least six ranks. The scattered leaves on the rhizome are papery. No gemmae are produced. Strobili are solitary and sessile, or if more than one, stalked. Peduncles may have some leaves. Hybrids are unknown in this genus.

# Key to species

- A. Strobili stalked; stems with 2–5 branches; leaves hairlike distally. B
  - B. Strobili solitary, pedicels lacking; branches 2–3, upright. *Lycopodium lagopus*
  - bb. Strobili 2–5, on pedicels; branches 3–6, oblique or spreading. *L. clavatum*
- aa. Strobili sessile, stems branched or dendroid, with many branches; leaves without hairlike tips. C
  - C. Strobili single; horizontal stems above ground. *L. annotinum*
  - cc. Strobili 1–7 on much-branched, stems; rhizomatous D
    - D. Lateral shoots flat in cross-section; leaves unequal in size; lateral leaves twisted, proximal leaves reduced. *L. obscurum*
    - dd. Lateral shoots round in cross-section; leaves equal in size, none twisted. E
      - E. Leaves dark green below the branches on the main axis, soft to touch. *L. hickeyi*
      - ee. Leaves pale green below the branches; prickly to touch. *L. dendroideum*

## *Lycopodium annotinum* L.

(includes var. *pungens* (LaPylai) Desv.)

**Bristly Clubmoss; lycopode innovant**



Photo by David Mazerolle

Much-branched from above-ground rhizomes, this plant has sharply pointed sessile leaves, 6–11mm long. They are arranged in rows spiralling the stem. The prostrate rhizomes have fewer leaves. Superficially resembling *Huperzia lucidulum*, but the presence of strobili should easily separate it.

Dry, open deciduous forests and the edges of fields.

Common throughout.

NF to AK, south to OR, AZ and NC. Circumpolar.



Photo by Roger Lloyd

***Lycopodium clavatum* L.**  
**lycopode claviforme**



Photo by Sean Blaney



Photo by Roger Lloyd

A long-trailing species, this one has soft leaves borne in ranks upon the stems and rhizomes. Strobili are terminal on long peduncles, sparsely covered in bracts and scale-like leaves. Spikes 2–4 per peduncle. The soft hairlike bristles on the leaves will separate it from *L. annotinum*.

Usually on lighter soils on hillsides, barrens and pastures.

Common throughout.

NF to SK; AK to BC, variously south. Eurasia.

***Lycopodium dendroideum* Michx.**  
**lycopode dendroïde**



Photo by Roger Lloyd

Rhizomatous, the stems are erect, branching only near the top. Leaves are decurrent scales, prickly to touch. Strobili are sessile, produced after the second year.

Found in forests or open habitats.

Yarmouth to Kings, Colchester and Pictou counties, with a couple stations in Victoria Co.

Elsewhere across Canada, variously south to WY and AL; Asia.

***Lycopodium hickeyi* WH Wagner, Beitel & RC Moran**  
**lycopode de Hickey**



Photo by David Mazerolle

Resembles *L. obscurum*, but for the branchlets which are round in cross-section. Ground-pine has flat branchlets. Leaves are all of equal size, while the other species has smaller leaves closer to the rhizome.

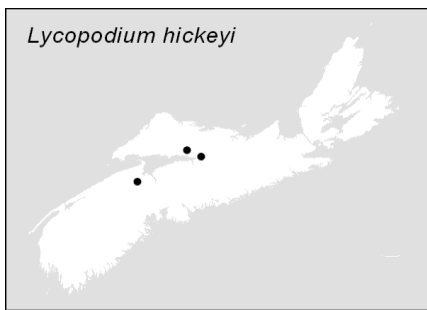
Habitat is generalized shrubby forests and deciduous stands.

Collected from only two locations so far, Colchester and Kings Counties. Our older specimens of *L. obscurum* should be examined to see if they rightfully belong here.

Ranges from NS to ON, south to MN, TN and NC; SK and WA.



Photo by Roger Lloyd



***Lycopodium lagopus* Laestadius ex C. Hartman**  
**lycopode patte-de-lapin**



Photo by David Mazerolle

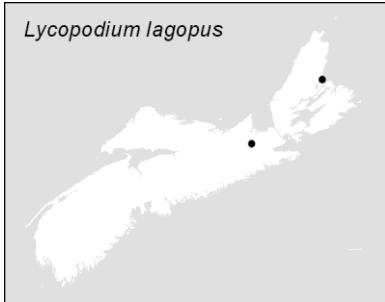
Leaves are appressed with their margins entire, ending in a hairlike bristle. The bud constrictions are conspicuous. Lateral branches are erect, or mostly so, with a single cone, or at most, a pair on very short peduncles.

Open grassy fields and second-growth forests.

From Digby and Inverness counties.

Greenland to AK, south to OR, IL and PA; Eurasia.





***Lycopodium obscurum* L.**

**Ground-pine; Tree Clubmoss; lycopode obscur**



*Photo by Roger Lloyd*

Resembling a small tree, this neat plant arises from underground rootstocks. Flat branchlets crowd the erect stems. Leaves are tightly packed in six ranks around the branches, with smaller leaves on the erect stems. Strobili are terminal and sessile. Sporophylls differentiated from leaves.

Dry sites, open and sandy areas similar to pine habitat.

Common throughout.

NS to ON, south to AL and GA; AK.



*Photo by Ross Hall*

## Ophioglossaceae

### adder's-tongue family

These soft fleshy ferns arise from a short rhizome. Leaves show branching venation, entire, or variously pinnate. Sporangia are relatively large, numerous and thick walled, stalked or embedded in the axis. A single sporophore per leaf. Sixty species are distributed worldwide in three genera; only two genera found in NS.

#### Key to genera

- A. Blades lobed or compound, with freely forking veins; sporangia on short stalks. *Botrychium*
- aa. Blades simple, veins converging; sporangia sessile. *Ophioglossum*

## *Botrychium*

### Grape Ferns

This is a worldwide genus of 30 species. Blades may be smooth or pubescent, feathery or pinnately compound. Veins are divergent, but do not reach the blade margins. Sporophore is at least pinnately divided often up to three times. Sporangia stalked. Mature plants are needed to confirm species.

#### Key to species

- A. Blades narrow, < 7 cm wide, lobes fewer distally, smooth. B
- B. Pinnae fan-shaped or obovate, entire or lobed distally; blade and sporophore erect in bud. C
- C. Lowest pair of pinnae the largest; blade shorter than the base of the sporophore. *Botrychium simplex*
- cc. Lowest pinnae pair equal in size to others; blade length equal to or longer than the stalk of the sporophore. *B. lunaria*
- bb. Pinnae lobed or pinnate; blunt or pointed; blade or its tip reflexed in bud. D
- D. Blade oblong and stalked. *B. matricariaefolium*
- dd. Blade triangular, usually sessile. *B. lanceolatum*
- aa. Blade usually wider than 7cm, slightly pubescent, at least in bud. E
- E. Blade sessile, attached midway on the stem; deciduous. *B. virginianum*
- ee. Blade on long stipe, nearly basal; evergreen. F
- F. Blade many times divided; terminal segments with 1–2 veinlets. *B. dissectum*
- ff. Blade less divided; terminal segments with > 2 veinlets. *B. multifidum*

***Botrychium dissectum* Spreng.**

**(includes var. *obliquum*)**

**Grape Fern; botryche découpé**



Photo by Sean Blaney

Blade arises from a long stipe near the base, deltate in outline. Pinnae are freely-branched, with the pinnules serrulate. Stipe of fertile frond is up to 30cm tall. Clusters of sporangia resembling grapes, line the branches. After sporulating the plant turns brownish purple.

Spores from September to November.

Generally in sandy, gravelly, grassy or open soils. Frequent in the southwestern counties, scattered eastward to Cape Breton. Not abundant but often seen.

NS to ON, south to TX and FL.



Photo by Roger Lloyd

***Botrychium lanceolatum* (Gmel.) Angstr.**

**Lance-leaved Grape Fern; botryche lancéolé**



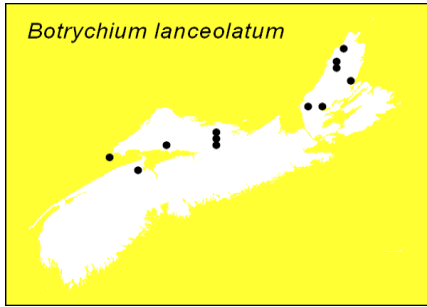
A lax species, it has a single stipe, bearing a single sessile sterile frond, divided into lanceolate pinnules. The sporophore branches at an acute angle, covered with clusters of sporangia.

Our ferns belong to var. *angustisegmentum* Pease and Moore, darker green in colour and with narrower frond segments than the typical variety, which is also more northern.

Fertile soils on wooded hillsides.



Photo by Sean Blaney



Kentville Ravine (Kings County); Colchester, Cumberland and a few sites in western Cape Breton. Rare where found and of limited distribution in the northern counties.

In the east found from NF to ON, south to TN and NC; Greenland; western population from AK to CA and NM.

***Botrychium lunaria* (L.) Sw.**  
**Moonwort; botryche lunaire**



Very small and fleshy ferns with the sterile blade arising from the top of the plant. Pinnae are fan-shaped, arranged in sessile pairs (four or more), notched distally.

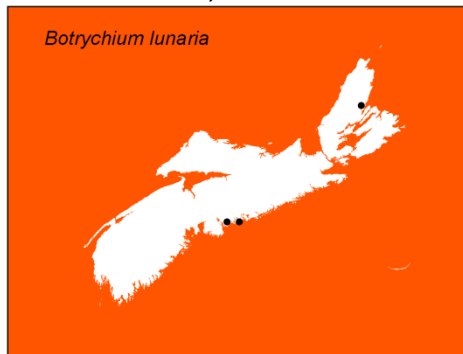
Spores are produced throughout the summer.

Open slopes. Sand or gravel; shores and meadows. Basic soils.

Known from Conrad's Beach, Halifax County and from New Campbellton and Indian Brook in northern Cape Breton.

NF to AK, south to CA, NM and PA; Greenland.

Photo by Rick Ballard

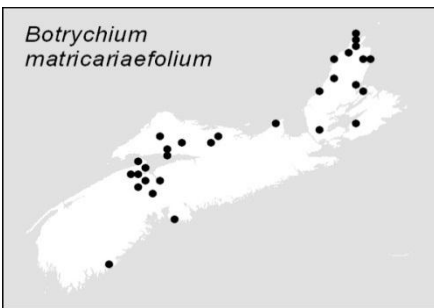


***Botrychium matricariaefolium* A. Br.**

**Daisy-leaved Grape Fern; botryche à feuille de matricaire**



Photo by Sean Blaney



A larger species, it is even fleshier than *B. lunaria*. Stipe is longer than the sterile blade. Pinnae sharply divided, with irregular margins. Fertile blade also branched. Spores measure 25–35 $\mu$ . It is the most noticeable of the grape ferns.

Exposed headlands and worn out fields; in alluvial soil and on fertile soil high in leaf mould, as found in deciduous forests.

Northern, from Annapolis County eastward. A single Queens County location, near Port Mouton.

NF to MB, south to TN and NC; northern Eurasia.

***Botrychium minganense*** Vict. was included by Clausen in the Monograph of the Ophioglossaceae as present in NS. The report is based on a specimen held at the US National Museum, Smithsonian Institute, collected by D. White and C. Schuchert VII from New Campbellton, Cape Breton Island. It is to be expected here as it ranges from NF to AK, south to CA, AZ and NY. It is now considered to be Extirpated.

***Botrychium multifidum* (Gmel.) Rupr.**  
**Grape Fern; botryche à feuille couchée**



Photo by Marian Munro

Stipe of the sterile frond arises from near the base and exceeds the blade in length. The pinnules are evergreen and obovate with wavy margins. Both fronds are finely divided. Sporangia are arranged in loose clusters. There is considerable variation in size and small sterile plants are often seen in summer.

Spores produced in late summer.

Found in grassy pastures, field, exposed hillsides and forests.

Uncommon in the southwest, scattered from Digby to northern Cape Breton.

NF to AK, south to CA, AZ and NC; Eurasia.

***Botrychium simplex* E. Hitchc.**  
**Least Grape Fern; botryche simple**



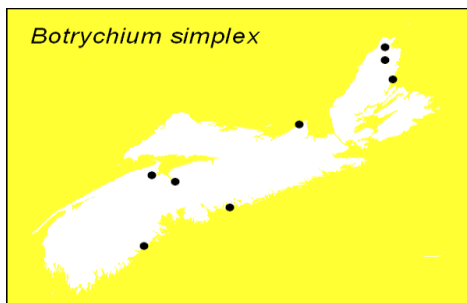
Photo by Marian Munro

Being very small in stature means this species is easily overlooked. Pinnae are once-divided. Pinnules are lanceolate or obovate. Fertile frond has sharply angled branches covered in small tightly clusters of sporangia. Spores range in size from 35–50μ, overlapping those of *B. matricariaefolium*.

Spores produced in late May and June.

Reported from various habitats, usually involving damp or mossy streambanks or lakeshores.

Scattered locations from Yarmouth County to Cape Breton: Cedar Lake (Digby–Yarmouth border), West Berlin (Queens Co.), Petpeswick and in Antigonish, Victoria and Inverness counties.



NF to AK, variously south. Absent from SK and YT; Eurasia.

STATUS: YELLOW-listed.

***Botrychium virginanum* (L.) Sw.**

**Rattlesnake Fern; botryche de Virginie**



*Photo by Beth Cameron*

A tall and robust species, it reaches 70cm in height. Blades are large and sessile, several times pinnate. They arise midway up the stipe. Fertile frond is terminal, with compact rows of sporangia.

Spores in spring and early summer.

A beautiful lacy fern, it is highly visible beneath the mature deciduous forests it favours. Not colonial and may be expected in calcareous regions.

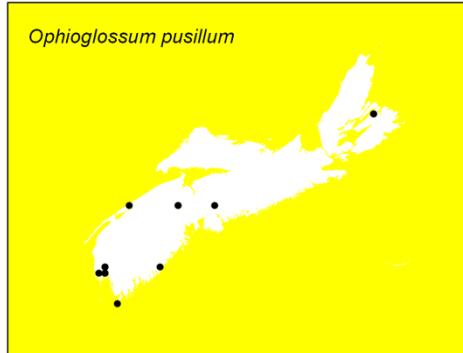
Scattered from Annapolis and Cumberland counties to northern Cape Breton.

Absent only from NU, it is found throughout the continent; Eurasia.

**Ophioglossum L.**  
**adder's-tongue**

This fern has simple undivided blades, both sterile and fertile. Sporangia are carried in two rows, terminal on the stipe and embedded in it. There are 30 wide-ranging species.

***Ophioglossum pusillum* Raf.**  
**adder's-tongue; ophioglosse nain**



The oval sterile blade is sessile, clasping the stipe. A second smaller blade may be present. Blades resemble the leaves of several companion species, but for the terminal sporangia. Often overlooked and difficult to find.

Spores produced May to August.

Sterile soils, swamps and sandy or cobbly lakeshores.

Known from Yarmouth and Digby Counties; scattered east to Halifax and Amherst; a single Cape Breton record from George River.

Elsewhere from NS to MB, south to NB and NC; westward.

STATUS: YELLOW-listed.

## **Osmundaceae**

### **Royal Fern Family**

A family of large coarse plants, these are our largest pteridophyte species. Stipes arise from rhizomes covered in persistent frond bases. Stipes are pubescent but without scales, bearing stipules at their bases. Fertile fronds may be separate from vegetative fronds, or fronds divided between sterile and fertile portions. Sporangia are not arranged in sori, but in short stalked clusters.

### ***Osmunda* L.**

#### **royal ferns**

A single genus finds its way to eastern North America; three species grow in Nova Scotia. All have pinnate or bipinnate fronds.

Key to species

A. Fronds twice-pinnate; fertile pinnae carried at the top.

*Osmunda regalis*



aa. Fronds pinnate; sterile fronds deeply divided, lobes nearly entire.

B

B. Fertile pinnae near the middle of sterile fronds; no woolly pubescence at the base of pinnae.

*O. claytoniana*

bb. Fertile fronds on separate stipes; pinnae with a tuft of pubescence in the axils.

*O. cinnamomea*

***Osmunda cinnamomea* L.**

**Cinnamon Fern; osmonde cannelle**



*Photo by Sean Blaney*

A common species, its fertile fronds are cinnamon-coloured, comprising minute sporangia appressed to the axis. Sterile fronds have pinnae subtended by clusters of pale pubescence. Fiddleheads emerge covered in pale or white coloured tomentum.

Spores in spring.

Grows in poorly-drained soils as found in bogs, swamps, coastal barrens and even low-lying pastures and wet conifer woods.

Very common throughout the province.

Elsewhere from NF to ON, south to TX and FL; South America; Eurasia.



*Photo by David Mazerolle*

***Osmunda claytoniana* L.**

**Interrupted Fern; osmonde de Clayton**



*Photo by Beth Cameron*

Fronds resemble the species above, but with both fertile and sterile pinnae on the same stipe in this species. Brown or rusty coloured sporangia arise midway down the stipe, “interrupting” the green sterile blade, hence the common name.

Spores are produced from spring to early summer.

The species grows in moist but well-drained sites, base of slopes, stony soils.

It is common throughout the province, although less so than Cinnamon Fern.

NF to MB, south to MS and GA; Asia.



*Photo by David Mazerolle*

***Osmunda regalis* L.**

**Royal Fern; osmonde royale**



Photos by Sean Blaney



Resembles a small tree. This fern is much-branched. Pinnules completely separate from each other, attach to the rachis by short petioles. Sporangia borne at the tip of the same stipe which bears the sterile pinnae. Our plants belong to var. *spectabilis* (Willd.) Gray.

Spores produced in spring and early summer.

Associated with open water, streams and lakeshores, marshes or wooded swamps.

Common throughout NS, forming large colonies where found.

NF to MB, south to FL and TX, south.

## Polypodiaceae

### Polypody Family

With 40 genera worldwide, only a single genus reaches NS, with two of 100 species, growing on rock.

### ***Polypodium* L.**

#### **Polypody**

Arising from glaucous, scaly rhizomes directly on rock, these ferns bear leathery fronds, of fewer than 25 pairs of pinnae. Sori are separate, limited to outer portions of the pinnae and are covered with pubescent sporangiasters (modified sporangia).

Key to species

A. Blades lanceolate; tips of pinnae acute; sporangiasters present, strongly pubescent; scales on the rhizome golden.

*Polypodium appalachianum*

aa. Blades ovate; tips of pinnae rounded to obtuse; sporangiasters less common,

*P. virginianum*



pubescent or not; at least some of the scales dark-brown.

***Polypodium appalachianum* Haufler & Windham**

**Appalachian Polypody; polypode des Appalaches**



*Photo by David Mazerolle*

Formerly included with the next species, it is now recognized as separate species. It is a diploid, while *P. virginianum* is tetraploid. The acute tips are demonstrated in this photo. It can be difficult to separate although the spore size should help. This species has spores of  $< 52\mu$ , their surfaces verrucose. Sporangia number more than 40 per sorus.



*Photo by Roger Lloyd*

Elsewhere its habitat is restricted to cliffs and rocky slopes.

As NS material has yet to be examined, the distribution of this species in the province remains unclear.

NF to ON, south to AL and GA.

***Polypodium virginianum* L.**

**Rock Polypody; polypode de Virginie**



*Photo by Ross Hall*

Colonial from rhizomes, ferns are covered in both light and dark scales. Sporangia count fewer than 40 per sorus. Spores measure more than  $52\mu$ . They are tuberculate, with projections exceeding  $3\mu$  in height.

Rock outcrops in wooded habitats.



*Photo by Sean Blaney*

This species is very common throughout. Our collections need to be examined as some more than likely belong to the previous species.

NF to NT; AK, south to SK, SD and AL.

## **Pteridaceae**

### **Maidenhair Fern Family**

Elsewhere 40 genera belong to this family; Nova Scotia has only 2 genera, each with a single representative species. Sterile fronds are branched or unbranched. Stipes bear persistent scales at the bases. Sporangia are clustered in sori, arranged at the margins of pinnae and sometimes covered by the inrolling of the margins.

#### **Key to genera**

A. Sori running together to form a marginal band; plant not branched; sterile frond on separate stipe.

*Cryptogramma*

aa. aa. Sori distinct and short; plant branching at the top; fertile fronds not separate.

*Adiantum*

## ***Adiantum* L.**

### **Maidenhair Fern.**

There are about 200 species of these woodland ferns, found on all continents. Their shining fronds seem to collect beads of moisture when humid. Sori are singly carried on the underside of the pinnule margins, covered by a false indusium of the involute margins.

#### ***Adiantum pedatum* L.**

##### **Maidenhair Fern; adiante du Canada**



*Photo by Sean Blaney*

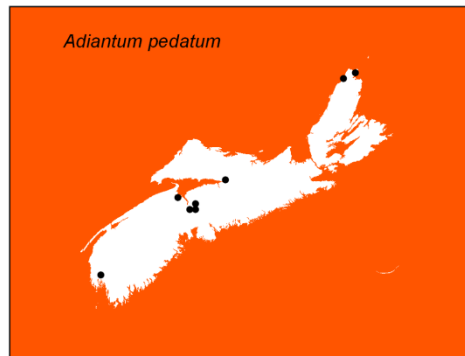
This beautiful and graceful fern, is at the northern edge of its North American distribution in Nova Scotia. Stipes are often purplish and develop from rhizomes, producing small colonies. Stipes branch at the top at least once... Pinnules are borne on short stalks, with the sori aligned on the lower edge of their lobes, covered by the inrolled margins.

Spores produced in summer.

Limited to alkaline soils and oak–birch–sugar maple–elm intervalle forests.

Very few extant collections: Meander River, Hants Co., where it was found in the 1980s. Records exist from Yarmouth, Kings and Victoria counties. Recently discovered along the South Blair River, Inverness Co.

Ranges from NS to ON, south to GA and OK; AK.



## ***Cryptogramma* R. Br.**

### **Rock–brake**

Rock-brake includes about 10 species of ferns of rocky habitats throughout the northern hemisphere. Typically the fronds are dimorphic and may be evergreen or deciduous. Petioles are weakly ascending

and smooth or scaly at the base. Sterile fronds are thin, their rachis green. Distal pinnae are toothed. The fertile fronds exceed the height of the sterile fronds. Their pinnules are entire, the margins revolute forming a false indusium over the sori.

***Cryptogramma stelleri* (Gmel.) Prantl.**

**Slender Cliff-brake; cryptogramme de Steller**



Photo by David Mazerolle

Slender creeping rhizome gives rise to several fronds scattered along its length. Sterile fronds are thin and weak, on green stipes and with deeply lobed pinnules. The fertile fronds are stiffly erect, above the green fronds with lanceolate or oblong pinnules. Sori run in a continuous band along the margins covered by the inrolled edges.

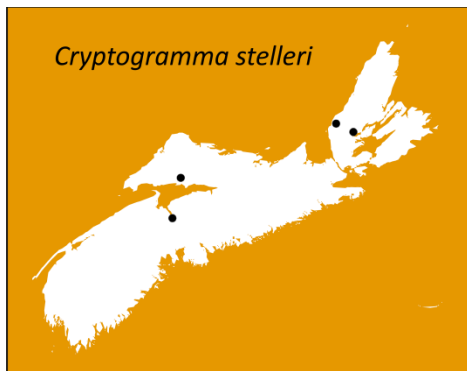
Spores are produced from late May to September.

Often associated with limestone cliffs and shaded crevices in conglomerates.

Known from the Windsor area, Economy River, Colchester Co. and Inverness County (Hillsboro and Whycomagh).

Elsewhere from NF to ON, south to IL and WVA. In the west from NT to AK south to NV. Asia.

STATUS: ORANGE-listed in NS.



## Schizaeaceae

### Climbing fern family

Family is mostly tropical in distribution, with a single elusive species found in the Maritimes. Hardly resembling a fern, there are both sterile and fertile fronds. The sterile frond is much reduced to a threadlike green blade, so narrow they usually coil at the base of the plant. Fertile fronds rise above the base on slender stipes, with the comb-shaped sporangia at the top.

***Schizaea pusilla* Pursh**  
**Curly-grass Fern; schizée naine**



*Photo by David Mazerolle*

Generally less than 10cm in height, these plants are difficult to find without a search image.

Spores produced throughout the summer, from July.

Sphagnum wet areas, upper peaty lakeshores and undrained depressions.

Scattered throughout the Atlantic counties and frequent in the northern plateau of Cape Breton.

Elsewhere found in NF, NS, NB, NY and NJ.

## **Selaginellaceae**

### **Spikemosses**

These ground-dwelling mosslike plants are represented in Nova Scotia by only two species. Low-growing and creeping, they are freely branching, arising on sparse roots. Leaves are simple and sessile, sometimes ending in bristles, arranged in 4–6 ranks along the stems. Sporangia are carried in the leaf axils of the distal portion of the stems. Megaspore and microspores are both produced. Some exotic species are cultivated as houseplants.

Leaves flat; not ending in bristles.

*Selaginella selaginoides*

Leaves grooved distally, ending in a bristle.

*S. rupestris*

***Selaginella rupestris* (L.) Spring**  
**sélaginelle des rochers**



Photo by Roger Lloyd



*Selaginella rupestris*

A much-branched plant forming dense gray-green mats. Close examination is required to separate it from the true mosses. It has bristly overlapping leaves, appressed in a herringbone pattern. Sporophylls form a spike, scarcely separable from the leaves below it.

Found on dry exposed rocks and sand.

Long known from the ledges at the top of Shobels Mountain, Sandy Cove, Digby Co. and east of Centreville on Digby Neck. Thought to be extirpated, but for a recent collection in the same vicinity on Digby Neck.

NS to BC, south to WY, MS and GA; Eurasia.

***Selaginella selaginoides* (L.) Link**  
**sélaginelle fausse-sélagine**



Photo by Roger Lloyd

Prostrate and sparingly branching, this species is easy to miss, blending as it does with the bryophytes around it. The leaves are loosely arranged in four ranks around the stems. Megaspores are produced in the leaf axils of the larger upper leaves. Not a bristly plant.

July and August for spores.

Grows in moist areas such as bog hummocks and streamsides.





Brier Island (Big Meadow) where it is common; west L'Ardoise, Richmond County (rare) and scattered in suitable habitat in northern Cape Breton.

Greenland to AK south to CO, NV and MI, ME in the east. Eurasia.

## **Thelypteridaceae**

### **Marsh Fern Family**

Predominantly tropical, only four species reach NS, of the 900 described species. Formerly included with *Dryopteris*, they are now separated from this genus on the bases of indument (needle-like hairs) on the frond and the absence of scales within the blades. Rhizomes are scaly only at the top; blades no more than twice-pinnate. Veins extend to the margins on the pinnae. Sori are central on the pinnae, round or rarely elongated along the veins. Indusia are kidney-shaped if present.

Key to the genera

Blades once-pinnate; rachis grooved; pinnae not connected along the rachis; indusia present.

*Thelypteris*

Blades twice-pinnate; rachis not grooved; pinnae connected by tissue along the rachis; indusia absent.

*Phegopteris*

### ***Phegopteris* (C. Presl) Fée**

#### **Northern Beech Fern**

Only three species are included, with a single NS species. Pinnae are deeply lobed with the blades 2–3 times pinnate. Each pinnae is joined by a wing along the rachis. Scales are present on the rachis and costae, triangular in outline. Indusia are absent.

***Phegopteris connectilis* (Michx.) Watt.**

**Northern Beech Fern; phégoptère du hêtre**



Photo by Sean Blaney

Deltate blades are widest at the base and longer than broad. The lower pair of pinnae angle downward. Scaly stipe is brown. Sori are small, arranged along the veins near the margins of the pinnae.

Spores produced June to August.

A woodland fern, especially likely to be found in shade, in ravines, cliffs and hillsides.

Scattered to common throughout.

Greenland to AK, south to OR, CO and NC. Eurasia.

***Thelypteris* Schmidel**

Twenty-one of the 875 species reach North America; NS hosts only three, all of wet soils in forests or wetlands. Rhizomatous, the simple blades are once divided and often pubescent. Rachis and costae have reddish or tan scales. Sori are round, covered with tan indusia (in our species.).

**Key to species**

A. Lower pinnae greatly reduced in size, much shorter than the central ones.

*Thelypteris noveboracensis*

aa. Lower pinnae only slightly reduced in size, from the central ones.

B

B. Pinnule veins forked; costae with tan scales.

*T. palustris*

bb. Pinnule veins not forked; costae without scales.

*T. simulata*



***Thelypteris noveboracensis* (L.) Nieuwl.**

**New York Fern ; thélyptère de New York**



*Photo by Sean Blaney*

A colonial fern, it forms light green patches, especially in sandy or acidic sites. Blades are tapering at both ends. Sori are round, unlike those of Lady Fern with which it grows, which are elongated.

Spores throughout the summer.

Grows in drier sites than most *Thelypteris* species in shady locales while Hay-scented Fern frequents only sunlit sites.

Common throughout NS.

NF to ON, south to OK, LA and GA.

***Thelypteris palustris* (Salisb.) Schott.**

**Marsh Fern; thélyptère des marais**



*Photo by Alex Wilson*

A soft, fragile fern, on delicate stems, it is easily bent with disturbance. Sterile and fertile fronds are dimorphic. Fertile fronds are longer with thicker, inrolled pinnules. The round sori are covered by pubescent indusia. Entire plant is finely puberulent and ours is named var. *pubescens* (Lawson) Fern., differing only slightly from the Eurasian plants. It resembles the following species, but for the pinnae carried horizontal and forking veins.

Spores produced from June to October.

Look for it in ditches, meadows and in bogs, restricted to moist settings.

Common throughout the province.

NF to MB, south to TX and FL.

***Thelypteris simulata* (Davenp.) Nieuwl.**

**Bog Fern; Massachusetts Fern; thélyptère simulatrice**



*Photo by Reta Cook*

Resembles New York fern, but for the pinnae angled downward and the presence of unforked veins. Blades are stiffly pubescent with short hairs on the upper surfaces.

Spores from June to October.

Shady habitats such as riparian zones, where it replaces the other two *Thelypteris* species.

Scattered in Shelburne and Yarmouth counties, less frequent eastward to Lunenburg and Guysborough counties and inland,

Ranges coastally from NS to ON, variously south to TN and AL.

## **Cupressaceae**

### **Cypress Family**

Of the 130 species only three have reached NS, in two genera. Various species and cultivars are popular ornamentals. Needles and scales are opposite or whorled.

Key to genera

Erect tree or shrub; cones woody.

*Thuja*

Prostrate evergreen or dwarf shrub; cones berrylike.

*Juniperus*

## ***Juniperus* L.**

### **Junipers**

Trees and shrubs of the northern hemisphere, two are found in NS. The Common Juniper is native in Asia, Europe and North America and is an often used parent for cultivars, although rarely used itself. It is usually found in acidic soil and is intolerant of shade. These evergreens produce berrylike green fruits, which turn bluish upon maturity.

#### Key to species

Needles elongated, prickly, in whorls of 3, 7–22mm long.

*Juniperus communis*

Needles scalelike, 2–3mm long, opposite and overlapping, or becoming so.

*J. horizontalis*

### ***Juniperus communis* L.**

#### **Common Juniper; Ground Juniper; genévrier commun**



*Photo by David Mazerolle*

Prostrate and creeping, this evergreen glaucous green in colour, with sharply pointed needles that are white above and green below. The fruit is covered in a waxy glucous coating. Our common form is var. *depressa* Pursh. Var. *montana* Aiton is a spare trailing form, with short, broad recurved needles, bearing a white stripe. Var. *communis* is erect and bushy, and is not widespread (Mount Saint Vincent University in a bog).

Occurring mainly in exposed localities, collections exist from southwestern NS, although it is best developed in northern Cape Breton.

Common juniper grows well in sandy soils in old pastures, heaths and bogs. Common throughout, especially along the coast.

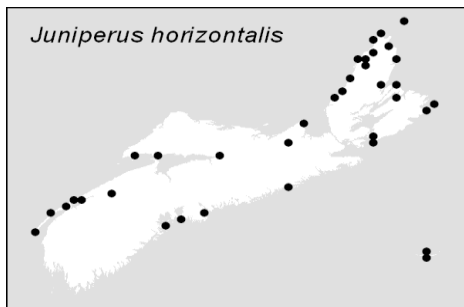
NS to AK, south to CA, NM and FL Absent from the Gulf States.

***Juniperus horizontalis* Moench**

**Creeping Juniper; genévrier horizontal**



Photo by Sean Blaney



Another evergreen shrub; this species has scalelike leaves with imbricate bases. Fruit are carried on short recurved peduncles. Various cultivars are widely used in the nursery trade.

Rocky headlands, cliffs and bogs.

Scattered along the Bay of Fundy. Common in northern Cape Breton and on Sable Island. There have been few collections made on the Atlantic coast, such as Prospect, Halifax Co.

NF to AK, south to WY, IL and NY.

***Thuja* L.**

**Cedar**

Only two species of Arborvitae or Cedar are native to North America; a single species may be found in NS, but with both native and cultivated populations. The Eastern White Cedar was the first North American tree to be grown in Europe. A tree planted in Paris in 1553 is on record, preceding other North America tree species appearances by about 200 years.

***Thuja occidentalis* L.**

**Eastern White Cedar; *thuya occidentalis***



*Photo by Megan Crowley*



*Photo by Ross Hall*



Evergreen and grayish green leaves are reduced to imbricate scales. Reddish brown twigs are covered with leaf remnants. Small cones are reduced to a few rugose scales.

Limited to wet acidic soil as on lakeshores, swamps and old pastures.

Native trees are known from the north-facing old pastures of the South Mountain above the Annapolis Valley as well as on the Valley floor, Yarmouth, Digby and Cumberland counties. All other localities are introduced trees.

NS to MB south to IA, TN and SC.

Native stands are RED-listed in NS.



## Pinaceae

### pine family

Most of the pine family are evergreen, our notable exception is larch, whose soft needles turn golden yellow before dropping late fall. Each needle contains a resinous sap, giving a strong odour to the trees. Flowers are unisexual, in the form of catkins (or aments). Catkins are simply aggregations of scales enclosing the stamens or ovules. Pistillate catkins have two ovules at the base of each scale. After pollination, cones or fleshy fruit are formed.

#### Key to genera

- A. Leaves in bundles. B
  - B. Leaves deciduous, many per bundle. *Larix*
  - bb. Leaves evergreen, in bundles of 2 or 5 in our species. *Pinus*
- aa. Leaves not in bundles, alternate. C
  - C. Cones erect, scales deciduous; needles attached directly to twigs, not on pegs; leaf scars smooth. *Abies*
  - cc. Cones pendulous, scales persistent; needles attached to pegs, which are persistent D
    - D. Leaves quadrangular in cross-section. *Picea*
    - dd. Leaves flat in cross-section. *Tsuga*

### ***Abies* Mill.**

#### **Fir**

Firs number about 40 species of the boreal regions. Of the nine North American species, a single fir reaches NS. Balsam-fir is a sweetly-fragrant species, with the bark marked by blisters filled with resin. In outline this species is strongly pyramidal, with rigid horizontal branches. The sessile needles lie flat in two ranks one on each side of the twig. They are glaucous beneath; the midrib is prominent.

Staminate flowers are pendulous, from the axils of the previous year's needles. Pistillate cones stand erect, like candles.

## ***Abies balsamea* (L.) Mill**

**Balsam-fir; sapin; sapin baumier; stoqon**



*Staminate cones, photo by Reg Newell*



*Photo by Reg Newell*



*Photo by David Mazerolle*

Twigs pale, needle scars smooth and round. Bark is reddish marked by resinous blisters but not scaly. Needles are notched distally. Purplish-brown cones turn brown at maturity.

Var. *phanerolepis* Fern. is recognizably distinct. Cones are bristly, giving the appearance of a white bloom, and smaller than those of the typical variety. This coastal form is scattered along the Atlantic, to eastern and northern Cape Breton, and reaching the Bay of Fundy.

The typical variety is our most common conifer, gradually replacing others. The interior Cape Breton plateau is mostly fir. Replaces the Acadian forest as it is opened up.

Common throughout.

NL to AB, south IA and VA.

## ***Larix* Mill**

The larches comprise a small genus of only 10 species. A single native larch reaches Nova Scotia, although European Larch is commonly planted as an ornamental. Larch is our only deciduous conifer, a character it shares with Dawn Redwood and Swamp Cypress. Leaves are carried in rosettes on short spur shoots arising from short scaly buds. The pistillate cones are crimson,(rarely green) in flower becoming woody as they develop.

***Larix laricina* (DuRoi) K. Koch**

**Eastern larch, Tamarack, Hackmatack, erroneously 'Juniper'; mélèze laricin**



*Photo by David Mazerolle*

Soft sage green needles are twice-grooved along their length. The small oval cones are reddish while developing. Scales are smooth. Bark is gray. Leaves turn brilliant golden in fall before dropping, in stark contrast to the russets and grays of the shrubs with which it grows.



*Photo by Ross Hall*

Frequents bogs, poorly-drained soil in ditches and tolerates full sunlight.

Common throughout.

NL to AK south to BC, IL and MD.

***Picea* Dietr.  
spruce**

Another boreal genus, spruce is represented here by three native species and an introduction from Europe, amongst our tree flora. Spruce defines the boreal forest across North America and is the primary pulpwood source. Cultivars are popular ornamentals. Natural hybrids also occur and here it is difficult to separate them.

Trees in outline are not symmetric as is Balsam-fir. Bark is scaly and thin. Twigs are brittle and rough. Aging trees exhibit sparse unthrifty branches. Cones mature the first year and become pendulous with maturity. Acute needles are brittle, borne on spurs and keeled above and below, encircling the twigs. In cross-section they are quadrangular.



Spruce trees are called *gawatgw* in the Mi'kmaq language, with no different names for the different spruces.

#### Key to the spruces

- A. Branches noticeably weeping or drooping; cones huge, 10–15cm long; *Picea abies*  
introduced and escaping in a few locations.
- aa. Cones to 5cm; branches spreading; native and common tree. B
- B. Twigs and bud scales smooth; cones cylindrical, with 60–90 scales, *P. glauca*  
flexible with smooth margins.
- bb. Twigs finely pubescent; cones oval or round, scales 30, with C  
irregular margins.
- C. Needles yellowish green, shiny; cones deciduous; bark *P. rubens*  
reddish; well-drained sites.
- cc. Leaves grayish or bluish green; cones persisting 2–5 *P. mariana*  
years; bark dark, not reddish; wetlands.

#### ***Picea abies* (L.) Karst.**

##### **Norway Spruce; épinette de Norvège**



*Photo by David Mazerolle*

Long needles and gracefully weeping branches separate this species from other spruces. Often asymmetric in outline, the canopy is distinctive. The cones are long and pendulous.

Planted as an ornamental and in the past for potential



*Photo by Martin Thomas*

harvest, it is now escaping.

Planted in Wolfville and at Indian Man Lake, Guysborough County. May be expected to increase over time.

Throughout North America; native to Europe.

***Picea glauca* (Moench) Voss**  
**White Spruce, Cat Spruce; épinette blanche**



*Photo by David Mazerolle*

One of our most common trees, particularly along the coast. Smooth pale twigs bear bluish green acute needles, spiraling the twigs. Ovoid cones are pendulous, distally positioned on branches, tan-coloured.

Grows in drier soil than our other native spruces. May form



*Photo by Alain Belliveau*

nearly pure stands after cultivated land returns fallow. Dominant conifer on the headlands where wind limits deciduous trees. Commonly forms krummholz or wind-sculpted growth.

Common throughout the province.

From NL to AK south to MD and WY.

***Picea mariana* (Mill.) BSP**  
**Black Spruce; épinette noire**



*Photo by Martin Thomas*

This species bears very dark bark and scaly twigs. The minute pubescence on the twigs requires a hand lens to see. Needles are gray-green and not acute. Cones have ruffled edges on the scales, persisting beyond the first year.

Black spruce is found on poorly drained soils as in swamps and bogs.

Common throughout.

NF to AK, south to BC, IL and NJ.

Hybrids with *Picea rubens* are common, where sympatric.

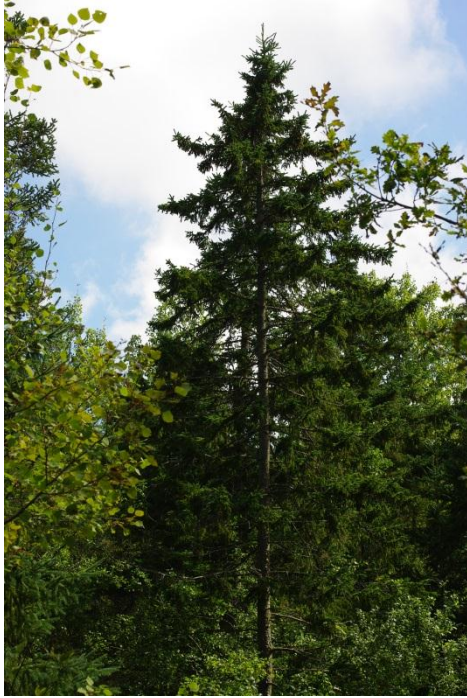
***Picea rubens* Sarg.**

**Red spruce; épinette rouge**



*Photo by Martin Thomas*





*Photo by Martin Thomas*

Needles are shorter than those of white spruce and acute. Twigs are red, covered in minute pubescence. Terminal cones are smooth on the margins. The bark is reddish and scaly.

Usually limited to well-drained fertile soils.

Most common on the mainland, infrequent in Cape Breton.

Hybrids are frequent with this and *P. mariana*.



*Photo by Martin Thomas*

In 1987, Red spruce became our Provincial arboreal Emblem.

NS to ON, south to TN and NC.

## ***Pinus* L.**

### **pines**

Circumboreal, the pine diversity is greatest in Mexico. Of the 100 species, a mere three are native to NS; a fourth is commonly found as an escape in some counties. Most distinctive are the long stiff needles, borne in bundles of 2–5, sheathed at the bases. The general word for pine in the Mi'kmaq language is *guow*.

Key to the pines.

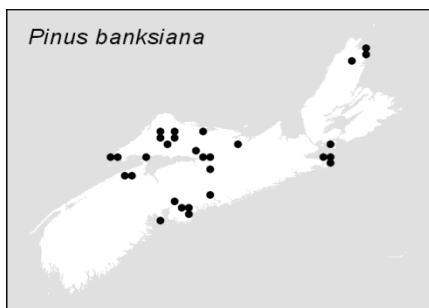
- |  |                      |
|--|----------------------|
| A. Needles in bundles of 5; cones much longer than wide (2–3 times).   | <i>Pinus strobus</i> |
| aa. Needles 2 per bundle; cones nearly round when mature.  | B                    |
| B. Needles 9–16cm long, stiff; stout tree, bark reddish.   | <i>P. resinosa</i>   |
| bb. Needles < 8cm long; bark not reddish.  | C                    |
| C. Needles 4–6cm long, not widely divergent; resin ducts<br>many per needle; bark yellowish of upper trunk and<br>branches; introduced tree. | <i>P. sylvestris</i> |
| cc. Needles 1–4cm long, widely divergent; resin ducts 2,<br>deeply embedded; bark of upper trunk and branches dark;<br>native.               | <i>P. banksiana</i>  |

***Pinus banksiana* Lamb.**  
**(*P. divaricata* (Ait.) Dumort)**  
**Jack Pine; pin gris; guow**



*Fertile cones*

*Photo by Beth Cameron*



Needles are borne in pairs, deeply convex on the upper surface and widely divergent. Bark is gray to black at least on the twigs. Cones are round. Populations are not as well developed in NS as in truly boreal regions, widely scattered in infertile, usually cooler regions of the province. This is a fire-adapted pine and the different populations seem to differ in the level of serotiny of the cones.

Generally grows in acidic stony shallow soils, sand plains.

Annapolis Valley, east and north to Cape Breton.

NS west to AK south to BC, MO and WVA.

Note: Serotinous individuals form cones that require exposure to fire to open, while most nonserotinous individuals have cones that open without fire exposure.



***Pinus resinosa* Ait.**  
**Red Pine; pin rouge**



*Photo by Ross Hall*

Resembles white pine, but with the very long needles in pairs. Basal sheaths are nearly 1cm long. Bark is reddish and scaly, especially at maturity. A robust species, it retains the rounded crown, at maturity.

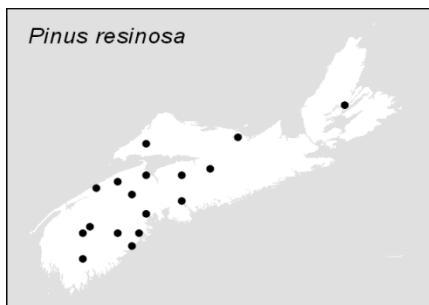
Grows in lowlands and like other pines, sandy soils.

Common in the Annapolis Valley, Cumberland and Colchester counties; scattered elsewhere.

NF to MB, variously south to MO and VA.



*Photo by Ross Hall*



***Pinus strobus* L.**

**White Pine; pin blanc**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Our most common pine has long soft needles arranged in bundles of fives. They are glaucous beneath. Cones are nearly cylindrical, several times longer than wide. Due to fungal disease and insect pests, our trees tend to develop an asymmetry in the crown.

Like others of the genus, it is usually found on sandy soils, especially the glacial till on granitic bedrock.

Common in Shelburne County and north-central NS. Scattered elsewhere and becoming less-frequent eastward to Cape Breton.

NF to MB and south to AR and GA.

***Pinus sylvestris* L.**

**Scots Pine; pin sylvestre**



*Photo by Martin Thomas*



*Photo by David Mazerolle*

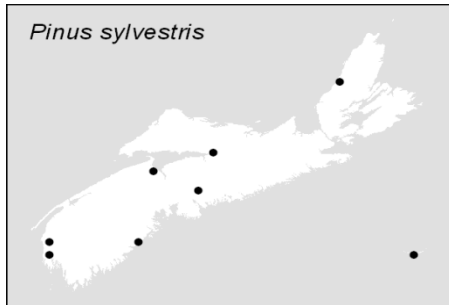
It has stiff, prickly needles similar to those of Jack Pine, but not divergent. Bark is yellow, especially towards the top and on the trunk.

Often used in reforestation projects and occasionally as an ornamental, it is ranked as invasive in sand barren habitat. (Hill and Blaney, 2010).

Introduced from NS to BC south to IL and MD. European.

Other pines have appeared in collections. Pitch Pine *Pinus rigida*, was collected during the early 1990s from Flintstone Rock, Shelburne Co. Apparently the Department of Forestry aerial seeded this NJ Pine Barren species in selected areas.

Austrian Pine *Pinus nigra*, is planted as a specimen tree. It is a massive tree with long (15cm) needles and occurs in several urban areas.



## ***Tsuga*** **Hemlock**

A single species of the four North American hemlocks reaches Nova Scotia. Closely allied with spruces, their broad flat needles resemble those of yew, but smaller. They are green above and white-tomentose below. Cones are pendulous with persistent scales. They are borne terminally on previous year's growth. Hemlock is deltoid in outline, gently curving rather than stiffly straight.

### ***Tsuga canadensis* (L.) Carr.** **Eastern Hemlock; *gastug***



*Photo by David Mazerolle*

Slender twigs are villous (with long soft hairs). Needle scars are narrow spurs. The needles are narrowly ovate in outline alternating along the twigs in two sparse rows. They are not pointed as in spruce and are white beneath, dark green above. Cones are small, ovate and with smooth-edged scales.





Hemlock grows to maturity only in shade, as in north-facing slopes, ravines, often on sandy soil.

Most common in southwestern NS, replaced by spruce and fir eastward.

NS to ON, variously south to AL and GA.

*Photo by Megan Crowley*

## **Taxaceae**

A single genus of 10 species, only one species reaches NS. Ours is a dioecious shrub. Needles are yellowish green beneath, acute and evergreen, arranged in two rows along the twigs. Staminate flowers are globose, consisting of a few stamens, producing copious amounts of pollen. Mature seeds are green and are surrounded by a red fleshy outgrowth of the lower axis (aril). All parts of this plant should be considered dangerously toxic, although some animals graze it without ill effects.

Yews are commonly planted as ornamentals. If poisoning is a concern, staminate shrubs should be used. Effective anti-ovarian cancer alkaloids (taxol) were discovered in the Pacific yew. The Canada yew does not have the same efficacy.

***Taxus canadensis* Marsh.**

**Canada Yew; if du Canada; gastug**



*Photo by Ross Hall*



*Photo by Gerry Lund*

Evergreen, the decumbent stems rarely exceed a metre in height. The needles are spirally arranged in two ranks, giving the twigs a flat appearance. There is no aroma when crushed. Margins are involute. Unlike juniper, the needles are soft and not whitish.

Frequents cool, wet conifer woods, ravines and wooded swamps. Also typical where wet conditions prevail in the climax conifer forest.

Common where found, throughout the province.

NF to MB, south to TN and NC.

## Aceraceae

### maple family

Our beloved national symbol is one of 110 species found on all continents. Divided between two genera; the other is limited to China.

### *Acer* L.

#### maple

All species are woody, trees or shrubs. Our native species have simple, opposite leaves. Flowers are regular and hypogynous, and are almost completely or functionally unisexual. Sepals and petals are five-merous. Typically eight stamens are inserted into the nectary disk, if present. The ovary has two locules, compressed at right angles to the septum. Fruits are double samaras, the single-seeded winged portion soon dropping away from the persistent central axis.

#### Key to species

A. Leaves compound.	<i>Acer negundo</i>
aa. Leaves simple, toothed, lobed.	B
B. Leaf sinuses between the main lobes rounded.	C
C. Sap milky; petals present; samara wings widely divergent.	<i>A. platanoides</i>
cc. Sap watery; petals absent; samara wings not widely divergent.	D
D. Ovary and fruit pubescent; nectary disk absent; winter buds red; bark with curling flat plates	<i>A. saccharinum</i>
dd. Ovary and fruit not pubescent; nectary glands present; winter buds brown; bark on mature trees furrowed.	<i>A. saccharum</i>
bb. Leaf sinuses between the main lobes pointed, forming a sharp angle.	E
E. Flowers before leaves unfold; flowers lateral in leafless umbels.	<i>A. rubrum</i>
ee. Flowers after leaf-out; flowers terminal.	F
F. Leaves coarsely and simply serrate; inflorescence erect.	<i>A. spicatum</i>
ff. Leaves finely double-serrate; inflorescence drooping.	<i>A. pensylvanicum</i>



***Acer negundo* L.**

**Box-elder; Manitoba Maple; érable à Giguère**



*Photo by Ross Hall*



*Photo by David Mazerolle*

A tree reaching 20m in height, its young twigs are glaucous. Leaves are pinnate, with 3–9 lanceolate and coarsely toothed leaflets. Flowers without petals appear earlier than or with the leaves. Staminate flowers droop in umbellike clusters; pistillate flowers arranged in drooping racemes. Copious seeds are produced by this somewhat invasive ornamental.

Favoured as an ornamental and escaping in moist shady soils; a weedy tree.

Established at Victoria Park, Truro, Windsor, Antigonish, Tatamagouche, Bridgewater and in the Annapolis Valley.

Introduced from further west.

***Acer pensylvanicum* L.**

**Moosewood; Striped Maple; érable bois-barré**



A slender tree, it has beautifully striate bark in shades of green, gray and pink. Leaves have three shallow lobes, each acuminate and doubly-serrate. They appear extremely large, especially on young trees. Drooping racemes bear fewer flowers than those of Mountain Maple, found in similar habitats. Each is either staminate or pistillate; flowers are yellow.

Prefers shade in rocky woods, deciduous forests, on slopes and streamsides.

Widespread but not abundant.

*Photo by Sean Blaney*



*Photo by Sean Blaney*

***Acer platanooides* L.**

**Norway Maple; érable de Norvège**



*Photo by Ross Hall*

NS to ON, south to MN, TN and GA.

Trees have milky sap, best seen at the base of a detached petiole. Its leaves tend to be dark green above and lighter below. Each has 5–7 lobes and a few pointed teeth. Yellow-green flowers are arranged in rounded corymbs. Mature fruit have widely divergent wings.

Flowers in May.

Frequently planted in urban areas and quickly spreading to successional forests. Potentially invasive.

Throughout the province.

Introduced from Europe and established from NS to ON, south to TN and NC; west coast.

***Acer rubrum* L.**

**Red Maple; érable rouge**



It can reach 35m at maturity, under ideal growing conditions, although we generally see it as a shrub in poorly-drained soils or on disturbed sites. Leaves tend to be thick and of a leathery texture, with 3–5 lobes, serrate on their margins. When young they are densely pubescent below. Tight clusters of red flowers arise from lateral buds, opening before the leaves. Young twigs are also red. Samaras are

Photo by Sean Blaney

small, with the sides of the wings nearly parallel.

Var. *trilobum* Torr. & Gray ex K. Koch resembles the typical variety as described here but with three lobes. It occurs from southwestern NS to Mabou.

Flowers late April-May.

Part of mature, swampy forests but now widespread in cut over areas due to its ability to stump sprout. Also found on alluvial soils.

Common.

NF to ON, south to TX and FL.

### ***Acer saccharinum* L.**

#### **Silver Maple**



Photo by David Mazerolle

Relatively fast-growing for a maple, it can reach 25m in height. Striking in its leaves, on long slender petioles with downy silver lower surfaces, flashing silver in the breeze. Usually a dull yellow in fall, it often loses its leaves earlier than other maples. Grey bark tends to be shaggy at maturity. The samaras measure 3–5cm long.

Generally found near flowing water and in wetlands.

In Nova Scotia, it has been found along the Cornwallis River, Kings Co. A preliminary genetic evaluation of the individuals at this location suggest that this is a naturalized population. The results of this study however are not believed to be conclusive (pers.comm. M. Lemieux).

Ranges from NB west to MN, south to TX and FL. Absent along the coastal plain, appearing to be Alleghenian in its affinity.

***Acer saccharum* Marsh.**

**Sugar Maple; érable à sucre; nawei**



*Photo by Ruth Newell*

A dominant feature of the Appalachian deciduous forest, trees may reach 40m. Flowers are borne in an umbel, arising from the distal bud and carried on long drooping pedicels. Wings of the samaras are incurved, forming a horseshoe shape. Bark is smooth and grey.

Flowers from late April to early June.

Found on well-drained soils.

Found throughout but most common on the slopes of the Cobequid Mountains, east to central Cape Breton. Absent from the Cape Breton Highlands, which are more boreal.

Ranges from NS to ON, south to GA and AL.

Our Canadian flag bears a stylized impression of a maple leaf. The Canadian 20 dollar bill has a maple leaf on it that more resembles the weedy Norway Maple than our iconic species.

***Acer spicatum* Lam.**

**Mountain Maple; érable bâtarde; malsnawei**



*Photo by Sean Blaney*

A large freely branching shrub, it may also grow as a small tree, to 10m. Leaves have either three serrate lobes or three lobes with two smaller lobes, all serrate. Greenish flowers are arranged in an erect raceme, 3–8cm long.

Flowers in June.

Characteristic of mountainous slopes, ravines, streamsides





Photo by Martin Thomas

in dense thickets and in forest openings.

Common throughout, especially along the hilly northern areas.

NF to SK, south to TN and GA.

## Amaranthaceae Amaranth Family

Mostly ruderal annuals, there are 900 species in 65 genera. A single genus reaches Nova Scotia. Their flowers are inconspicuous, green and apetalous, subtended by papery bracts. Flowers are unisexual although the plants are monoecious. The terminal inflorescence is brushlike or axillary. A single lens-shaped achene is produced. Some are flowering ornamentals, such as *Celosia* and Love-lies-bleeding (*Amaranthus caudatus*) and others are used for grain.

### ***Amaranthus* L.**

Three of 50 species have been introduced into Nova Scotia.

Key to species

A. A. Plants slender, branching diffusely; flowers in small axillary clusters; seeds small, <0.8mm wide.

*Amaranthus albus*

aa. Plants robust, erect; flowers in large terminal inflorescences; seeds >1mm wide.

B

B. Leaves green beneath; sepals pointed.

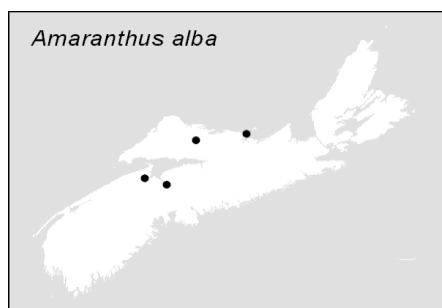
*A. hybridus*

bb. Leaves whitish beneath; sepals truncate.

*A. retroflexus*

### ***Amaranthus albus* L.**

**Tumbleweed; amarante blanche**



An erect herb, its stems are freely branching. Leaves are elliptic or oblanceolate, borne on petioles. Flowers are arranged in dense axillary clusters.

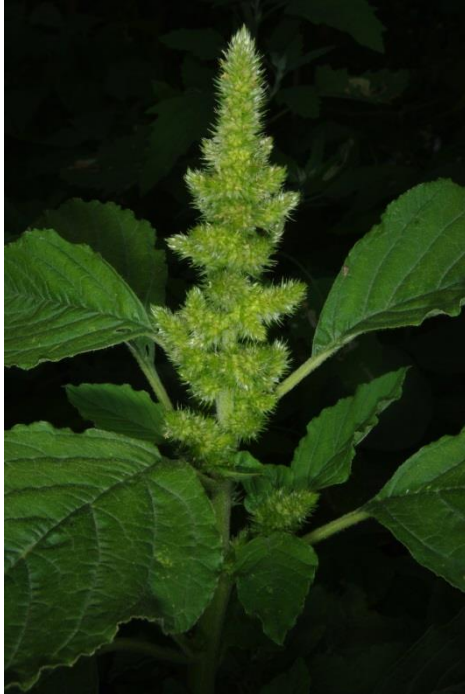
July to October, on disturbed soils.

Uncommon and appearing as a garden weed or about

railways. Collected from Truro, Wentworth, Windsor and Kentville.

Ranges from western Canada to Mexico. Introduced throughout most of the continent.

***Amaranthus hybridus* L.**  
**Green Amaranth; amarante verte**



*Photo by Martin Thomas*

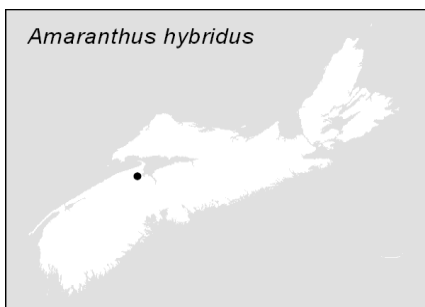
Tall and robust, its stem reaches to 2m in height, often branching freely. Stems are scaly or lightly pubescent especially in the inflorescence. Flowers are reddish, not showy. Leaves are elliptic and petiolate.

August to October.

A weed of disturbed soils and cultivated fields.

It is limited to a few well-established populations: Morristown and other communities in Kings Co.

Native to the tropics, it is widespread but infrequent yet in eastern Canada as an adventive.

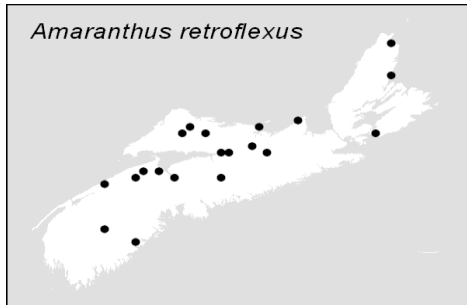


***Amaranthus retroflexus* L.**

**Redroot Pigweed; amarante à racine rouge**



Photo by Martin Thomas



A coarse herb with stout erect stems, they are sometimes pubescent and usually branching. Oval or deltate leaves are carried on petioles. The inflorescence comprises numerous bristly spikes of indistinct and densely packed flowers. Readily distinguished by the red taproot.

Flowers from August to October in gardens, wasteland and in cultivated fields. Potential to become troublesome in cultivated fields, unlikely to threaten native habitats. Scattered throughout the province.

Introduced from tropical America.

*Amaranthus blitum* L. (formerly *A. viridus* L.) has been collected from Antigonish and Halifax. These collections should be re-examined for possible misidentification.

## **Anacardiaceae**

### **cashew family**

Mostly tropical, the family includes nearly 600 species; four species are native to Nova Scotia. Leaflets are pinnately or palmately compound. Typical are small, regular flowers, five-merous and usually unisexual. Petals are distinct and alternating with the stamens. Fruits are single-seeded drupes. Resin-ducts are present and well-developed, the latex often irritating.

#### Key to genera

Inflorescence terminal, dense cluster of flowers; fruits red, glandular-pubescent.

*Rhus*

Inflorescence axillary, loose clusters; fruits white or yellow, smooth or puberulent.

*Toxicodendron*



***Rhus* L.**  
**sumac**

A cosmopolitan genus of 100 species of trees or shrubs, we have but one species. Inflorescence is a tightly-packed pyramidal cluster on older branches and twigs. Petals are often pubescent on the inner surface. Ovary is split into three carpels, in one locule. Fruit is red and covered with glandular pubescence.

***Rhus typhina* L.**  
**Staghorn Sumac; sumac vinaigrier**



*Photo by Sean Blaney*

A tall colonial shrub, it produces pinnate leaves, with at least nine serrate leaflets. Young wood is often velutinous. Fruits are markedly glandular, born in erect triangular panicles.

Flowers in June and July.

Usually found along roadsides, in fields or forest edges, usually on rocky soils.

Common and abundant in southwestern countries, less so northward.

NS to ON, south to UT, KS and GA.



*Photo by Alain Belliveau*

## ***Toxicodendron* Miller**

A genus of Asia and the Americas. Most species cause allergic reactions upon contact. The flowers have glabrous petals and are borne in a racemiform inflorescences arising from the leaf axils. These are often lax in fruit. Drupes range from white to greenish yellow, smooth and shiny or darkly puberulent.

### Key to species

- |  |                             |
|--|-----------------------------|
| A. Leaflets entire, 7–13.  | <i>Toxicodendron vernix</i> |
| aa. Leaflets 3, entire to barely toothed or lobed.                                   | B                           |
| B. Ascending shrubs, simple or with few branches, not climbing; aerial roots absent. | <i>T. rydbergii</i>         |
| bb. Vining, climbing or creeping; aerial roots present.                              | <i>T. radicans</i>          |

## ***Toxicodendron radicans* (L.) Kuntz**

**Poison Ivy; herbe à puce de l'Est**



Photo by Martin Thomas



Photo by Martin Thomas

A woody vine, its aerial roots are prominent. The three leaflets are mostly flat and ovate, smooth on the margins or with an irregular tooth. The terminal leaflet is long-petiolate; lateral ones are short-petiolate.

Flowers late June into July.

Usually found in low-lying areas, in thickets along stream and lakeshores.

Common in Digby and Yarmouth counties, becoming less frequent eastward.

Ranges from NS to ON, south to the Gulf of Mexico. Eastern.



NOTES: Contact dermatitis may result from handling any part of the plant at any time. Inhalation of the smoke while burning it can cause permanent lung damage.

***Toxicodendron rydbergii* (Small) Greene**

**Western Poison Ivy; herbe à puce de Rydberg**



*Photo by David Mazerolle*

Leaves are broadly ovate, with noticeably toothed margins and often folded along the costa. Fruits are round and glabrous. An erect or ascending shrub, it generally forms large colonies.

Flowers during July.

Stony, rocky woods and along talus slopes, peat bogs and often in calcareous soils; stony or sandy beaches.

Scattered throughout Nova Scotia, but rarely common.

Found across Canada, south to AZ, TX and NC Absent from the eastern Gulf States and CA.



*Photo by Sean Blaney*

NOTES: Contact dermatitis may result from handling any part of the plant at any time. Inhalation of the smoke while burning it can cause permanent lung damage.



***Toxicodendron vernix* (L.) Kuntze**  
**Poison Sumac; sumac à vernis**



*Photo by David Mazerolle*



*Photo by Sean Blaney*

Differs from poison ivy in the number of leaflets, 7–13. They may be oblong, elliptic or obovate, and always entire. Stems and petioles are glabrous. Fruits are pale green and persistent.

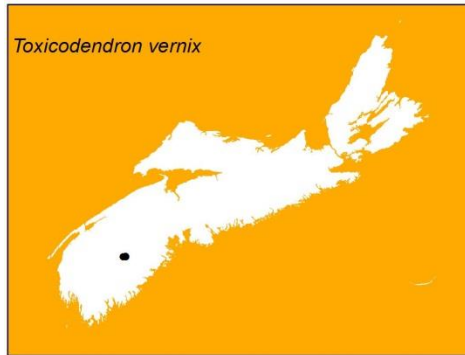
Flowers from May to July.

Usually found in swampy or marshy habitats.

So far as known, limited to Telfer Lake and Apple Tree Lake, both in Queens Co.

Ranges from NS to ON, south MN, TX and FL.

NOTES: Contact dermatitis may result from handling any part of the plant at any time. Inhalation of the smoke while burning it can cause permanent lung damage.



## Apiaceae

### carrot family

Nearly 3000 aromatic species comprise this family, of mostly herbaceous plants. The greatest diversity of the Apiaceae is in North America. Leaves are alternate, often very large, their petioles sheath the stems from the nodes. Flowers are five-merous, small and arranged in a simple or compound umbel. Involucres are present just below the rays of the umbel and involucels may subtend the umbellets in compound umbels. The calyx is reduced to a row of teeth around the summit of the ovary. Corolla has distinct petals which are overlapping, alternating with the stamens. Ovary is inferior and bears two chambers, formed by fusion of two carpels. Stylopodia are present, merged to the nectary disk. Fruits are schizocarps.

Identification to genera is often challenging without mature fruit or flowers.

#### Key to genera

- |   |                 |
|---|-----------------|
| A. Leaves simple, sometimes lobed, or reduced to phyllodes (modified petioles in the absence of true leaves). | B               |
| B. Leaves palmately lobed.  | <i>Sanicula</i> |
| bb. Leaves not palmately lobed.   | C               |
| C. Leaves round or kidney shaped, or reduced to phyllodes.  | D               |

D . Leaves reduced to hollow segmented phyllodes.	<i>Lilaeopsis</i>
dd. Leaves round or kidney-shaped.	<i>Hydrocotyle</i>
cc. Leaves lanceolate or ovate.	<i>Sium</i>
aa. Leaves compound, at least once, or some of them.	E
E. Leaves once-divided, ternate (in 3s), pinnate or palmate.	F
F. Leaves palmately or ternately once-compound.	G
G. Fruit and ovary bristly.	<i>Sanicula</i>
gg. Fruit and ovary glabrous; or if pubescent leaves >10cm wide.	H
H. Stems pubescent, outer flowers irregular, outer petals exceeding the size of the inner ones; flowers white or creamy.	<i>Heracleum</i>
hh. Stems glabrous or glabrescent; flowers regular; flowers yellow.	<i>Zizia</i>
ff. Leaves once divided, pinnate.	I
I. Leaflets lanceolate to linear, at least 3cm long.	<i>Sium</i>
ii. Leaflets oblong or ovate-obovate, or less than 3cm long.	J
J. Leaves mostly basal, cauline leaves sparse; fruit wingless.	<i>Pimpinella</i>
jj. Leaves evenly distributed along the stem; fruit winged.	K
K. Flowers white; upper leaf sheaths greatly expanded.	<i>Heracleum</i>
kk. Flowers yellow; upper leaf sheaths not greatly expanded.	<i>Pastinaca</i>
ee. Leaves 2 or more times divided.	L
L. Leaves cleft into distinct leaflets, (or indistinctly divided into segments) <1cm wide.	M
M. Ovary fruit and stem at least puberulent, or pubescent to bristly.	N
N. Involucre of long pinnately divided bracts.	<i>Daucus</i>
nn. Involucre absent, or of short linear bracts.	<i>Pimpinella</i>
mm. Ovary and fruit glabrous, stem glabrous or sometimes glabrescent.	O
O. Leaves with distinct linear-lanceolate	<i>Cicuta</i>



leaflets, mostly 2.5cm or longer.	
oo. Leaves with indistinct leaflets, the numerous divisions <2cm long.	P
P. Bractlets of the involuclers ovate-lanceolate.	Q
Q. Leaf sheaths pubescent; stem not purple-spotted.	<i>Anthriscus</i>
qq. Leaf sheaths smooth; stem with purple markings.	<i>Conium</i>
pp. Bractlets absent or linear.	R
R. Fruit winged, dorsally flat.	<i>Conioselinum</i>
rr. Fruit ribbed, but not winged, laterally flattened or round.	S
S. Fruit >2.5 times long as broad.	<i>Anthriscus</i>
ss. Fruit <2 times long as broad.	T
T. Fruit rounded.	<i>Coriandrum</i>
tt. Fruit flattened.	U
U. Flowers irregular; ribs wider than intervals.	<i>Aethusa</i>
uu. Flowers regular; ribs on fruit narrower than intervals.	<i>Carum</i>
II. Leaves cleft into distinct leaflets >1cm wide.	V
V. Ovary and fruit bristly.	W
W. Rays of the umbel 10 or fewer; fruit attenuate to base.	<i>Osmorhiza</i>
ww. Rays >10; fruit free from base.	<i>Angelica</i>
vv. Ovary and fruit smooth or mostly so.	X
X. Involucre comprising several to many bracts.	<i>Levisticum</i>
xx. Involucre absent, or of 1-few bracts.	Key 2

## Key 2

A. Plant in flower.	B
B. Flowers yellow.	C



C. Leaves pinnately compound.	<i>Pastinaca</i>
cc. Leaves mostly ternately compound.	<i>Zizia</i>
bb. Flowers white.	D
D. Upper leaf sheaths expanded at least 1cm wide when flattened.	<i>Angelica</i>
dd. Upper leaf sheaths not as above.	E
E. Leaflets <9; lateral veins lead to a tooth.	F
F. Involucels absent; calyx teeth absent.	<i>Aegopodium</i>
FF. Involucel bracts present; calyx teeth present.	<i>Ligusticum</i>
ee. Leaflets >9; lateral veins lead to sinus, branching to a tooth.	<i>Cicuta</i>
aa. Plant in fruit.	G
G. Fruit winged; dorsally flattened.	H
H. Involucels absent usually; upper sheaths not swollen, <1cm wide when flattened.	<i>Pastinaca</i>
hh. Involucel bracts several to many; upper sheaths swollen, >1cm when flat.	<i>Angelica</i>
gg. Fruit ribbed but not winged, laterally flattened.	I
I. Fruit >6mm long.	<i>Ligusticum</i>
ii. Fruit <5mm long.	J
J. Lateral veins lead to a sinus, forking to reach teeth.	<i>Cicuta</i>
jj. Lateral veins from midrib reaching the teeth, not forking.	K
K. Rays of mature umbels irregular in lengths; stylopodium absent.	<i>Zizia</i>
kk. Rays of mature umbels nearly equal; stylopodium visible in fruit.	<i>Aegopodium</i>

### ***Aegopodium* L.**

From Eurasia, this small genus of seven species, reaches NS by way of a single perennial ornamental. Rhizomatous, these plants are aggressively colonial. Leaves are ternately compound, the leaves further cleft and serrate. Umbels of white flowers are borne on long peduncles from the leaf axils near the summit of the plants. Involucre and involucels are absent as is the calyx.

***Aegopodium podagraria* L.**

**Goutweed; podagraire**



*Photo by Ross Hall*



*Photo by Martin Thomas*

A coarse invasive species, it has pinnately compound leaves, each further divided into three toothed leaflets. Both green-leaved and variegated varieties are known.

Flowers from June to August.

Near old garden sites, spreading to roadsides and neighbouring properties in urban settings. Invasive.

Common about communities such as Halifax, Truro and occasional elsewhere.

Introduced from Europe and established across Canada south to OR, MO and FL. Absent from the prairies and plains.

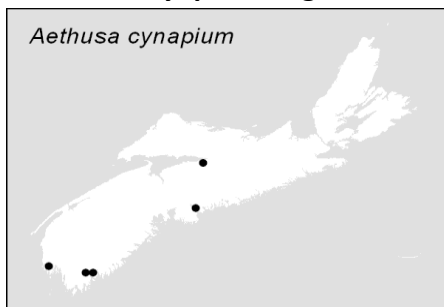
***Aethusa* L.**

**Fool's Parsley**

Native to Eurasia, this monotypic genus reaches Nova Scotia only as an annual weed. Leaves are pinnately compound and glossy green. Flowers are arranged in branched umbels; calyx absent. POISONOUS.

***Aethusa cynapium* L.**

**Fool's Parsley; petite ciguë**



Similar to several other genera, but distinguishable on the presence of involucels. These tiny bractlets exceed the length of the flowers. The smallest leaf segments are lanceolate and not linear like *Carum* or *Conioselinum*. Plant emits an unpleasant odour.

Flowers from June to August.



Disturbed soils around yards, and urban centres.

Not common. Collected from Shelburne and Halifax.

NS to ON, variously south to AL; ID. Adventive from Europe.

## ***Angelica* L. *angelicas***

Circumboreal in distribution, they number about 50 species. Usually tall plants, their stems are unbranched, terminating in large compound umbels of greenish white or white flowers. Calyx is absent. Leaves are pinnately compound on long petioles, decreasing in size distally. Fruit is globose, but flattened dorsally and bearing winged ribs.

### Key to species

- |   |                        |
|---|------------------------|
| A. Plants of coastal beaches; lateral wings of the fruit coriaceous.                    | <i>Angelica lucida</i> |
| aa. Plants not restricted to coastal habitats; lateral ribs of the fruit membranaceous. | B                      |
| B. Plants glabrous; stems reddish.  | <i>A. atropurpurea</i> |
| bb. Plants pilose or puberulent above; the umbel rays densely pubescent.                | <i>A. sylvestris</i>   |

## ***Angelica atropurpurea* L. Purple Angelica; angélique pourpre**



A tall species, it is distinctly reddish on the stems. The ample umbels produce pale flat fruits, with broad wings. The leaflets are sharply serrated with incurved teeth.

Flowers late May until September.

Grows in swamps, meadows, in ditches and along streams.  
Ditches at Quinan, Yarmouth Co.

Very abundant in northern Cape Breton and known from Mahoney's Beach area, Antigonish Co.

Photo by Sean Blaney

Ranges from NF to ON south to TN and NC.

***Angelica lucida* L.**

**Seaside Angelica; angélique brillante**



Photo by Sean Blaney

A coarse plant with stout hollow stems, the leaf sheaths are broadly swollen. Leaflets are doubly serrate and lanceolate in outline. The inflorescence is branched, subtended by a conspicuous and leafy involucre.

Flowers July and August.

Gravelly beaches and coastal headlands; sandy shores.

Scattered throughout the coastal regions. Infrequent on the turf dunes of Sable Island.

NF to ON, south to NY; VA; NT west to AK, south to CA.  
Native.



Photo by Sean Blaney

***Angelica sylvestris* L.**

**Angelica; angélique sauvage**



A leafy plant, its leaflets are ovate in outline and doubly serrate, often with several irregular lobes.

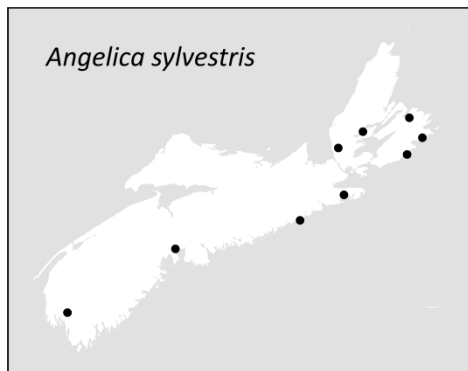
Flowers from July to September.

An aggressive weed, spreading along roadside ditches and in fields.

Scattered throughout eastern Cape Breton, after its



Photos by Sean Blaney



introduction at Louisbourg. Now actively spreading throughout mainland NS, from Guysborough Co to western Halifax Co.

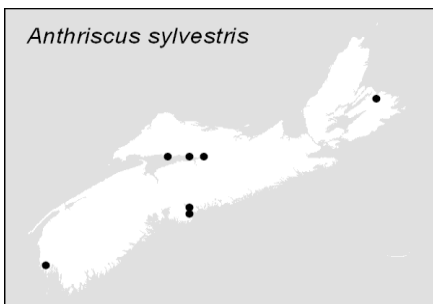
Limited to eastern Canada: NS, NB, QC and ON. Introduced from Europe.

### ***Anthriscus* Pers.**

A single species reaches Nova Scotia of the 20 species described worldwide. Leaves are 2–3 times compound. Inflorescences are branching, terminal on the plant. Petals are white; calyx is absent. Fruit is smooth and ovate or linear and bears a small beak

#### ***Anthriscus sylvestris* (L.) Hoffm.**

**Wild Chervil; anthesisque des bois**



A biennial species, its leaves are coarsely dissected. Leafy bracts forming an involucre present. Fruit is lustrous and many times longer than the beak. This plant is coarser in appearance than others such as *Daucus*.





Flowers in mid-June.

An aggressive weed where found: old gardens, composts, hedgerows and ditches where soil is deep and fertile.

Known from Yarmouth area, through the lowlands of Colchester and Cumberland counties to Cape Breton.

Ranges from NF to ON, MN to TN; northwest coast; Greenland.



*Photos by Sean Blaney*

## ***Carum* L.**

A widespread genus of 30 species, only Caraway is known from Nova Scotia, as an escape from gardens. A smooth plant, its leaves are cleft into many linear leaflets. Umbels are compound, with the umbellets bearing tightly clustered tiny white flowers. Fruits are laterally flattened and smooth, narrowly ribbed.

### ***Carum carvi* L.**

**Caraway; carvi commun**



*Photo by Sean Blaney*

A tall sprawling plant, with ternately compound leaves; the smallest segments are nearly linear. Flowers are borne in flat-topped umbels producing dark flat seeds.

Flowers in June.

Frequents damp rich soils around gardens, fields and nearby roadsides.



Photo by Sean Blaney

Common throughout the province.

Introduced from Europe: across Canada and south to NM, LA, and SC.

## ***Cicuta* L.** **water-hemlocks**

A small genus of only four species; all are VIOLENTLY POISONOUS perennials, three limited to North America. Distinguishing character of the genus is the hollow septate stem-base. Leaves are 1–3 times pinnate, the leaflets well-defined. Umbels are branching, flowers white. Fruits are laterally flattened with corky ribs.

### Key to species

- A. Leaflets more than 5mm wide; bulbets absent from leaf axils.
- aa. Leaflets less than 5mm wide; upper axils with bulbils.

*Cicuta maculata*  
*C. bulbifera*





***Cicuta bulbifera* L.**

**Bulbous Water-hemlock; cicutaire bulbifère**



*Photo by Ross Hall*

A slender delicate species, it is freely branching but sparsely vegetated. Leaves are divided into irregular linear segments. The upper leaf axils bear small bulbets, developing in the fall. Stem is fleshy, but hollow at the base.

Flowers in August.

Freshwater marshes, cattail marshes, often emergent or in wet muck.

Scattered northeastward from Annapolis and Queens counties.

Across Canada and south to OR, KS and NC; FL.

***Cicuta maculata* L.**

**Water-hemlock; Spotted Cowbane**



*Photo by Sean Blaney*

A tall leafy herb, it may exceed 1–2m in height. Leaves are palmate, with toothed leaflets. White flowers are tightly clustered in round open umbels. Globose seeds are striated with yellow and brown.

Flowers early in July.



Photo by Sean Blaney

Ditches, swamps, marshes and meadows, in alluvial or muddy soils.

From Yarmouth to Cape Breton, more abundant northeastward. Common around the Fundy marshes.

Across the continent, from arctic islands southward.

DEADLY POISONOUS...A single mouthful can kill.



### ***Conioselinum* Hoffm.**

#### **Hemlock-parsley**

Ten species comprise this North American and Eurasian genus. A single species is native to our province. Perennial herbs, all are erect, their leaves are finely dissected and ternate. Inflorescence is large and branching. Flowers have white petals. Sepals are absent. Plants are glabrous except for the umbels which are often hirsute. Fruit is dorsally flattened, the ridges prominently winged.

### ***Conioselinum chinense* (L.) BSP**

#### **Hemlock-parsley; coniosélinum de Genesee**



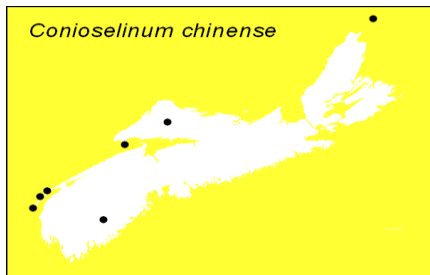
Photo by Sean Blaney

A tall slender species with fernlike foliage, its leaves are ternately compound, the ultimate segments linear. Leaf sheaths are expanded and may subtend the inflorescence. Umbellets have no involucels.

Flowers from August to October.



Photo by Sean Blaney



Treed swamps, mossy coniferous forest, seepy coastal slopes.

Scattered on Digby Neck. Common on Saint Paul Island and infrequent elsewhere.

NL to ON, south to NE and the Gulf of Mexico.

## ***Conium L.***

Biennials from Eurasia, a single species was formerly introduced here. It is included for its notoriety...it is DEADLY POISONOUS. Inflorescences are of multiple umbels, 2–4 together, the flowers white. The leaves are large, pinnately compound several times.

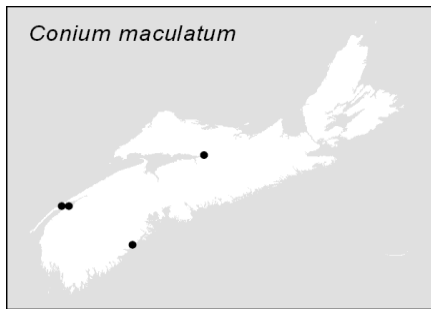
## ***Conium maculatum L.***

Poison-hemlock; cigüe maculée



With fernlike foliage borne along a striated stem, it is an attractive plant. Crowded flowers are creamy, producing striated seeds, strongly marked with veins. Petioles are glabrous, easily separating it from *Daucus*.

Flowers July and August.



Fallow soils and waste ground, ditches and old gardens.

Rare: Weymouth, Digby, Truro and in Queens Co.

Ranges across most of North America, except for MB, FL and MS.

The seeds are DEADLY POISONOUS.



*Photos by Martin Thomas*

## ***Coriandrum* L.**

A Mediterranean genus of only two species; one is a garden escape in Nova Scotia. Annual herbs, they have compound or simple leaves and pink or white flowers. Umbels have 4–8 rays, the outermost petals and sepals larger than those of inner flowers. Involucels are limited to three linear bractlets on the outer periphery of the umbellets. Globose fruit is hard, with well-marked ribs.

***Coriandrum sativum* L.**

**Coriander; coriandre cultivée**



*Photo by Martin Thomas*

It has distinctive basal leaves, pinnately divided, but not compound. Leaflets are rounded. Upper leaves are filiform. Flowers are tiny, creamy carried in sparsely flowered, neat umbels. Seeds are golden-coloured, rugose and round in cross-section.

Flowers June and July.

Fallow soils.

A casual adventive and not persisting.

Ranges from NS, west to ON and southward. From Eurasia.



*Photo by Martin Thmas*

***Daucus* L.**

This is a widespread genus of 60 species, a single biennial reaches Nova Scotia. Leaves are multiple times compound, giving its foliage a fernlike or lacy appearance. Umbels are branching comprising white flowers. Often a central purple flower is present and the petals on the peripheral flowers may be enlarged. Involucre is large, the bracts may be dissected. Fruit is oblong with a row of bristles on the ribs, alternating with a row of flattened spines on secondary ridges.



***Daucus carota* L.**

**Wild Carrot; Queen Anne's Lace; carotte sauvage**



*Photo by Martin Thomas*

Softly pubescent stems and leaves and well-spaced leaves along the rachis mark this species. Flowers are cream-coloured but for the purple central flower. The umbels are flat-topped. Involucre is made up of linear, split bracts. Seeds have two types of armament, bristles and spines.

Flowers from July to September.

Tolerant of a wide range of soils: fields, roadsides, waste ground, generally in the sun.

Very common and somewhat weedy throughout Nova Scotia.

Introduced from Europe and spread to most of North America.

***Heracleum* L.**

These plants are very large and robust for herbaceous biennials or perennials. There are 60 species in total; one is native here and two are introductions. Coarse plants, they have very large leaves which are compound, toothed and lobate. The broad petioles sheath the stem, a conspicuous feature. Umbels are very large, borne on branching rays, of unequal lengths. Outer flowers may have enlarged and notched petals.

**Key to species**

A. Leaves pinnate, 5–7 leaflets, which are sessile or nearly so.

*Heracleum sphondylium*

aa. Leaves ternate; leaflets petiolate.

B

B. Leaflet lobes narrowly deltate; seed ribs extending more than half the length; seeds rounded at the bases.

*H. mantegazzianum*

bb. Leaflet lobes broadly deltate; seed ribbed to less than half the length; seeds pointed at the base.

*H. maximum*

***Heracleum mantegazzianum* Sommier & Levier**

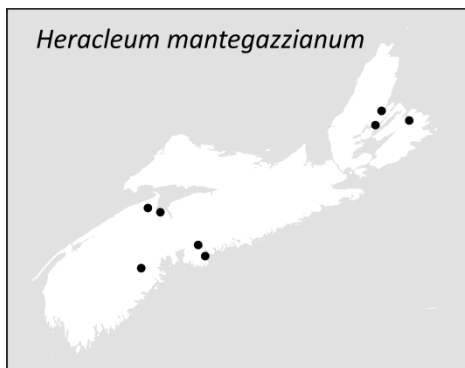
**Giant Hogweed; berce du Caucase**



*Photo by David Mazzerolle*



*Photo by Rob Paxton*



Extremely robust, 2–3m in height, this species has umbels reaching 60cm wide or more. The ternate leaves have narrowly deltate leaflets, with sharply angled lobes. The hollow stems may be 4–5cm in diameter. Plant contains an irritating sap, causing serious skin burns and even blindness. The seeds are ribbed, at least halfway along their length. They are rounded at the bases.

Flowers July to September.

Uncommon but widespread from Cape Breton to Shelburne and Annapolis Co.

Ranges from NS to ON, south to IL; west coast. Introduced from Europe.





***Heracleum maximum* Bartr.**

(=*H. lanatum* Raf.)

**Cow-parsnip; Masterwort; berce laineuse; pagosi**



Photo by David Mazzerolle



Photo by David Mazzerolle

With large ternate leaves, this species is conspicuous in its habitat. Leaflets are irregularly lobed, broadly deltate and finely toothed. They may be tomentose below. Oval fruit is flattened and pointed at the base. The ridges do not extend beyond the middle. The sheathing petiole is also conspicuous.

Flowers from June to August.

Found in moist shady habitats, in alluvial soils along streams and sometimes coastal.

Common in eastern Nova Scotia and elsewhere in suitable habitat.

Across North America and south to CA, NM and GA; absent from the Gulf States; Siberia. Native.

Pagosi, the Mi'maq name, was an influenza and cold remedy.

***Heracleum sphondylium* L.**

**Hogweed; berce sphondyle**

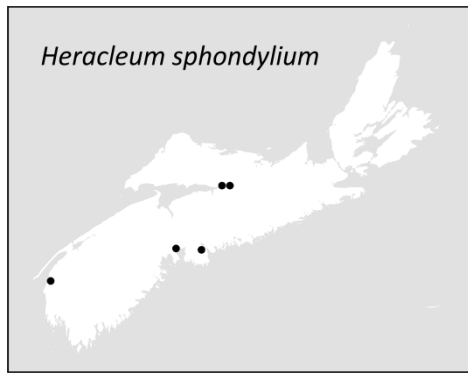


Photo by Sean Blaney

Leaves are pinnately compound, with five or seven lobed and toothed leaflets. They may be puberulent below. Peduncles are very long and without involucres. Colonial, the clumps may be 1 m in height. Seeds are globose and broadly winged.

Flowers from June to August.

Roadsides and fallow ground.



Common along Willow Street in Truro and still spreading out to the county along the Salmon River and at Riversdale; collected throughout HRM and spreading, Halifax Co. NF to ON, south to NJ; WA and OR.



Photo by Sean Blaney

## ***Hydrocotyle* L. pennywort**

Small perennial herbs they are mostly limited to the tropics and subtropics. Nova Scotia has two native species of the 75 found worldwide. Leaves are round or reniform, peltate or with sinuses, on long petioles. Stems root at the nodes. Umbels are simple arising from the leaf axils. Fruits are globose or elliptic and laterally compressed.

### Key to species

Leaves peltate (petiole attached near the centre of a shield-shaped leaf).

*Hydrocotyle umbellata*

Leaves cordate, petiole attached at the base.

*H. americana*

***Hydrocotyle americana* L.**

**Pennywort; hydrocotyle d'Amérique**



*Photo by Sean Blaney*

A small creeping plant, it has scalloped cordate leaves. Very small flowers are clustered 1–5 in a sessile umbel in the leaf axils.

Flowers in July and August.

Moist mossy shady slopes, banks and hollows.

Common throughout except in northern Cape Breton and extreme southwestern areas.

Ranges from NF to ON south to AR and SC.

***Hydrocotyle umbellata* L.**

**Water Pennywort; hydrocotyle à ombelle**



*Photo by David Mazerolle*

Round peltate leaves arise on long petioles from a creeping stem. They are scalloped on the margins. Flowers are borne in sparse umbels on short rays, arising from a long peduncle. This species has fewer leaves than the last species and may be more robust.

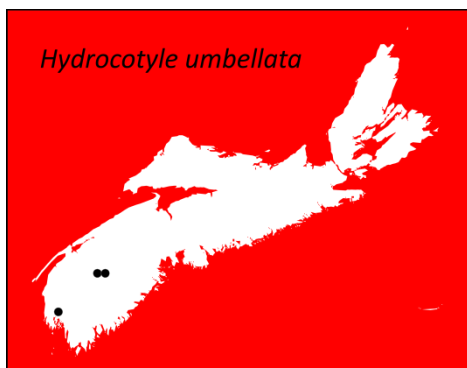
Flowers from July to September.

Only found on wet, sandy lake margins. A coastal plain species.

Rare and local: Wilson's Lake and Springhaven Duck Lake, Yarmouth Co.; Kejimikujik and George Lakes in Kejimikujik National Park, Queens Co.

NS to TX along the coastal plain; Great Lakes states; CA; OR; Mexico and tropical America.

STATUS: RED-listed.



## ***Levisticum* Hill**

### **lovage**

Including only three species, of Southeast Asia, one was formerly cultivated here and has naturalized. Perennial herbs, they are tall coarse plants similar to *Angelica*. Fruits are dorsally compressed with winged lateral ribs. Leaves are pinnately compound, several times. Flowers are yellow or greenish.

#### ***Levisticum officinale* WDJ Koch.**

##### **Garden Lovage; livèche officinale**



*Photo by Martin Thomas*

Leaves have narrowly ovate leaf segments, toothed only at the distal ends. Umbels are spreading and subtended by a conspicuous leafy involucre.

Flowers May to July.

Disturbed soils as on embankments.

Collected from Yarmouth and Lunenburg counties. Less common, it is an infrequently planted species now.

Escaping throughout North America and known from NS to ON; SK, southward.



*Photo by Martin Thomas*

#### ***Ligusticum* L.**

### **lovage**

Bearing the same English vernacular name as the previous species, this is a north-temperate genus of 20, with a single common species here. All are perennials, arising from a taproot. Leaves are ternately compound. Umbels are also compound, with the umbellets few-flowered. Petals are white; sepals are deltate.



***Ligusticum scoticum* L.**

**Scotch Lovage; livêche d'Écosse**



Photo by Marian Munro



Photo by Martin Thomas

One of our most familiar coastal herbs. It is not succulent, but a leafy plant forming low-growing mats. Leaves arise from the base of the plant from red stems, especially so along the sheaths. Leaflets are toothed. Umbels of white flowers form strongly grooved ovate seeds. Often confused with *Angelica lucida*, a more robust plant with bipinnate leaves (not ternately compound).

Flowers from July through August.

Frequents rocky soils on cliffs, beaches and headlands. Rarely far from the sea.

Scattered around the coast.

Along the coast from Greenland to NU, south to NY; Europe.

***Lilaeopsis* Greene**

Limited to the Americas, there are 20 species in total. Our single species is like no other plant, although it is easy to overlook. Arising from creeping rhizomes, rather than bearing leaves and stems, these plants produce phyllodes which are functionally leaves. Hollow, they are also septate. Simple umbels are borne on scapes from the axil of the phyllode and rhizome. Bearing a few flowers, their petals are white. Fruit is compressed and nearly round.

***Lilaeopsis chinensis* (L.) Kuntze**

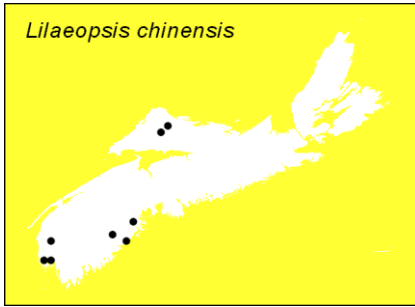
**liléopsis de l'Est**



Simple phyllodes arise from the creeping stems. They are slightly succulent but hollow. Small in stature, plants rarely reach 10cm in height. Flowers number 5–7 in a simple umbel.

Flowers are seen during July and August.

Photo by Martin Thomas



Estuarine in muck, mud or on stony banks.

Tusket and Annis Rivers, Yarmouth Co.; Roseway River, Shelburne Co.; Medway River, Queens Co. and LaHave River, Lunenburg Co.; and River Philip, Cumberland Co.

NS; ME to TX along the coastal plain.

## ***Osmorhiza* Raf.**

### **Sweet cicely**

Eleven species comprise this far-flung genus, from North America, Andean region and eastern Asia. Erect perennials, all have ternate leaflets, further divided. Basal leaves are long-petiolate; upper cauline leaves are nearly sessile. Umbels are terminal or lateral, and compound. Umbellets have few flowers; their petals are white. Fruits are laterally compressed, attenuate and bristly at the base and prolonged distally.

Key to species (after Voss and Reznicek, 2012)

- |  |                            |
|--|----------------------------|
| A. Involucel present, although sometimes deciduous in fruit; styles not strongly reflexed.                 | B                          |
| B. Styles less than 1.5mm long; plant not fragrant.  | <i>Osmorhiza claytonii</i> |
| bb. Styles 2mm long; plant smells like anise or licorice.  | <i>O. longistylis</i>      |
| aa. Involucel absent, mature styles strongly reflexed.   | C                          |
| C. Fruit with convex and blunt-tipped apex in maturity; young fruit with no constriction.                  | <i>O. depauperata</i>      |
| cc. Fruit concave-tapered with a short beak at apex; young fruits with slight constriction below the apex. | <i>O. berteroi</i>         |

***Osmorhiza berteroi* DC**  
**(= *O. chilensis* Hook & Arn.)**  
**osmorhize de Bertero**



*Photo by Sean Blaney*

Leaflets are deltate, deeply toothed. Fruit is covered in silvery white appressed pubescence. Umbel is widely divergent. Our largest most robust species, it reaches upwards of 1m.

Flowers in June and July.

Climax deciduous forests and riparian zones.

Ranges from the North Mountain in Annapolis Co. to Blomidon, Kings Co. and Cumberland Co. Northern Cape Breton.

Across Canada, although appears to be disjunct east and west, south to MI in the east; CA in the west.

***Osmorhiza claytonii* (Michx.) CB Clarke**  
**Hairy Sweet Cicely; osmorhize de Clayton**



*Photo by Martin Thomas*

A distinctive species, with its palmate leaves, pinnately compound. The stems are smooth but the petioles and leaf ribs are hirsute. Flowers are white; fruits are green, covered in appressed pubescence. Plants are not sweetly scented when crushed.

Flowers May and June.

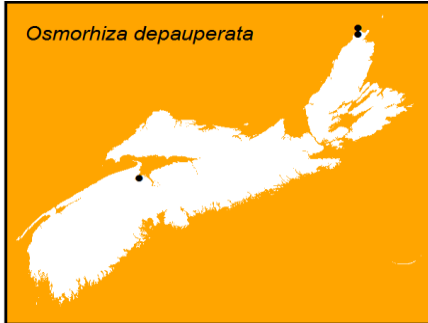
Alluvial soils, fertile deep soils in upland forests.

Our most common species, from Annapolis Co. to northern cape Breton. Uncommon along the Atlantic coast.

Ranges from NF to MB; south to GA and KS.



***Osmorhiza depauperata* Philippi**  
**osmorhize obtuse**



Resembles *O. berteroi* but mature fruits are essentially convex and blunt at the apex without a beak. They are blunt or cuneate rather than acutely pointed.

Flowers late June and July.

Forests.

Not common. Found in Wolfville area and elsewhere only in northern Cape Breton around Bay St. Lawrence.

NF to BC south to CA, NM. Absent in the eastern US.

***Osmorhiza longistylis* (Torr.) DC**  
**Anise-root; osmorhize à long style**



*Photo by Ruth Newell*



*Photo by Sean Blaney*

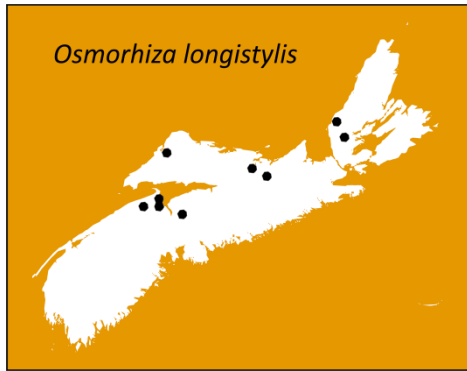
Resembling *O. claytonii* with the presence of involucels, but this species has the petioles glabrous. Leaves have the marginal teeth appressed, on ovate leaflets. Plants are sweetly anise-scented when crushed.

Flowers late June to July.

Intervale soils where fertility is high; deciduous forests.

Scattered along the North Mountain in Annapolis and Kings counties to Cumberland Cobequids. Infrequent in Cape Breton.

Ranges from NS to AB south to TX and GA.



## ***Pastinaca* L.**

Eurasian in range, there are 15 species in total. Only Parsnip reaches NS as an escape from cultivation. Leaves are pinnately compound; the leaflets are toothed along the margins. Flowers with yellow petals are borne in compound umbels. Fruit is smooth and compressed, bearing winged lateral ribs. Other ribs if present are filiform.

### ***Pastinaca sativa* L.**

#### **Wild Parsnip; panais sauvage**



*Photo by Martin Thomas*

A coarse weedy species with yellow flowers producing ovate stramineous fruit, marked with darker ridges. Leaves are pinnate, leaflets 9–13, toothed or lobed.

Flowers in July.

Grows in dry sandy stony soil as on roadsides, beaches and orchards.



*Photo by Martin Thomas*

A common weed in the Annapolis Valley. Scattered elsewhere to Cape Breton.

Widely naturalized from Europe and absent in North America only from the extreme southeast and north.

**CAUTION:** Handling the plant may cause dermatitis or photosensitive skin.

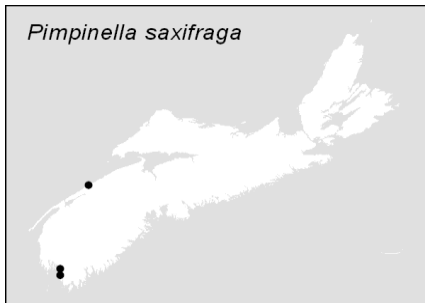


## ***Pimpinella* L.**

Nearly 150 species comprise this Eurasian genus. Perennial herbs, they have pinnately divided or compound leaves. Involucre is absent; fruit is smooth, but bears five wings on each carpel.

### ***Pimpinella saxifraga* L.**

**Burnet-saxifrage; petit boucage**



Leaves are distinctive. They are pinnately compound, but each leaflet is nearly ternately lobed. Basal leaflets are round, distal leaflets nearly linear. Involucre is present, leafy.

Flowers in July and August.

Roadsides and lawns, where soil is disturbed.  
Discovered in 1950 as abundant in Upper Pubnico,  
Yarmouth Co. No other records.

NF to ON, variously south to TN; WA and MT. European.

## ***Sanicula* L.**

**sanicles**

Almost cosmopolitan, 40 species comprise this genus. Typically, plants have palmate leaves. Basal leaves are long-petiolate, cauline leaves have short petioles. Umbels are compound, with the umbellets having three perfect sessile flowers and several staminate flowers. Ovaries are bristly in the perfect flowers and

smooth in the staminate flowers, borne on longer rays. Sepals are present and well-developed, persistent. Fruits are ovate or oblong, slightly compressed laterally.

Key to species

Sepals 1–1.5mm long; staminate flowers longer than the fruits.

*Sanicula marilandica*

Sepals <1mm long; staminate flowers shorter than the fruits.

*S. odorata*

***Sanicula marilandica* L.**

**Black Snakeroot; sanicle du Maryland**



*Photo by Sean Blaney*

Bearing palmately divided leaves but the leaflets are obovate. Flowers are borne in a loose umbel, the umbellets resembling a head, producing bristly fruits, more than 4mm long.

Flowers from June to August.

Fertile soils beneath deciduous forest, intervale and alluvial soils, where humus content is high.

Scattered to common from Digby and Cumberland counties to northern Cape Breton. Infrequent along the Atlantic, where soils are more acidic.

Found across Canada and south to FL and NM.



*Photo by Sean Blaney*

***Sanicula odorata* (Raf.) KM Pryer & LR Phillippe**

**(=*S. gregaria* Bickn.)**

**Sanicle; sanicle odorante**



*Photo by Sean Blaney*



*Photos by Sean Blaney*

Leaves are glossy, palmately divided and toothed. Flowers are arranged in globose open umbels. The staminate flowers are shorter than the fruit, which are 3–4mm long.

Flowers during July and August.

Found only on fertile alluvial soils and on intervals.

Five Mile River, Hants Co.; Cornwallis River, Kings Co., West River, Pictou Co, Salmon River, Colchester Co and Southwest Margaree River, Inverness Co.

Ranges from NS to ON, south to FL and TX.

STATUS: ORANGE-listed.



***Sium* L.**

**water-parsnip**

These are north-temperate species, eight in total. Leaves are pinnate, with more than five serrate leaflets. Umbels are compound. Flowers are white and sepals vestigial or absent.

***Sium suave* Walt.**

**Water-parsnip; berle douce**



*Photo by David Mazerolle*



*Photos above, below by Sean Blaney*



A distinctive plant, its pinnate leaves are often carried perpendicular to the rachis. Submerged leaves may be finely dissected. Open umbels of tiny white flowers produce tiny rugose seeds.

Flowers mid-July through August.

Muddy streamsides, lakeshores, marshes and even ditches. Often emergent.

Common throughout.

Throughout the continent.



## ***Zizia* WDJ Koch**

### **golden alexanders**

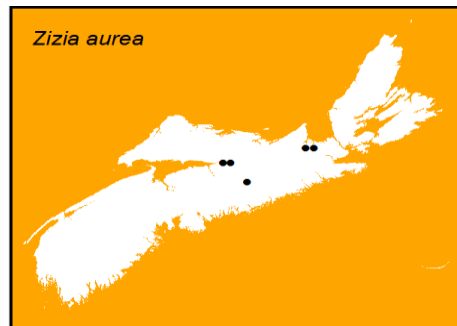
A distinctive genus in this family, in that the flowers are brilliant yellow. With only four species described, they are all native to North America. A single species reaches Nova Scotia. Perennials, they arise from thickened rootstocks. Leaves are once or twice ternately compound. Umbels are also compound, each umbellet has many flowers. Involucre is absent. Fruits are ovate-oblong, with five ribs on each mericarp.

## ***Zizia aurea* (L.) WDJ Koch**

### **Golden Alexanders; zizia doré**



Photo by Sean Blaney



A tall species, bearing palmate ternately compound serrate leaves. The swollen petioles sheath the stems. Bright yellow flowers crowd the umbellets, forming spherical heads. Flowers May and June.

Meadows, shores, thickets and even wooded swamps.

Occasionally reported: Pomquet and South River, Antigonish Co., Upper Musquodoboit, Halifax Co.

Ranges from NS to MB, south to TX and FL; MT.

## **Apocynaceae**

### **dogbane family**

Mostly of the tropics, 2000 species are included. Typically plants have milky sap and simple opposite leaves. Most are herbs, a very few are shrubby. Five-merous flowers are perfect and regular. Corollas are sympetalous, tubular or salverform, the lobes overlapping. The stamens are inserted, alternating

with the corolla lobes. Ovaries number two, stigma one. Fruits are a pair of slender follicles, containing many seeds.

#### Key to genera

Flowers axillary; showy; shrubby vine.

*Vinca*

Flowers terminal or axillary, not showy; erect herb.

*Apocynum*

### ***Apocynum* L.**

#### **dogbanes**

Only three species are included in this genus, all native to this continent. Two reach NS. Colonial, perennial herbs, they arise on stems clad in fibrous bark. Leaves are opposite with tiny acute tips. Flowers are small, arranged in corymbs at the end of the branches or stems. White or pink, the corolla is campanulate, subtended by a deeply incised calyx, its lobes deltate. Small scales oppose each lobe of the corolla tube within. The ovaries are surrounded by five nectaries.

#### Key to species

Corolla 6–10mm long, pink; lobes spreading or arcuate; stems branching near the top; plants with drooping appearance. *Apocynum androsaemifolium*

Corollas <6mm long, white, green or yellow, lobes ascending; stem simple; flowers ascending.

*A. cannabinum*

### ***Apocynum androsaemifolium* L.**

#### **Spreading Dogbane**



Photo by Sean Blaney

An erect plant, this species branches towards the top. The branches are carried horizontally; leaves are nearly secund. Flowers are pink and bell-shaped, reddish within the corolla. Fruits measure 5–15cm long. Seeds are armed with tufts of tawny hairs.

Found along roadsides and in fields, or elsewhere on sandy, stony soil.



*Photo by Sean Blaney*

***Apocynum cannabinum* L.**  
**Indian Hemp, Worm Root**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Scattered throughout, except from Kings and Annapolis Co. to Colchester Co., where it is common and weedy.

Ranges from NF to AK, south to CA, TX and GA.

Generally it is an erect plant with a simple stem. Flowers are usually smaller than those of the previous species and greenish white. Leaves are petiolate and vary from elliptic to ovate or lanceolate but are usually acutely pointed at the base.

This is a plant formerly used by the Mi'kmaq to expel worms.

Usually under an open canopy on gravel bars, in thickets and edges.

Found from Kings Co, north and eastward.

Ranges across Canada and southward.

***Apocynum xfloribundum* Greene (pro. sp.)**



This is a fertile hybrid between the two species above. Its leaves are lanceolate. Plants produce small flowers bearing an ivory coma.

Collected from Halifax and Lunenburg counties, northward. This is and it is known from most of the continent.

*Photo by Sean Blaney*

***Vinca* L.**

Native to Eurasia, this genus consists of 12 species. All are perennial; most are at least half-shrubby. Leaves are opposite, arising on long petioles. Flowers are blue and showy, arising from one axil of a leaf pair. Follicles contain a few seeds. A single species occurs in Nova Scotia. This species is planted as an ornamental ground cover. Escapes are known and expected.

***Vinca minor* L.**

**Common Periwinkle; petite pervenche**



*Photo by Andy Dean*

A small neat vine, it is frequently planted for its hardy, woody form. The smooth lanceolate leaves are nearly evergreen and succulent, entire on the margins. Petals are united to form a corolla tube 8–12mm long.

Flowers in May and June.

Roadsides and in open woods. Shade-tolerant.

Yarmouth to Kings and Cumberland counties; Halifax to Cape Breton.



*Photo by Ross Hall*

European, escaping throughout eastern North America to the Gulf of Mexico; BC variously south to AZ.

## Aquifoliaceae

### holly family

All woody plants, the hollies and relatives have simple alternate leaves, which are sometimes toothed. Flowers are regular and they may be perfect or unisexual. Usually axillary, they may be 4–8-merous. Petals are connate at the base or separate. The stamens alternate with the petals and may be attached to the base of the corolla. Fruits are drupes, one stone per carpel, although some may abort. Of the three genera, only one reaches Nova Scotia. Fruit is not edible and may cause illness.

#### Key to species

- |  |                        |
|--|------------------------|
| A. Leaves entire on margins, smooth; petals linear or oblong, distinct; stamens free and distinct; pedicels long and slender.  | <i>Ilex mucronata</i>  |
| aa. Leaves toothed, sometimes only at the apex; pubescent or smooth; petals ovate, connate at the base, short obovate lobes; stamens adherent to corolla tube; pedicels short. | B                      |
| B. Leaves evergreen, apex toothed, glabrous and shining; fruit black.  | <i>Ilex glabra</i>     |
| bb. Leaves deciduous and rugose; thin; fruit red.  | <i>I. verticillata</i> |

## *Ilex* L.

### Holly

Cosmopolitan in range, hollies number between 300–400 species. Plants are dioecious. Flowers are axillary and generally white. Some species have perfect flowers, but remain functionally unisexual, with rudimentary organs. Small calyx is persistent in fruit. Berries are black or orange-red.



***Ilex glabra* (L.) Gray**  
**Inkberry; houx glabre**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

It is a shrub bearing noticeably shiny oblanceolate leaves. They are marked at the apices with several blunt teeth. Young twigs may be hirsute. Flowers are arranged in clusters, their petals connate at the base, subtended by smooth lobed calyx. Fruit is shiny black.

Flowers later, in August.

Found in a variety of habitats on rocky barrens, in swamps and dense conifer stands.

Common but local in Digby around to Shelburne counties. Infrequent along the Atlantic coast to Louisbourg.

Ranges along the coastal plain from FL to LA, north to ME, MA and NS.

***Ilex mucronata* (L) M. Powell, Savol. & S. Andrews**  
**(=*Nemopanthus mucronatus* (L.) Loes.**  
**False Holly; némopanthé mucroné**



*Photo by Sean Blaney*

Generally a smooth shrub bearing narrowly lanceolate or oblanceolate leaves, which are thin and glaucous beneath. Small solitary flowers produce a reddish or yellow berry. Stamens are not adherent to the distinct petals. Sepals are absent. Flowers are 4–5-merous. Fruit is a succulent reddish or yellow berry, borne on filiform pedicels. Not edible.

Flowers May and June.

Acidic soil or peat in wet woods, bog margins and even hollows on barrens.

Common throughout.



Also ranges from NF to ON, south to IL and MD.

***Ilex verticillata* (L.) Gray**

**Canada Holly; Winterberry; houx verticillé**



*Photo by David Mazerolle*

A common shrub, it has elliptic or oblanceolate leaves, variable in thickness, but not evergreen. Dull and often rugose over the veins, their petioles are densely pubescent. Stems are smooth. One or two flowers arise from the leaf axils, subtended by ciliate sepals. Fruit is a red berry. Formerly separated into several varieties, no longer recognized.



*Photo by Ross Hall*

Flowers earlier than the previous species, in mid-July.

Rocky barrens, headlands, edges of lakes, swampy woods and a variety of other habitats.

Common throughout the province.

Eastern, from NF to ON, south to TX and FL.

## **Araliaceae**

### **ginseng family**

This is a relatively large family, but with few species in Nova Scotia. They are mostly woody plants of the tropics and subtropics, although a few perennials are also known.

It is typified by its umbellate inflorescences of tiny flowers. The flowers are five-merous and regular, although outer ones may be irregular. The calyx is reduced to a whorl of teeth around the ovary or absent. Stamens are distinct and alternating with the petals. Ovary is inferior and compound (2–5 carpels). Fruits are berries or drupes. The styles are swollen at the base, forming a disk fused to the nectary disk. Alternate leaves are compound or lobed. Each has a decurrent petiole.

#### Keys to genera

- A. Plants woody vines, trailing on the ground or climbing on other plants or structures. *Hedera*
- aa. Plants upright, herbs or shrubs. B
- B. Leaves strictly alternate or basal, pinnate; flowers in 2 or more umbels. *Aralia*
- bb. Leaves in a single whorl, palmate; umbel solitary. *Panax*

### ***Aralia* L.**

It is a genus of 35 species of Asia and North America. Three species reach Nova Scotia; all are herbaceous or half-shrubby and they may be bristly or thorny. Flowers are five-merous. Styles are joined at the base and are persistent in fruit.

#### Key to species

- A. Plants with scapes; leaves and peduncle arising from the rhizome. *Aralia nudicaulis*
- aa. Plants with leafy stems. B
- B. Umbels in a loose cluster; stem bristly below. *A. hispida*
- bb. Umbels in a large terminal panicle; unarmed. *A. racemosa*

### ***Aralia hispida* Vent.**

#### **Bristly Sarsaparilla; aralie hispide**



*Photo by Sean Blaney*

Thorny or sharply bristly at the base of the plant, the armament reduces in density distally. Leaflets are lanceolate or ovate. A few umbels are arranged in a corymbiform inflorescence. Fruits are black. Insipid.

Flowers in July.

Successional, after fire or clearing, around sawmills and in light, barren soil.

Common throughout.

Ranges from NF to SK, south to IL and SC.



Photo by Martin Thomas

***Aralia nudicaulis* L.**

**Wild Sarsaparilla; aralie à tige nue**



Photo by Martin Thomas



Photo by Marian Munro

Stem is vestigial or absent. Leaves 3–5 arising from an ascending petiole, each compound with 3–5 leaflets, ovate to obovate or lanceolate. Plants may reach 50cm tall. Umbellate flowers, 3–4 on a peduncle, are usually shorter than the scapes.

Flowers often overlooked, from May to July.

Dry soils in mixed woodlands and old forests.

Common throughout.

Across Canada to YT and south to GA and CO.

***Aralia racemosa* L.**

**American Spikenard; aralie à grappes**



*Photo by Sean Blaney*

A tall robust shrub, to 2m, it is freely branching from a woody stem. Leaves are pinnate, with five sharply serrate leaflets. Each leaflet is broadly ovate, cordate at the base, glabrous or pubescent. The inflorescence is made up of many umbels, forming a large panicle. Fruits are purplish and succulent.

Flowers during July and early August.

Fertile or calcareous soils beneath mixed deciduous forests, often on slopes. Solitary plants rather than colonies.

Scattered in Annapolis and Lunenburg counties to northern Cape Breton. Absent along the Atlantic in the more acidic soils. Never frequent when found.

NS to MB, largely south to AZ and GA.



*Photo by Sean Blaney*

***Hedera helix* L.**

**English Ivy ; lierre commun**



*Photo by Sean Blaney*

It is a widely planted groundcover, both variegated and green forms are grown.

Now naturalizing near gardens where it was formerly cultivated.

It is frequently seen around Wolfville and more recently at Tusket Falls, Yarmouth Co.

Elsewhere it has naturalized from NY to TX and on the west coast where it has official Weed status in some jurisdictions.



***Panax* L.**  
**Ginseng**

Only eight species comprise this genus, with one species reaching Nova Scotia. It is a perennial herb, its unbranched stem arising from a deep tuber. Leaves are arranged in a single whorl of 3–5 palmately divided leaves. The leaflets may be oblanceolate or lanceolate and serrulate on the margins. Flowers bear five stamens and petals, but only three styles, producing drupes.

***Panax trifolius* L.**

**Dwarf Ginseng; ginseng à trois folioles**



*Photo by Sean Blaney*

Stems are simple and glabrous arising from the deeply rooted tubers. Leaves and leaflets glabrous, leaflets oblanceolate. The single umbel of flowers arises on a long slender peduncle, extending above the leaves.

Flowers in June.

Open woodland, especially deciduous forests, with well-drained and fertile soils. Intervals.

Local in Kings and Annapolis counties. Common along the northern slopes of central NS, from Cumberland eastward to Antigonish Co. and infrequent further eastward to Inverness Co.

Ranges from NS to ON, south to MN and GA.



*Photo by Sean Blaney*

## Asclepiadaceae milkweed family

Milkweeds are a large family of 2000 or more herbs, shrubs or vines, mostly from warm climates. Bearing simple leaves, plants may have alternate, opposite or whorled leaf arrangements. Flowers are five-merous, perfect and nearly regular. Corolla extends to a tube, its lobes inrolled. Fruits are follicles, round or linear, producing many seeds, armed with copious comas of long silky hairs. Nova Scotia has only two species of herbs.

### *Asclepias* L. milkweeds

Best developed range is in North America, with 150 species worldwide. Most are perennial herbs with opposite or alternate leaves, containing a milky latex. The corolla is deeply incised, its lobes spreading or reflexed. Flowers bear unique reproductive structures. Filaments with the anthers plus the styles are fused via a translator. Pollen is borne within a pollinium, released to visiting insects when they become entangled with the translator. Ovaries are two, the two styles united by a common stigmatic head bridging adjacent anthers.

The petaloid corona comprising five hoods, arises from near the top of the filament column around the anthers. Each hood bears a flattened horn, varying in form between species. Follicles are usually erect.

#### Key to species

- A. Hoods about equal to the stamen-style structure; horns exceeding *Asclepias incarnata*  
the hoods; plants of wetlands.
- aa. aa. Hoods longer than stamen-style unit; horns not longer than hoods; plants of *A. syriaca*  
dry disturbed soils.

### *Asclepias incarnata* L. Swamp-milkweed; asclépiade incarnate



Photo by Sean Blaney

A tall species, sparsely branched, its leaves are glabrous to pubescent and generally oblong or oblanceolate. Flowers are purple, terminal in a rounded umbel. There are two subspecies recognized. Both are thought to be here. The typical ssp. has glabrous leaves. Ssp *pulchra* (Ehrh. ex Willd.) Woodson with pubescent leaves is sympatric with the typical ssp.

Flowers in August.





*Photo by Martin Thomas*

Rocky soils along lakeshores, in marshes,, streamsides or the edges of peatlands.

Infrequently found from Yarmouth to Cape Breton.

Ranges from NS to MB, south to NV, TX and FL.

### ***Asclepias syriaca* L.**

#### **Common Milkweed; asclépiade commune**



*Photo by Sean Blaney*

Sometimes reaching a metre or more in height, this plant also has simple stems. Leaves are ovate or oblong, 20cm long. Stems, peduncles and leaf lower surfaces are tomentose. Umbels are more numerous than in the previous species, axillary from the top leaves. Purple flowers are fragrant and borne on long pedicels.

Flowers earlier, in July.

Grows in drier, light soils.

Scattered in the centre of the province, with many collections made in the Annapolis Valley.

Scattered from NS to SK, south to MT, TX and FL; OR.



*Photo by Andy Dean*



*Photo by Sean Blaney*

## Asteraceae

### aster family

Worldwide, the aster relatives comprise a vast family, with around 20,000 species. Nearly 10% of Nova Scotia's flora consists of members of this family, at 160 plus species of annual or perennial herbs.

Formerly known as the Compositae, that name best describes the flower structure of the family. The 'flowers' are actually composite clusters of small florets upon a common receptacle. Some florets are disk florets, individuals of a tubular form and forming a disk or button. Other florets are ray florets, straplike in outline and tubular only at the base; these have the appearance of petals, although each is actually a functional flower.

Species may have only disks (discoid) or only rays (ligulate), or they may have both (radiate) types of flowers within the heads. The florets contain an inferior ovary producing an achene. The calyx is reduced to a pappus which is an assemblage of scales, teeth or bristles. In some cases, the pappus is absent.

The receptacle may be scaly or chaffy and may or may not be subtended by an involucre.

Identification is made easier if both flowers and fruit are present. To assist in separating the large numbers of species, several keys follow, firstly based on the floret arrangements.

Key

Heads radiate.

Ray florets yellow or orange.

Key 1

Ray florets not yellow or orange.

Key 2

Heads discoid.

Key 3

Heads ligulate.

Key 4

Key 1

Flowers radiate, rays yellow or orange

A. Receptacle chaffy.

B

B. Leaves opposite, at least basally.

C

C. Plants >1m height; disk >1cm; leaves simple.

*Helianthus*

cc. Plants <1m height; disk <1cm across; leaves simple or compound.

*Bidens*

bb. Leaves alternate.

D

D. Involucral bracts dry and scarious; margin not green; receptacle slightly convex.

*Anthemis*

dd. Involucral bracts herbaceous, with green margins; receptacle strongly convex.

*Rudbeckia*

aa. Receptacle naked.

E

E. Pappus a short crown of obvious scales or awns.

F

F. Pappus a short crown; disk yellow.

G

G. Rays <5mm long.	<i>Tanacetum</i>
gg. Rays 6 or more mm long.	<i>Leucanthemum</i>
ff. Pappus of scales or distinct awns; disk purple or brown.	<i>Helenium</i>
ee. Pappus filiform bristles, sometimes with shorter outer bracts.	H
H. Leaves opposite.	<i>Arnica</i>
hh. Leaves basal or cauline leaves alternate.	I
I. Involucre of a single series.	J
J. Cauline leaves reduced to bracts; flowering before leaves appear.	<i>Tussilago</i>
jj. Cauline leaves present; flowers after leaf-out.	K
K. Leaves mostly basal, few cauline leaves.	<i>Packera</i>
kk. Stem leafy, leaves reducing in size upward gradually.	<i>Senecio</i>
ii. Involucre of overlapping scales, in several series.	L
L. Inflorescence of several heads; disks 2–5cm across.	M
M. Annual; involucre <8mm in dia.	<i>Dittrichia</i>
mm Perennial; involucre >10mm in dia.	<i>Inula</i>
II. Inflorescence of many small heads; disks <1cm.	N
N. Leaves with resin dots; inflorescence flat-topped, corymbiform.	<i>Euthamia</i>
nn. Leaves without resin; inflorescence not as above.	<i>Solidago</i>

## Key 2

Flower-heads radiate, not yellow nor orange

A. Receptacle chaffy.	B
B. Leaves mostly or entirely opposite.	C
C. Pappus of numerous scales; flower heads small; rays white; weedy.	<i>Galinsoga</i>
cc. Pappus absent or a minute cup; heads large; rays pink (white); lacustrine coastal plain.	<i>Coreopsis</i>
bb. Leaves alternate.	D
D. Heads large, terminal on the branches; rays white,	<i>Anthemis</i>

5–13mm long.	
dd. Heads small, inflorescence corymbiform; rays white (pink), 1-5mm long.	<i>Achillea</i>
aa. Receptacle naked.	E
E. Pappus absent or a short corona.	F
F. Leaves all basal.	<i>Bellis</i>
ff. Leaves basal and cauline.	G
G. Receptacle flat or convex; leaves lobate and toothed, but not finely dissected.	H
H. Plant aromatic.	<i>Tanacetum</i>
hh. Plant not aromatic.	<i>Leucanthemum</i>
gg. Receptacle conical or slightly domed; leaves finely dissected.	I
I. Plant aromatic.	<i>Matricaria</i>
ii. Plant not aromatic.	<i>Tripleurospermum</i>
ee. Pappus of filiform bristles.	J
J. Basal leaves large, white-tomentose below, lobate.	<i>Petasites</i>
jj. Basal leaves various, but not lobate nor tomentose.	K
K. Ray florets very short, <3mm, white.	<i>Conyza</i>
kk. Ray florets >3mm, white, pink, or blue.	L
L. Receptacle nearly flat; disks yellow; early-flowering.	<i>Erigeron</i>
ll. Receptacle hemispheric or cylindrical; disks yellow, red or purple; late-flowering.	M
M. Rays white, fewer than 14.	<i>Solidago</i> (in part)
mm. Rays white, pink or blue; >14. (asters).	N
N. Plant arising from creeping rootstocks; inflorescence few-flowered or a corymb.	<i>Eurybia</i>
nn. Plant not arising from rhizomes; inflorescence a panicle (corymb in 1 genus).	O
O. Involucre, achenes and sometimes the leaves glandular.	<i>Oclemena</i>
oo. Plants not glandular.	P
P. Inflorescence paniculate; pappus a single series; if arising from creeping rootstock, plants pubescent.	<i>Symphotrichum</i>

pp. Inflorescence a corymb; pappus a double series; tall unbranching; plants glabrous.	<i>Doellingeria</i>
Key 3	
Flower heads discoid	
A. Receptacle hirsute or chaffy.	B
B. Pappus absent, or of awns or scales.	C
C. Pappus present.	D
D. Leaves cauline and basal, cauline leaves opposite.	<i>Bidens</i>
dd. Leaves all basal, or cauline leaves alternate.	E
E. Involucral bracts hooked distally.	<i>Arctium</i>
ee. Involucral bracts not hooked.	<i>Centaurea</i>
cc. Pappus absent.	F
F. Flower-heads perfect; involucre not spiny nor prickly.	G
G. Flower heads in terminal panicked spikes, leafy bracts absent.	<i>Cyclachaena</i>
gg. Flower heads in spikes or racemes in the axils of leaves or leafy bracts.	<i>Iva</i>
ff. Flower-heads unisexual; staminate florets uppermost; involucre of pistillate florets burrlike or prickly.	H
H. Involucre of hooked spines.	<i>Xanthium</i>
hh. Involucre of straight spines.	<i>Ambrosia</i>
bb. Pappus of filiform bristles.	I
I. Plants not prickly; achenes attached obliquely to the receptacle.	<i>Centaurea</i>
ii. Plants prickly; achenes basally attached.	J
J. Leaves mottled white.	<i>Silybum</i>
jj. Leaves not white-mottled.	K
K. Pappus bristles not plumelike, barbed.	<i>Carduus</i>
kk. Pappus bristles plumelike, not barbed.	<i>Cirsium</i>
aa. Receptacle naked.	L
L. Pappus chaffy or awned.	M
M. Inflorescence spikelike or a raceme.	<i>Artemisia</i>
mm. Inflorescence of solitary heads, or a corymb.	N
N. Heads solitary.	<i>Cotula</i>
nn. Heads corymbiform.	O
O. Receptacle flat or convex.	<i>Tanacetum</i>

oo. Receptacle conical.	<i>Matricaria</i>
II. Pappus of filiform bristles.	P
P. Plants not tomentose.	<i>Erectites</i>
pp. Plants tomentose, at least on lower leaf surfaces.	Q
Q. Flowers not all perfect.	R
R. Plants not dioecious.	S
S. Plant perennial; unbranched, compact inflorescence, the flower-heads sessile.	<i>Omalotheca</i>
ss. Plant annual or biennial; inflorescence stalked and branching	T
T. Inflorescence a terminal corymb; plant erect.	<i>Pseudognaphalium</i>
tt. Inflorescence occupying most of the plant; stems decumbent.	<i>Gnaphalium</i>
rr. Plants dioecious, or with the outer florets pistillate.	U
U. Basal leaves conspicuous, persistent; cauline leaves bracteate.	<i>Antennaria</i>
uu. Basal leaves deciduous; cauline leaves equal to basal leaves in size and numerous.	<i>Anaphalis</i>
qq. Flowers all perfect.	V
V. Plants prickly.	<i>Onopordum</i>
vv. Plants unarmed.	W
W. Flower heads yellow or orange; leaves alternate.	<i>Senecio (Packera)</i>
ww. Flower heads white, pink (purple); leaves opposite.	X
X. Leaves opposite or whorled; involucre bracts in 2–3 series.	<i>Ageratina</i>
xx. Leaves opposite; petiolate; bracts nearly equal.	Y
Y. Leaves whorled.	<i>Eupatoriadelphus</i>
yy. Leaves opposite, perfoliate.	<i>Eupatorium</i>



#### Key 4

Flower heads ligulate

A. Pappus of simple filiform bristles.	B
B. Achenes round or angled, scarcely flattened.	C
C. Achenes with delicate spines.	<i>Taraxacum</i>
cc. Achenes smooth, not ornamented.	D
D. Florets white to cream coloured (purple in 1 species), nodding.	<i>Prenanthes</i>
dd. Florets bright yellow or orange, erect.	E
E. Cauline leaves linear to lanceolate if present, reducing in size upwards; margins involute; plants widespread.	<i>Hieracium</i>
ee. Cauline leaves linear, flat, reduced to bracts distally; limited introduction.	<i>Crepis</i>
bb. Achenes strongly flattened.	F
F. Leaves with prickles on the margins; achenes beakless.	<i>Sonchus</i>
ff. Leaves unarmed; achenes beaked.	<i>Lactuca</i>
aa. Pappus of scales or plumelike bristles, or even absent.	G
G. Flowers blue; pappus comprising scales.	<i>Cichorium</i>
gg. Flowers orange, yellow; pappus plumelike bristles, or absent.	H
H. Pappus absent.	I
I. Involucral bracts herbaceous; stems not inflated below the inflorescence.	<i>Lapsana</i>
ii. Involucral bracts fleshy; stems inflated.	<i>Arnoseris</i>
hh. Pappus of plumelike bristles.	J
J. Involucre in a single series; leaves linear.	<i>Tragopogon</i>
jj. Involucre in multiple series; leaves not linear.	K
K. Receptacle with chaffy bracts.	<i>Hypochoeris</i>
kk. Receptacle naked.	<i>Leontodon</i>

### ***Achillea* L.**

#### **yarrow**

About 75 species comprise this genus of perennials, primarily of Eurasia and limited mostly to the northern hemisphere. The white, pink or yellow florets are radiate, the many flower heads arranged in a corymb. Leaves are alternate, finely pinnately dissected, toothed or pinnate. Several hybrids are used ornamentally.

## Key to species

Leaves pinnately dissected.

*Achillea millefolium*

Leaves entire, but finely toothed.

*A. ptarmica*

### ***Achillea millefolium* L.**

**Yarrow; achillée millefeuille; herbe à dindons**



*Photo by Ross Hall*



*Photo by Martin Thomas*

All parts of this species are aromatic, some say it resembles sage in scent. Stems are puberulent, to 1m. Leaves are sessile and finely pinnate. Numerous heads are produced, each from 2–4mm across the disk and the rays from 2–3mm long. The inflorescence is a tightly packed corymb.

This species is a polyploidy complex of native and introduced plants that hybridize and intergrade with each other. Some plants with the pinkest of rays are most likely of European origin.

Flowers from July to September.

Frequents dry soils as in fields, meadows, roadsides, gravelly shores. Acidic soils.

Species is common throughout.

Ranges from Greenland west and south, across the continent.

***Achillea ptarmica* L.**

**Sneezeweed; achillée ptarmique**



*Photo by Martin Thomas*

With clumped stems, this species only reaches 60cm in height. Leaves are linear and serrate. Flowers are larger than those of the previous species, the 8–10 rays 3–5mm long. The involucre is 4–8mm high. Pappus is absent.

Flowers July to September.

Rocky, gravelly shores and in waste soils. Ornamental escape.

Scattered in NS, although more frequent in north-central counties.

Ranges from Greenland to MB, AB and AK, south to WA and WVA.

***Ageratina* Spach.**

Formerly included in *Eupatorium* and now separated on the basis of the involucre bracts. They are arranged in a single series more or less of the same size, or biseriate. The leaves of the species within are merely opposite and not whorled. A single species reaches NS.

***Ageratina altissima* (L.) RM King & H. Rob.**

**(=*Eupatorium rugosum* Hout.)**

**White Snakeroot; eupatoire rugueuse**



*Photo by Sean Blaney*

Reaching 1.5m in height, this species bears opposite, ovate leaves. Their blades range from 4–12 cm, are sharply serrate almost to the base and carried on slender petioles. Plants are nearly glabrous. Florets are white, 3–4mm long and the inflorescence is diffuse.

Flowers late summer, August and September.

Grows in moist soils at the edge of fields and forests.



Photo by Sean Blaney



Known from Mill Brook, McGahey Brook and a brook near Refugee Cove, all in Cape Chignecto Provincial Park; older collection from Antigonish County.

NS to ON south to TX and FL; NT.

## ***Ambrosia* L.**

### **ragweeds**

Annuals or perennials, the ragweeds comprise about 40 species of the Americas; three in Nova Scotia. The leaves are opposite, lobed or dissected. Plants are monoecious. A few pistillate florets are scattered amidst many staminate florets, arranged in spikes, panicles or racemes. Flower heads are discoid. Pappus is absent. Involucre is closed around a single pistil, marked near the summit by a few tubercles.

In NS all ragweeds are considered to be noxious, due to the particularly irritating characteristics of the pollen and its connection to respiratory allergies.

#### Key to species

A. Tall plants, 1–2m; leaves palmately lobed, lobes 3–5.

*Ambrosia trifida*

aa. Plant <1m tall; leaves pinnately divided 1–2 times.

B

B. Annual; stolons or creeping rhizomes absent.

*A. artemisiifolia*

bb. Perennial; with slender, rhizomes.

*A. psilostachya*

***Ambrosia artemisiifolia* L.**

**Common Ragweed; petite herbe à poux**



*Photo by Martin Thomas*

A freely branching annual, this plant may reach 1m in height. The leaves are deeply cleft, the basal leaves opposite. Staminate florets are borne distally on short peduncles, from the axis of the inflorescence. Pistillate flower-heads are reduced to a single floret, carried in the axils of the upper leaves. Involucres are armed with six teeth or spines along the upper margins.

Some authors separate var. *elatior* Desc., considered to be the most widespread of the two varieties. The typical variety has simple leaves while var. *elatior* has the leaves at least once-pinnatifid.

Late flowering during August and September.

Thrives in coarse light soils as found on beaches, in fields and along roadsides.

Common in the Annapolis Valley and frequent elsewhere.

Ranges from NF to NT and BC, south to FL and TX.

***Ambrosia psilostachya* DC**

**Perennial Ragweed; herbe à poux vivace**



Photo by Martin Thomas



*Ambrosia psilostachya*

This species differs from the Common Ragweed in having creeping roots. Leaves may appear nearly succulent; they are merely simply pinnate. Blades may be longer and narrower in outline. The spines are absent on the pistillate involucre. They are armed only with small tubercles near the summit. Plants are coarsely hirsute.

Flowers during August and September.

Dry fallow soils, fields and roadsides.

So far known only from the Annapolis Valley.

Nearly covers the continent and some consider it introduced in the northeast.

### ***Ambrosia trifida* L.**

**Giant Ragweed; grande herbe à poux**



Photo by Martin Thomas

Reaching 1–2m in height this coarse plant is striking. Its opposite leaves are three-parted and coarsely hirsute on both surfaces. The terminal panicles are staminate, while a few pistillate florets are scattered in the upper leaf axils. As with all ragweeds here, the florets are greenish.

Flowers in late summer.



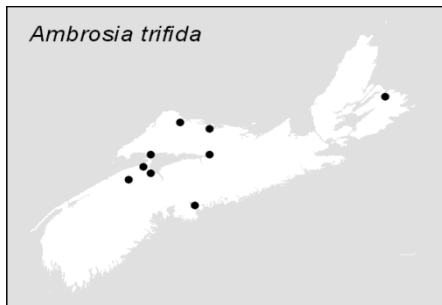


Usually introduced about towns and ports; occasionally spreading to more fertile sites.

Widespread, from Kings Co. to the Northumberland counties and Sydney.

Ranges from NS to AB, south to CA, TX and FL and Mexico. Absent from NF, BC and the north.

*Photo by Martin Thomas*



## ***Anaphalis* DC**

### **pearly everlasting**

North temperate in distribution, there are about 25 species worldwide, mostly in eastern Asia. One species reaches NS, a prominent feature of our late summer flora. Most distinctive, are the shining white involucre bracts that are persistent and scarious. Flower-heads are discoid, and unisexual. Some staminate florets may be scattered amongst the pistillate florets. Corollas of both florets are tubular. Pappus is in the form of bristles. Leaves are alternate, their margins are entire. Plants are tomentose.

***Anaphalis margaritacea* (L.) Benth. & Hook.**

**Pearly Everlasting; immortelle blanche**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

An erect plant, it is white-tomentose, colonial in habit. Individuals range in height from 30–80cm. Stems bear alternate leaves, linear to narrowly lanceolate and sometimes involute. Flower-heads are clustered distally on the branches of the inflorescence. Involucre is pearly white.

Late flowering, from August until frost.

Dry, open sites.

Common throughout.

Ranges from NF to AK, south to CA, NM and NC.

***Antennaria* Gaertner**

**pussytoes**

Generally restricted to North America, there are about 30 species all told; three reach Nova Scotia, one with several subspecies or varieties. Colonial plants, apomixis is not uncommon. All are tomentose perennials, the leaves forming a basal rosette, or at the ends of the stolons. Cauline leaves are present and alternate. Inflorescence is pedunculate, the peduncles 20–40cm tall and bracteate. Flower-heads are discoid, subtended by an involucre in several series. Pappus comprises long bristles. Fertile florets shed the pappus in a ring.

**Key to species**

A. Basal leaves with 3–5 veins, the lateral ones reaching nearly to the apex.

*Antennaria parlinii*

aa. Basal leaves with a single vein (obscurely 3-veined), lateral veins

B

extending about half way to the apex.

- B. Tips of the phyllaries involucre bracts rose or rose-pink. *A. rosea*
- bb. Tips of the phyllaries white (common). C
  - C. Basal leaves abruptly contracted; stolons short, decumbent. *A. howellii*, ssp. *neodioica*
  - cc. Basal leaves attenuate at the base; stolons long and procumbent. C
    - D. Basal leaves glabrous, or soon becoming glabrate above. *A. howellii*, ssp. *canadensis*
    - dd. Basal leaves canescent above, later becoming glabrate. E
      - E. Middle and distal cauline leaves of pistillate plants ending in a long coloured subulate tip. *A. howellii*, ssp. *petaloidea*
      - ee. Middle and distal cauline leaves of pistillate plants ending in a flat or involute tip. *A. neglecta*

### ***Antennaria howellii* Greene**

#### **Howell's Pussytoes; antennaire de Howell**



*Photo by Sean Blaney*

A complex species with several subspecies recognized as present in Nova Scotia. Each has the leaves abruptly contracted to a petiole-like base, mostly less than 15mm wide. The tomentum is variable. All have an involucre of shining white bracts to 6mm long.

Ssp. *canadensis* (Greene) Bayer is found throughout the province in old fields and leached soils. More northern it ranges south as far as NJ.



*ssp. neodioica*

Photo by Martin Thomas

*Ssp. neodioica* is common especially on gravel soils, as in roadsides, common throughout NS, but less so along the Atlantic side.

*Ssp. petaloidea* (Fernald) Bayer. Our material needs to be re-examined to ascertain its distribution and habitat.

Flowers during May and June.

As above in distribution.

The species ranges from NF to the YT, south to CA, CO and NC.

### ***Antennaria neglecta* Greene**

#### **Field Pussytoes; antenneaire négligée**

Somewhat difficult to separate from the above species, the best character remains the tips of cauline leaves on pistillate plants. Leaves are generally narrower (2cm) than those of the following species.

Flowers during May and June.

Sterile leached soils in open habitats.

Collections from Annapolis Co. east to Cape Breton.

Ranges from NS to NT and BC, south to OK and NC. Absent from the Pacific states.

### ***Antennaria parlinii* Fernald**

#### **antenneaire de Parlin**



Plants have wider basal leaves, covered in minute pubescence on the upper surface. Lower surface clearly shows three veins. Flower-heads are arranged in clusters of three or more, their involucre to 1cm tall and linear, white or stramineous. Species is dioecious; staminate florets are smaller than the pistillate ones.

Flowers a bit later than the other species, in June or July.

Found in dry soils of pine and oak forests, pastures, oldfields, even rocky banks.

Only known from along the LaHave River (Bridgewater), the Halfway River (Hants Co.) and from several Kings Co. locations. More recently found along the Kennetcook River, Hants Co. and East Branch River John, Pictou Co.

Ranges from NS to MB, south to NM and GA.

STATUS: ORANGE-listed in NS.

***Antennaria pulcherrima* (Hook.) Greene** has been removed from the provincial records.

***Antennaria rosea* Greene**  
**antennaire des terrains secs**



*Photo by Marian Munro*

The rosy-coloured flowers are distinctive and like no others of the genus in NS. Ours is ssp *arida* (EE Nelson) Bayer.

It has very recently been confirmed at Cape d'Or.

This ssp. is also found in NF, QC and NU and further west and southwest.

It is suspected to be truly rare (Blaney, pers. comm.) and is currently listed as ORANGE for NS.

***Anthemis* L.**  
**chamomile**

Aromatic plants, these species are mostly Eurasian, 60 in total. Ours are intentional or accidental introductions. Inflorescence comprises radiate flower-heads, their rays white or yellow. The receptacles are conical or convex and chaffy at least towards the centre, a character separating them from *Matricaria*. All have fragrant florets in large flower heads and bear alternate dissected leaves.

Key to species

- |  |                           |
|--|---------------------------|
| A. Plants perennial; ray florets yellow.                 | <i>Anthemis tinctoria</i> |
| aa. Plants annual; ray florets white.                    | B                         |
| B. Rays sterile; receptacle chaffy only near the middle. | <i>A. cotula</i>          |
| bb. Rays pistillate; receptacle chaffy throughout.       | <i>A. arvensis</i>        |

***Anthemis arvensis* L.**  
**Corn Chamomile; camomile des champs**

Annual, this plant is freely branching, reaching 50cm in height. The leaves are finely divided. Flower-heads are long-pedunculate. White rays number 15–20, each 6–12mm long. Chaff is lanceolate and covers the receptacle. Pappus, if present is a minute crown. Plants tend to be more pubescent than the next species and lack the disagreeable odour of that species. It is also more limited here.

Flowers from July to September.

Associated with railway tracks and other fallow ground.

So far known only from Cumberland Co. Its distribution should be checked.

Ranges from NF to AK, southwards.



***Anthemis cotula* L.**

**Stinking Mayweed; camomile des chiens**



*Photo by Martin Thomas*

An annual species, to 60cm tall, this species has finely divided, pinnatifid leaves. The stem and lower leaf surfaces are villous. The flower-heads have rays 5–10mm long, white. Its odour is unpleasant when crushed.

Flowers midsummer, during July and August.

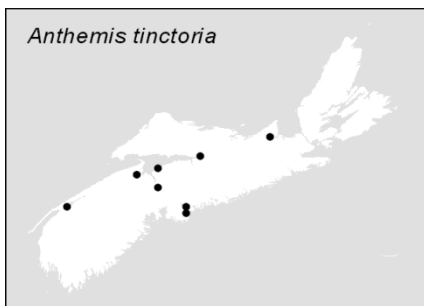
Sites with highly compacted soils and little competition.

Common throughout.

Ranges from NF to AK, south through the US.

***Anthemis tinctoria* L.**

**Yellow Chamomile; camomile jaune**



A perennial species, it has few branches and numerous pinnatifid leaves. Flower-heads have 20–30 yellow ray florets 5–15mm long, borne on long slender peduncles. Disk is 1.5cm across and covered in chaff; the pappus is a short crown.

Flowers until September.

Readily escapes from gardens in grassy areas and roadsides.

Spread from Halifax and Digby to Truro.

Ranges from NF to AK, south to CA, CO, AR and VA.

***Arctium* L.**  
**burdock**

Only five species are included in this Eurasian genus, three introduced to NS. It is best known by the dried hooked involucral bracts forming burrs that stick fast to passing mammals, including ourselves! All the florets are perfect, the tubular corolla is pink or purple. The flat receptacle is densely hirsute. Achenes are angled, bearing a pappus of short bristles within the dry serrated linear bracts of the involucre. Generally biennial, the species produce large alternate leaves.

Key to species

Flower heads 1.5–2.5cm wide; inner involucral bracts shorter than the florets, exposing them; common.

*Arctium minus*

Flower-heads 3–4cm wide; florets obscured by the involucral bracts; infrequent.

*A. vulgare*

***Arctium minus* (Hill.) Bernh.**  
**Common Burdock; petite bardane**



*Photo by Martin Thomas*

Tall robust plant reaching 1.5m, the leaves may be as wide as 40cm. Inflorescence is racemiform, the flower-heads are on short peduncles. Involucre is less woolly than that of *A. tomentosum*, the inner bracts short, exposing the purplish florets. White flowers are common. Achenes measure 4–5.5mm long.



Photo by Sean Blaney

Flowers from June to September.

Usually found on disturbed sites.

Common throughout.

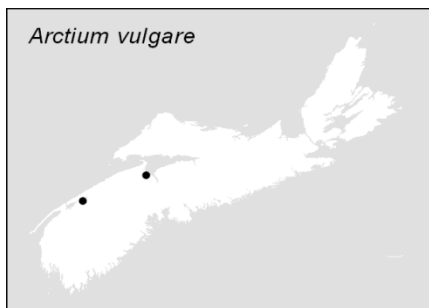
Ranges from NF to BC, south to CA, TX and GA; Greenland.

***Arctium tomentosum* P. Mill., Woolly Burdock** was historically reported from Pugwash, Cumberland Co. This exotic has not been seen in 50 years.

***Arctium vulgare* (Hill) Evans**

(=*A. nemorosum* Lej.)

**Woodland Burdock; petite bardane**



Resembles Common Burdock, but for the longer involucral bracts obscuring the florets. The inflorescence may be racemiform or corymbiform.

Flowers July and August.

Found on disturbed soils.

Two localities to date: Annapolis Royal and Wolfville.

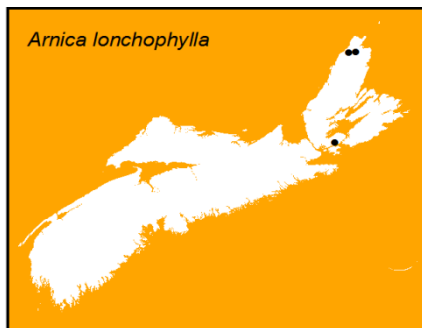
Reported from NS; New England south to PA, VA and KS.

## ***Arnica* L.**

A circumboreal genus including 27 species, it is best developed in western North America. A single perennial is found in Nova Scotia, one of our rarest species. Its leaves are opposite, lanceolate to ovate, but narrow. The plant is covered in pubescence. The radiate flowers may be different shades of yellow. The rays are toothed. Generally a calciophile, here it is limited to cliff-ledges in Cape Breton.

### ***Arnica lonchophylla* Greene**

***Arnica*; *arnica lonchophylla***



Ranging from a mere 7–50cm tall, each plant bears one-several terminal flower-heads with wide yellow ray florets 10–20mm long and bearing 3–4 teeth distally. Involucral bracts are long and lanceolate. The pappus is composed of white barbed bristles.

Flowers during July and August.

Limited to calcareous gravels, cliff ledges.

Rare and known only from Cape Breton: Grand Anse River, Inverness Co.; Big Southwest Brook, Victoria Co. and an unknown site in Richmond Co.

As ssp. *lonchophylla* found throughout Canada; AK south to WY.

## ***Arnoseris* Gaertner**

***lamb succory***

A monotypic genus, native to the Mediterranean region. Introduced to North America but perhaps not yet established.

***Arnoseris minima* (L.) Schweig.**

**Lamb Succory; porcelle des moutons**

A small annual species, it rarely exceeds 30 cm in height. The leaves are all basal, oblanceolate in outline. Florets are ligulate, borne in flower-heads atop long peduncles, which are inflated below the inflorescence.

Flowers produced from July to September.

Waste ground and ballast.

Reported only by Fernald from Yarmouth Co. Not recorded since and perhaps best considered as historic.

Elsewhere it has been reported from Maritime Canada and the US just south along the Great Lakes and New England.

***Artemisia* L.**

**wormwoods**

Wormwoods are northern hemisphere and South American plants, totalling 100 species approximately. Of the 50 known from North America, we have only six in Nova Scotia. Several are ornamentals, grown for their attractive leaves; others are culinary herbs.

Annuals or perennials, all have lobed or dissected leaves. Flower-heads are numerous and discoid, sometimes even nodding. Receptacles are variously flat, hemispheric or convex and covered in villous pubescence but no chaff. The achene is flattened but there is no pappus.

**Key to species**

- |  |                          |
|--|--------------------------|
| A. Leaves glabrous, green on both surfaces.                  | B                        |
| B. Ultimate leaf lobes toothed; weedy in disturbed sites.    | <i>Artemisia biennis</i> |
| bb. Ultimate leaf lobes entire; native northern species.     | <i>A. campestris</i>     |
| aa. Leaves silky-pubescent on at least one surface.          | C                        |
| C. Receptacle with long pubescence between the disk florets. | <i>A. absinthium</i>     |
| cc. Receptacle glabrous.                                     | D                        |
| D. Lobes of the leaves >2mm wide.                            | E                        |
| E. Leaves silky pubescent on both surfaces.                  | <i>A. stelleriana</i>    |
| ee. Leaves glabrous above, finely pubescent below.           | <i>A. vulgaris</i>       |

dd. Lobes of leaves 1mm wide or less.

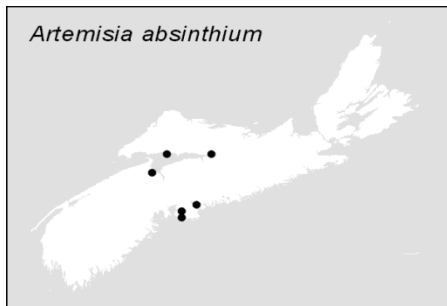
*A. pontica*

***Artemisia absinthium* L.**

**Wormwood; armoise absinthe**



Photo by Sean Blaney



*Artemisia absinthium*

A tall perennial, it may reach 1m. The leaves are pinnatifid, silvery on both surfaces. The inflorescence is freely branching, the small flowers less than 4mm wide and nodding. They are subtended by ovate bracts, papery on the margins, 2–3mm tall. Receptacles are villous.

Flowers during August and September.

A garden escape to waste ground, disturbed sites nearby.

Collections exist from central NS.

Widespread: NF to BC south to UT and MD; SC. Introduced.

***Artemisia biennis* Willd.**

**Biennial Wormwood; armoise bisannuelle**



Photo by Martin Thomas

A tall unbranched species, its stems may reach up to 1m in height. The leaves are pinnately divided into narrow, toothed segments. Upper and lower leaf surfaces are green and glabrous, as is the involucre, which stands 2–3mm tall.

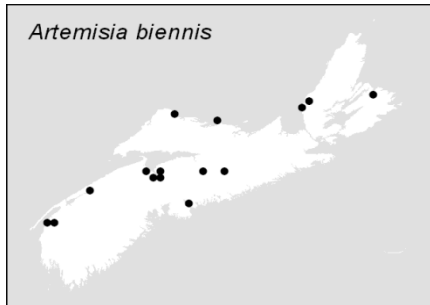
Flowers in late summer.

Frequents waste soils as along roads.

Scattered from Digby to Cape Breton and the Northumberland shores.

Found from NS to AK, south to CA, NM and TN after its



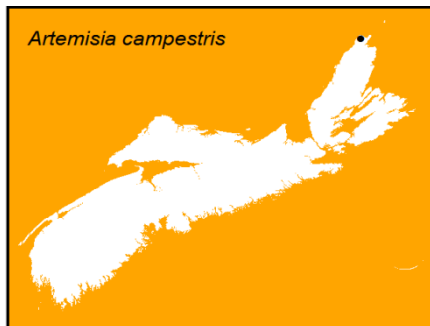


introduction eastward.

***Artemisia campestris* L.**  
**Field Sagewort**



Photo by Sean Blaney



Crowded stems arise from a stout rootstock, reaching 30 – 80cm. Leaves are pinnate, their lobes filiform, crowded at the base and 10cm long. Cauline leaves reduce in size towards the top. The inflorescence has a reddish hue and the involucre is puberulent, 3–5mm high.

Ours are reported to belong to ssp. *borealis* (Pall.) Hall and Clements. Re-examination of provincial material is required to check the status of ssp. *caudata* here.

Flowers midsummer, July and August.

Favours natural talus slopes.

Collected only once at Lockhart Brook, Salmon River, Victoria Co.

Circumpolar, south to CA, NM, TX and FL

STATUS: ORANGE-listed in Nova Scotia.

***Artemisia pontica* L.**

**Roman Wormwood; armoise de la mer Noire**

A perennial species, appearing to be half-shrubby, it arises from a creeping rootstock, to 1m. Leaves are greyish, 2–3cm long and bearing two small lobes at the base of the petiole, resembling stipules. Flower-heads are clustered in a racemiform inflorescence or panicle. Involucre is densely pubescent, about 4mm wide and 3mm tall.

Flowers in August.

Garden escape, waste ground.

Collected only from Dartmouth and Sydney.

NS; QC to MB south to KY and DE. Introduced from southeastern Europe.

***Artemisia stelleriana* Bess.**

**Beach Wormwood; Dusty Miller; armoise de Steller**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

A softly tomentose plant, it has many decumbent branches, 30–70cm long. Leaves are pinnate. Flower-heads are relatively large and subtended by an involucre 6–7.5mm tall. They are white-woolly. The ghostly colour of this plant make it unmistakable where found.

Flowers early August.

Rocky and sandy beaches.

Scattered around the coast.

Ranges from NS to Great Lakes, south to NC; LA; FL; AK; WA. Introduced ca1880 from northeast Asia, and spreading since then.

***Artemisia vulgaris* L.**

**Mugwort; Common Wormwood; armoise vulgaire**



*Photo by Sean Blaney*

A perennial species, it reaches near 1.5m, on a simple stem. Its leaves are pinnate, the lobes softly pubescent below, glabrous above. Flower-heads are tomentose, 4mm tall arranged in a spikelike panicle.

Flowers mid-summer.

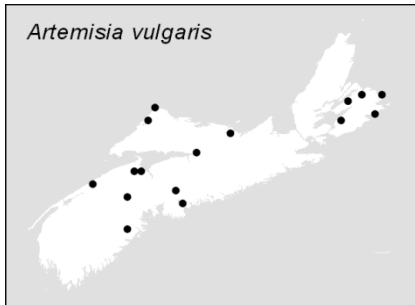
Roadsides, waste soils, disturbed sites.

Scattered from Annapolis and Lunenburg counties to Cape Breton.

From NF to BC, south to CA and FL. Absent from the desert and southwestern plains. Introduced from Europe.



*Photo by Sean Blaney*



***Bellis* L.**

**English Daisy**

Commonly planted as perennials elsewhere, a single species has been grown as an annual in Nova Scotia. Introduced from the Mediterranean region, it is one of 15 species, found in Eurasia and northern Africa. In several localities, it is persistent.

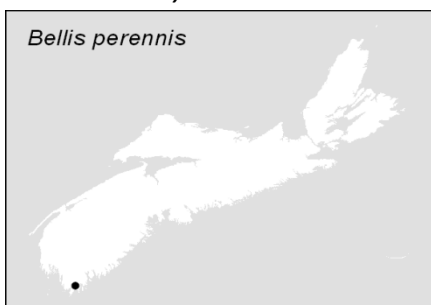
Flower heads are solitary and radiate, the white, pink or reddish ray florets crowded around a yellow disk of perfect florets. The leaves are mostly basal, ovate and finely toothed. Pappus is absent on a flattened achene, marked by a pair of nerves. The entire plant is somewhat villous.

***Bellis perennis* L.**

**English daisy**



*Photo by Beth Cameron*



Small in stature, this annual rarely exceeds 10cm here. The attractive flowers bear a smooth receptacle and the fruit has no pappus.

Flowers from May through September.

Limited to sodded areas, as in lawns, meadows, and pastures.

Persisting in Barrington area of Shelburne Co. and the Sydney-North Sydney area of Cape Breton.

NF to ON, south to TN and NC; in the west from AK to CA.

## ***Bidens* L.**

### **beggar's-ticks**

There are almost 200 species of this cosmopolitan genus, with six in Nova Scotia. All terrestrial or emergent species here are annual, herbaceous and typified by having hooked awns on the pappus. Leaves are simple or compound, toothed and always opposite. Both discoid and radiate flower-heads are found in Nova Scotia. Ray florets are often fewer than eight and usually yellow. Involucre is in two series, the inner shorter.

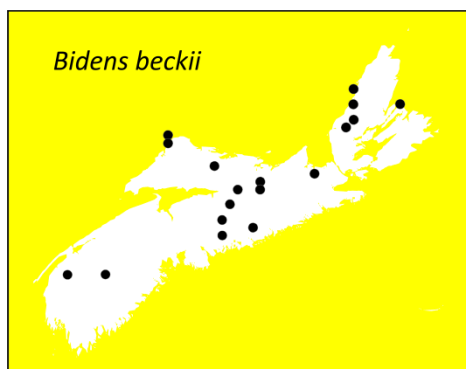
#### Key to species

- |  |                      |
|--|----------------------|
| A. Plants aquatic; leaves submerged and their divisions nearly filiform. | <i>Bidens beckii</i> |
| aa. Plants emergent or terrestrial; leaves not as above.                 | B                    |
| B. Leaves sessile.   | C                    |
| C. Flower-heads domed and nodding; outer bracts reflexed.                | <i>B. cernua</i>     |
| cc. Flower-heads campanulate, erect; outer bracts ascending.             | <i>B. hyperborea</i> |
| bb. Leaves petiolate.  | D                    |
| D. Petioles may be winged; leaves simple, deeply lobed.                  | <i>B. connata</i>    |
| dd. Petioles not winged; leaves pinnate, merely toothed.                 | E                    |
| E. Bracts >10.   | <i>B. vulgata</i>    |
| ee. Bracts <8.   | <i>B. frondosa</i>   |

## ***Bidens beckii* Torr.**

**(*Megalodonta b.* Torr.)**

**Water-marigold; bident de Beck**



Of all the species in the aster family, this is our only truly aquatic one. A perennial, the flower-heads emerge with the first pair of lanceolate, serrate leaves above the water, from long-trailing tenuous stems. The filiform pinnate leaves remain below the surface. Flower-heads are yellow and often solitary, the disc about 1cm wide, the rays to 1.5cm long.





*Photo by David Mazerolle*

Flowers during August and September.

Found in shallows of sluggish streams and ponds.

Scattered throughout but more abundant from Pictou northward.

NS to SK; BC, south to OR, MO and MD. Absent from the Great Plains area.

***Bidens cernua* L.**

**Nodding Bur-marigold; bident penché**



*Photo by Ross Hall*

A tall species, reaching 1m, with lanceolate serrate leaves. Flower-heads are often nodding, with a tightly packed disc. The ray florets if present number eight or fewer, and yellow. The outer series of bracts are leafy and conspicuously longer than the disc. Achenes bear four awns, with reflexed barbs.

Flowers from July through September.

Thrives in wet soils, swamps, thickets and streamsides.

Ranges from Annapolis and Lunenburg counties to Cape Breton; infrequent in southern NS.

Found across Canada, south to CA, TX and GA.



***Bidens connata* Muhl.**

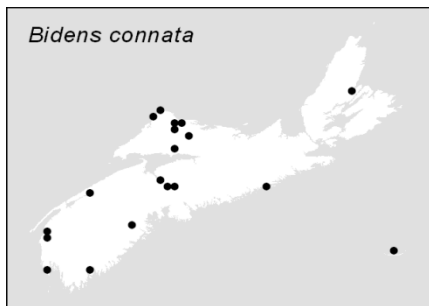
**Swamp Beggar's-ticks; bident à feuilles connées**



Photo by David Mazerolle



Photo by Sean Blaney



A robust species, this plant may reach 2m. The leaves are pinnate, the segments sharply serrate. They are carried on petioles to 3cm, that are sometimes winged. Flower-heads are domed and bear rays less than 8mm long, if they are present.

Flowers during August and September.

Wet soils as in swales, bogs, thickets and in paludal soils even behind coastal beaches.

Scattered along the Atlantic side from Lunenburg to Guysborough counties; along the Minas Shore and Fundy; Sable Island.

Ranges from NS to ON south to KS, AL and GA.

***Bidens discoidea* (T&G) Britt.**, Beggar's-ticks is now considered to be extirpated in Nova Scotia.

***Bidens frondosa* L.**

**Common Beggar's-ticks; bident feuillu**



Photo by Martin Thomas

Plants glabrous, ranging from only a few cms to over 1m. The leaves are coarsely serrate, arising from slender petioles. Flower-heads are subtended by 5–8 involucral bracts which are lanceolate and foliose, and extend well beyond the disk. Rays are usually absent.

Flowers late summer.

Moist soil.

Common throughout.

Ranges from NF to AK, south to FL and CA. Introduced.

***Bidens hyperborea* Greene**

**Northern Beggar's-ticks; bident hyperboréal**



Photo by Sean Blaney

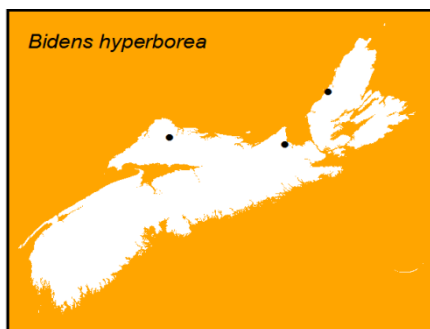
A small plant, it may reach 70cm. The leaves are sessile, sometimes tapering to a winged petiole, glabrous and finely serrate, with three pairs of teeth. The flower-heads are erect and campanulate, the yellow rays barely 1cm long.

Flowers in August.

Its habitat is limited to estuarine conditions. Reported from River Philip and known from Antigonish and Inverness counties.

Ranges from NS to NU, south to NY.

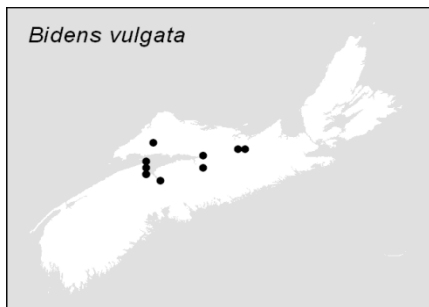
STATUS: ORANGE-listed.



***Bidens vulgata* Greene**  
**Beggar's-ticks; bident vulgaire**



Photo by Sean Blaney



Plants resemble *B. cernua*, with its petiolate compound leaves. This species has larger flower-heads, with more tightly packed disk florets. The involucre numbers 10–16 bracts. Achenes are large, 10–12mm long, they soon become exposed.

Also flowers through late summer.

Widely tolerant of habitats, from waste urban ground to dykelands.

Scattered from Kings and Cumberland counties to Pictou. Reported to be common at Truro.

Ranges from NF to AK, south to GA, LA and CA. Absent from the arid southwest.

***Carduus* L.**

Nearly 100 species are included in this genus of thistle-like plants, mostly Eurasian. Resembling *Cirsium*, they differ in the pappus form. The bristles are hairlike and not plumose. The achenes are compressed, marked by nerves numbering 5–10, or they may be angled. Flowers are perfect; the flower-heads are discoid. The florets are tubular and may be rose pink to purple. The stem is winged and spiny. The alternate leaves are toothed or serrate and very spiny, with each lobe ending in a sharp spine.

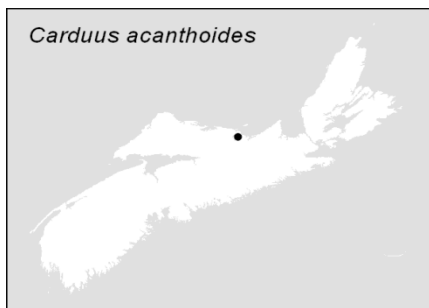
**Key to species**

- |  |                       |
|--|-----------------------|
| A. Flower-heads 3–7cm wide, solitary and nodding on naked peduncles.           | <i>Carduus nutans</i> |
| aa. Flower-heads <2.5cm wide, several to an inflorescence on winged peduncles. |                       |
| B. Leaves tomentose below.   | <i>C. crispus</i>     |
| bb. Leaves glabrescent below, but ciliate on the midrib and veins.             | <i>C. acanthoides</i> |

***Carduus acanthoides* L.**  
**chardon épineux**



Photo by Sean Blaney



Biennial in growth, this robust species may reach 1m tall. Resembling *C. crispus*, its leaves are broader, more deeply cut and glabrous beneath.

Flowers from July to September.

Limited to waste soils and ballast heaps.

Perhaps an historic occurrence, not collected since Fernald's reports from Yarmouth and a collection from Pictou. (Photo is of an Ontario plant).

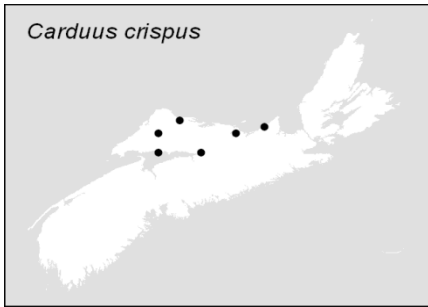
Ranges from NS to ON; BC and southward. Introduced from Europe.

***Carduus crispus* L.**  
**Wetted Thistle; chardon crépu**



Photo by Sean Blaney

Standing to 2m tall, the flower-heads are borne on a peduncle that is weakly spiny and winged. The lobed leaves are also spiny, tomentose beneath, a character differentiating it from the species above. The flower-heads are carried at the ends of the upper branches or carried in a short inflorescence. Bright purple in colour, they are mostly 2cm wide. The involucral bracts are narrowly lanceolate and thorny; the outer series is shorter than the inner ones.



Flowers during July and August.

Roadsides and waste places.

Scattered in the Northumberland counties.

NS to ON; BC; south to AR.

***Carduus nutans* L.**

**Nodding Thistle; chardon penché**



*Photo by Sean Blaney*

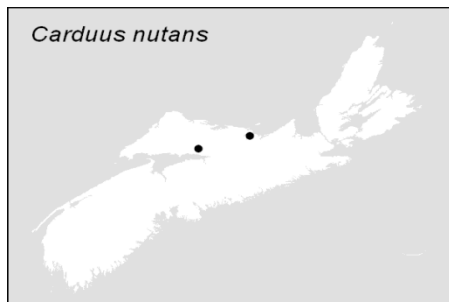
Another biennial species arising from a winged and prickly stem. The alternate leaves are sharply lobed, ending in a spine. Flower-heads are rose coloured, 5–6cm wide. They are usually solitary, terminally placed on the branches.

Flowers July and August.

Disturbed soils as in waste places and roadsides.

Known from Londonderry, Colchester Co.

Found throughout but for ME; VT; FL and the arctic regions.





## ***Centaurea* L.**

### **knapweeds**

Mostly Eurasian, worldwide there are 500 species of knapweeds. Nova Scotia has three herbaceous species, with basal or alternate leaves.

The flower-heads are discoid, sometimes appearing to be radiate as the outer florets are enlarged. The corollas are variously coloured from blue, purple, yellow or white. The involucre is divided into several series of dry bracts and may be spiny; their tips are sometimes fringed. The nearly flat receptacle is densely bristly. Achenes are attached obliquely or laterally, sometimes bearing ribs, mostly not. The pappus is formed of several series of bristles, which may be reduced in size.

#### Key to species

- |  |                         |
|--|-------------------------|
| A. Involucre <8mm wide, the bracts without inflated tips.  | B                       |
| B. Leaves entire, linear; a garden escape.   | <i>Centaurea cyanus</i> |
| bb. Leaves divided or lobed, pinnate.  | <i>C. stoebe</i>        |
| aa. Involucre >10mm wide, the outer bracts with inflated deeply lobed apices.  | C                       |
| C. Involucral bracts with apical appendages 1–2mm long, 8 or fewer fringe segments on each margin; outer florets may be enlarged, appearing raylike. | <i>C. nigrescens</i>    |
| cc. Involucral bracts with apical appendages more than 2 mm long, 7–15 fringe segments on each margin; outer florets not enlarged.                   | <i>C. nigra</i>         |

## ***Centaurea cyanus* L.**

### **Bachelor's Buttons; Cornflower; centaurée bleuet**



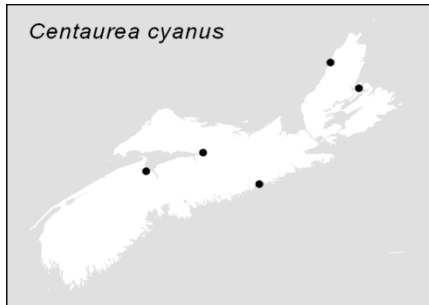
Photo by Sean Blaney

An ornamental species, planted for its beautiful blue flowers. A slender and freely branching plant, to 1m tall, it bears cauline leaves, linear in outline and entire along the margins. Flower-heads appear to be radiate. This is due to the marginal florets being enlarged. Usually blue, some individuals may be pink or white. The involucre is up to 1.5cm and the narrow bracts are imbricate.

Late summer flowering.

A garden escape near old dwellings and on roadsides. It is known to become weedy in cultivated fields.





Local but scattered about the mainland and Cape Breton.

Ranges from NF to BC and YT, southward. Absent from SK. Introduced.

### ***Centaurea nigra* L.**

**Knapweed; centaurée noire**



*Photo by Martin Thomas*

A robust plant to 80cm, it arises on a freely-branching and woody stem. The leaves are variously lobed. Flower-heads are terminal on the branches, the florets rose-purple. The involucre is 1.5cm tall, wider than tall. Its bracts are expanded at the apex and deeply lobed, black in colour.

Flowers from July to September.

Our most common knapweed, frequents roadsides and other fallow soils.

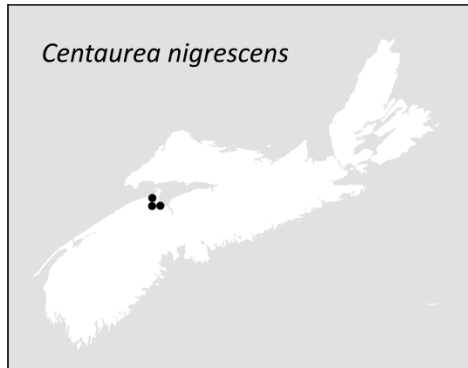
Common throughout.



*Photo by Sean Blaney*

Ranges from NF to ON, south to MO and NC; WA to CA and inland. Native of Europe and weedy here.

***Centaurea nigrescens* Willd.**  
**centaurée noirâtre**



Very similar to the previous species, but with the bracts of the involucre brown and not black. They are also ciliate and not lobed. Many of the florets are also fringed, so that the flower heads are quite showy.

Flowers earlier than *C. nigra*, in June and July.

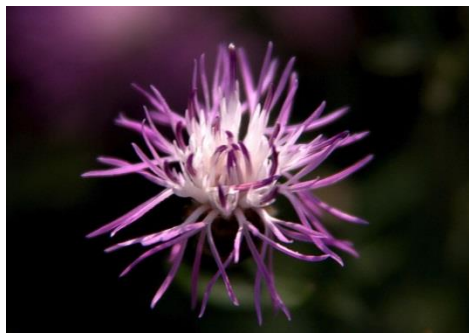
Run-out or sterile soils as in fields or roadsides.

Local from Hants to Pictou counties.

Ranges from NS to ON, south to VA and MO; BC south and eastward. Introduced from Europe

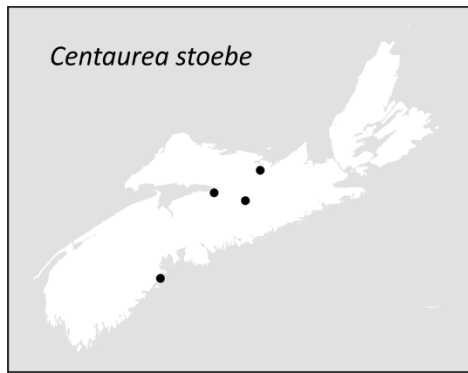
*C. x moncktonii* CE Britton has been reported from NS. More information is needed here, preferably a collection.

***Centaurea stoebe* L**  
**(=*C. maculosa* Lam.)**  
**Spotted Knapweed; centaurée maculée**



*Photo by Jamie Ellison*

Generally perennial or biennial and short-lived, this knapweed is freely branching towards the top of the plant. It may reach 1m in height. The alternate leaves are 1–5cm long and deeply lobed. Upper cauline leaves may even be linear. The flower heads are terminal, with pinkish purple florets subtended by a dark involucre standing 1cm tall. The bracts are narrow and fringed, black in colour. Ours is ssp. *micranthos* (Gugler) Hayek.



Flowers from July through September.

Sandy soils in meadows, fields, gardens and on roadsides.

Local and limited to Kings Co.

Ranges from NS to ON; AB to YT, south to CA, LA and FL.  
Introduced from Europe.

## ***Cichorium* L.**

A small genus it includes only nine Mediterranean species, with one a cosmopolitan introduction in North America. All have perfect ligulate flowers, ranging from white to blue in colour. Involucral bracts are arranged in two series, the outer shorter than the inner. Pappus is present, consisting of scales also in series. The compressed achenes are striated.

### ***Cichorium intybus* L.**

**Chicory; chicorée sauvage**



*Photo by Martin Thomas*

Coarse stems arise from deep taproots, and some individuals may reach 1.5m in height. The basal leaves are oblanceolate and deeply lobed, while the upper cauline are reduced in size towards the top. Flower-heads in clusters of 1–3 are axillary towards the top; their colour is bright blue. The involucre is glandular and stands less than 1cm tall. Chicory flowers are particularly visible in low light, when the



Photo by Martin Thomas

flower-heads are freshly opened.

Flowers from late July onward.

Found in hedgerows, roadsides and fallow soils.

Common throughout.

Ranges from the boreal north to the Gulf of Mexico.

## ***Cirsium* Miller thistles**

Mostly plants of the northern hemisphere, North America hosts about one-third of the 200 described. Three of the four Nova Scotian species are introductions. Characteristic are the medium to large discoid flower-heads, with perfect (usually) and tubular florets. Colours vary from white to yellow or purple. Involucral bracts are usually spine-tipped. Receptacles are flat to domed and densely bristly. Achenes are often ornamented with yellow collars but otherwise smooth. They are basally attached. The pappus is a ring of plumose bristles, soon dropping away. Leaves are alternate, toothed or pinnately lobed and also spiny.

### Key to species

- |   |                        |
|---|------------------------|
| A. Flower heads large, >3cm across; involucre 3–4cm high.             | B                      |
| B. Leaves decurrent; phyllaries long-spined.                          | <i>Cirsium vulgare</i> |
| bb. Leaves not decurrent; phyllaries mostly spineless.                | <i>C. muticum</i>      |
| aa. Flower heads smaller, less than 3cm across; involucre 1–2cm tall. | C                      |
| C. Leaves decurrent; without rhizomes.                                | <i>C. palustre</i>     |
| cc. Leaves not strongly decurrent; with rhizomes.                     | <i>C. arvense</i>      |



***Cirsium arvense* (L.) Scop.**

**Canada Thistle; chardon des champs**



*Photo by Sean Blaney*

This perennial species is rhizomatous, vigorously forming extensive colonies. A leafy species, it is also very prickly. Plants produce copious flower-heads of pink or purple florets, subtended by an involucre, of green-tipped bracts. The leaves are deeply lobed, scarcely decurrent; the upper leaves are merely sessile. Plants are unisexual. The pistillate florets are longer than the staminate florets.

Flowers July and August.

Frequents fields, pastures, roadsides, wast ground and dykeland. A common and troublesome species on agricultural land.

Scattered to common throughout.

Throughout the continent, but for the extreme south, after its introduction from Eurasia.



*Photo by Martin Thomas*

***Cirsium muticum* Michx.**

**Swamp Thistle; chardon mutique**



*Photo by Sean Blaney*

Generally unbranched, plants stand up to 3m in height, producing few flower-heads. The purplish florets are packed into a flower-head 3cm across, subtended by an involucre in 8–12 series. The outer whorl of bracts are shorter and blunt than the long acute bracts of the inner series. They are weakly bristly.

Flowers late July into August.



*Photo by David Mazerolle*

Species of wetlands such as wooded swamps and meadows.

Scattered throughout the province.

Ranges from NF to SK, south to FL and TX. Our only native thistle.

***Cirsium palustre* (L.) Scop.**

**Marsh Plume Thistle; chardon des marais**



*Photo by Sean Blaney*

Although reaching 1.5m tall, this is a slender species. Its stem is winged and covered with spines. The purple florets are tightly clustered in pedunculate flower-heads. The involucre bracts are black-tipped, which may be spiny. Pappus is of plumose bristles. Leaves are shallowly sharp-lobed, bearing short spines.

Flowers earlier, during June and July.

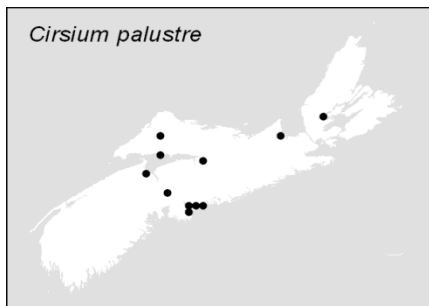
Edge habitat in field, forests, and on fallow ground.

Ranges from Halifax and Hants counties northward and eastward to Inverness Co.





Photo by Sean Blaney



***Cirsium vulgare* (Savi) Tenore**  
**Bull Thistle; chardon vulgaire**



NF to ON, south to NY and WI; BC. Introduced from Eurasia.

Stems are usually solitary, but robust reaching 1.5m. Alternate leaves are deeply cleft into sharply bristled lobes. Bull Thistle bears several flower-heads, each exceeding 3cm across, subtended by an involucre standing 3cm. The phyllaries are long-spined. The pappus is a cluster of plumose bristles.

Flowers from July through October.

Found along roadsides, farmyards, fields and uncultivated hillsides.

Scattered throughout.

*Photo by Sean Blaney*

Throughout the continent, but for NU and YT. Introduced from Eurasia.

### ***Conyza* Less.**

Tropical and sub-tropical in distribution, only one species is found in Nova Scotia. Typified by radiate flower-heads, the ligulate florets are very short scarcely exceeding the pappus in length (3mm). Generally there are at least 35 per head. Disk florets are fewer, not usually exceeding 20. The achenes may bear two ridges, or none.

### ***Conyza canadensis* (L.) Cronq.**

**Horseweed; vergerette du Canada**



*Photo by Martin Thomas*

An annual plant with a simple stem, it may reach 1.5m tall. Short linear cauline leaves present. The inflorescence is freely branching, the branches slender. Often there are a few discoid flower-heads borne in the leaf axils. Involucres are scarcely 4mm tall. This plant has a ragged appearance.

Flowers from July throughout the summer.

Grows in light soils on fallow or cultivated land.

Common throughout on suitable soils.

Ranges across Canada and south to Mexico.

## ***Coreopsis* L.**

Resembling daisies, this genus of 100 species is widespread in tropical and subtropical regions. One species reaches Nova Scotia along the Atlantic Coastal Plain, found only at a few stations in the extreme southwest.

Typically, these species have radiate flower-heads located at the top of slender stems. The ray florets are toothed, while the disk florets are tubular, and usually perfect. Achenes are compressed and may be ornamented. Leaves are mostly cauline and opposite.

Some species have been cultivated as ornamentals.

### ***Coreopsis rosea* L.**

**Pink Coreopsis; Pink Tickseed; coréopsis rose**



*Photo by David Mazerolle*



*Photo by Martin Thomas*

The slender, erect plants bear glabrous linear leaves. Flower-heads are terminal and solitary, the rays pink (rose to white) and the disks yellow.

Flowers from late July to September, depending on water levels.

Lacustrine: sand-cobble or peaty lower shorelines of lakes with large seasonal water level fluctuations.

One of our rarest species, it is limited to the Tusket River valley in Yarmouth Co.

STATUS: RED-listed due to rarity and imminent threat of habitat destruction in Nova Scotia.



## ***Cotula* L.**

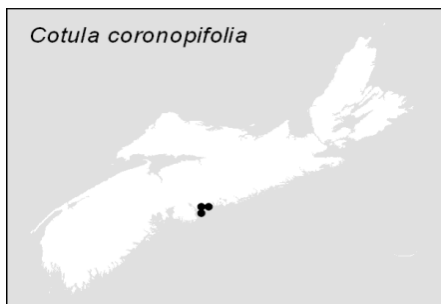
Generally distributed throughout the southern hemisphere, a single species reaches Nova Scotia, a perennial native to South Africa. Typically they may be annual or perennial, trailing or lax, rooting from the nodes. Flower-heads are discoid and yellow. The involucre is arranged in 1–2 series of bracts of unequal size. Achenes are striated or nerved.

### ***Cotula coronopifolia* L.**

**Brass-buttons; cotule pied-de-corbeau**



*Photo by Sean Blaney*



This small and trailing succulent may reach upwards about 10cm. Leaves are lanceolate and 1–2cm long. The buttonlike flowers are only half a cm wide, and borne on the terminal ends of slender peduncles. Flowers are perfect but for a ring of pistillate ones around the perimeter.

Flowers throughout the summer.

Associated with saltmarshes, brackish pools and muddy banks.

Along the coast from Prospect to Lawrencetown, Halifax Co.

Ranges from Maritime Canada to eastern QC; MA; AK south to AZ. Introduced

***Crepis* L.**  
**hawk's-beard**

Generally of the northern regions, only two of 200 species are found in Nova Scotia as introductions. It is similar to *Leontodon* but for the simple pappus branches. The basal leaves are coarsely toothed; cauline leaves reduce in size upwards. The achenes are lanceolate but beakless, bearing a white bristly pappus.

Key to species

Inner involucre series puberulent on the inner face;  
achenes purplish >2.5mm long.

*Crepis tectorum*

Inner involucre series smooth on the inner face;  
achenes light brown <2.5mm long.

*C. capillaris*

***Crepis capillaris* (L.) Wallr.**  
**Hawk's-beard; crépis capillaire**



*Photo by Martin Thomas*

A sparsely branching species, it reaches 90cm in height. Its basal leaves are oblanceolate, toothed to sometimes nearly lobed. Cauline leaves are lanceolate to linear, and sessile. Flower-heads number from 1-several, their involucre stand 5–8mm tall, the two series unequal in size. Achenes are tawny coloured and only 2.5mm long at most.



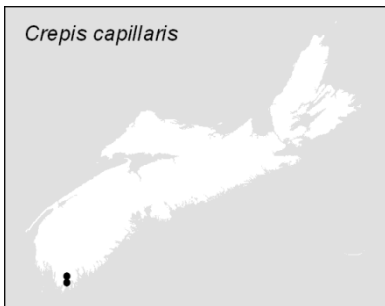
*Photo by Martin Thomas*

Flowers throughout the summer.

Found in oldfields and pastures.

Historically known from Shelburne and Yarmouth counties, possibly not long-persistent.

NS to MB southward; AK southward. Occasionally introduced from Europe, possibly in turf seed.



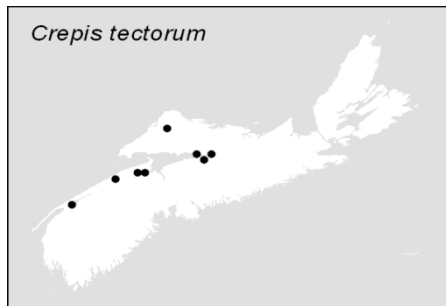


***Crepis tectorum* L.**

**crépis des toits**



Photo by Sean Blaney



An annual species, freely branching at the top, it often reaches 1m in stature. Basal leaves are coarsely toothed and appear early. Cauline leaves reduce in size upwards to mere linear bracts. Flower heads are ligulate, small and numerous. Pappus is white. At maturity, the involucre stands about 7mm tall. Achenes are purplish brown, lanceolate and only about 3mm long, bearing 10 nerves.

Flowers June through September.

Roadsides and fallow ground after introduction through livestock grains.

Known from the edges of Highway 104 between Amherst and Truro; Maitland, Digby, Kingston and Kentville.

Ranges across Canada, southward; from Eurasia.

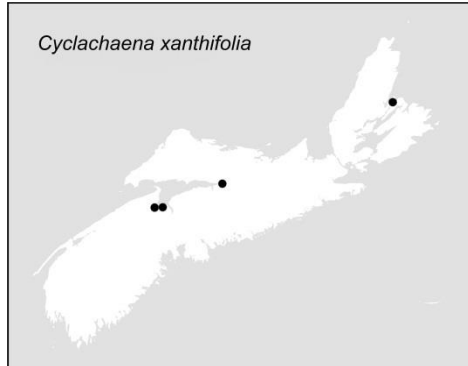
***Cyclachaena* Fresenius**

Formerly this genus was included in *Iva*, but now considered a monotypic genus. As an annual, it may reach 1m (2) in height, its stem mostly unbranched. The leaves are cauline and generally opposite, appearing alternate towards the apex. They are deltate to ovate and usually lobed, and generally canescent or strigose and glandular on one or both surfaces and toothed. Flower-heads are discoid and arranged in panicate inflorescences. Receptacles are domed or hemispheric. Generally there are fewer functionally pistillate florets than staminate ones. Pappus is absent.

***Cyclachaena xanthifolia* (Nutt.) Fresen.**

(=*Iva* x. Nutt.)

**Giant Sumpweed; ive à feuilles de lampourde**



An annual reaching nearly 2m, it bears broadly ovate leaves, irregularly toothed on the margins. Long-petiolate they are opposite on the stems. Inflorescence is terminal, comprising many small flower-heads. Sessile, they are neither subtended by leaves nor bracts. Involucre may be arranged in two or more series.

Flowers during July and August.

Found only in farmyards where western grains are used.

Collections from Kings Co., Truro and Big Bras d'Or and reported from Sydney.

Western North America, introduced north and eastward.

***Dittrichia* Greuter**

A genus of annuals or perennials with only two species; one has only recently been found in Nova Scotia. Glandular-pubescent, the stems may reach over 1m in height. The leaves are alternate, sessile and entire or toothed. Flower-heads are radiate, subtended by a campanulate involucre. Receptacle is more or less flat and smooth. The ray florets are pistillate and fertile, their corollas yellow ageing darker as with the disk florets. Pappus is fragile but persistent, of bristles, connate at the base.

***Dittrichia graveolens* (L.) Greuter  
Stinkwort**



*Photos by David Mazerolle*



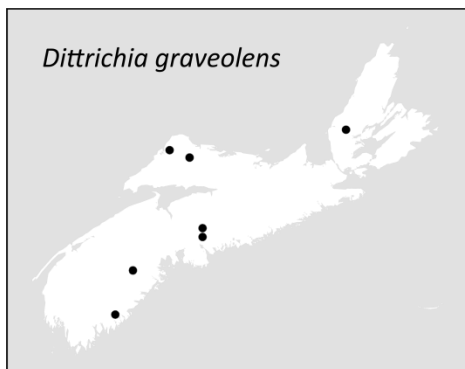
A sticky foul-smelling plant, it is covered in glands and usually pilose. The leaves are lanceolate to linear, their margins entire or denticulate. Flower-heads are numerous, their corollas ageing reddish.

Fall-flowering in September.

A ruderal weed.

Found along Highway 102 near Enfield, Halifax Co. and in roadside gravel at Sheas Brook, Inverness Co.

So far known from NS; CT, NY and NJ; CA. Introduced.



## ***Doellingeria* Nees**

### **tall flat-topped aster**

These asters are tall perennials arising on erect smooth stems that may exceed 1–2m in height. Plants are rhizomatous, forming colonies. The leaves are both basal and cauline, alternate and sessile. They may be lanceolate or elliptic, scarcely reducing in size towards the top. The inflorescence may also have reduced leaves amongst the flower-heads. Arranged in a corymbiform array, the clusters are flat-topped. Involucre of bracts to 4.5mm tall are arranged in 3–5 series, each phyllary with a single nerve. Ray florets are pistillate and white; disk florets bisexual and yellow. Pappus is persistent and arranged in four series. The outer series is short and formed of whitish scales; the inner three are bristles, white to tan. Of eastern North America, Nova Scotia has a single species of the three described.

## ***Doellingeria umbellata* (Miller) Nees**

**(=*Aster umbellatus* Mill.)**

### **Tall leafy White Aster; aster à ombelles**



*Photo by Alain Belliveau*

Plant is tall, standing up to 2m. it is nearly smooth throughout. Leaves are lanceolate and numerous, nearly opposite and sessile. Array of flower-heads is much-branched, but flat topped. Ray florets 7–12, 5–8mm long and white. The involucral phyllaries may be pilose at the apices. Disk florets are yellowish. Pappus is double, the outer series shorter than the inner.

Flowers through September.

Found at edges of swamps, also barrens and ditches



Photo by Sean Blaney

roadside and in wetlands.

Common throughout.

Ranges from NF to ON, south to MS and GA.

## ***Erechtites* Raf.**

Resembling groundsel, the 12 species of this genus are best known south of Mexico, South America and in Australia. One species is found northward. Bearing discoid flower-heads, they are subtended by a single series of phyllaries, lanceolate in outline. The genus is similar to *Senecio* but has the leaves merely shallowly toothed and not lobed.

### ***Erechtites hieracifolia* (L.) Raf.**

**Fireweed; érechtite à feuilles d'épervière**



Photos by Andy Dean

Upwards of 1m in height, plants are nearly glabrous throughout. Lanceolate leaves are alternate and sharply toothed. Flower-heads are tubular and discoid. Involucre has greenish phyllaries. Pappus comprises shining white bristles.

Flowers during August and September.





Photo by Sean Blaney

Frequents rocky forests, clearings, burned land and even marshes.

Common throughout the mainland; less frequent in northern Cape Breton.

Ranges from NS to ON, south to TX and FL; WA to CA.

## ***Erigeron* L.**

### **fleabane**

Fleabanes account for about 200 species from the northern temperate regions. Five species reach Nova Scotia. Flower-heads are radiate, the ray florets are fertile and pistillate, ranging from white to bluish in colour. Disk florets are yellow. Involucre is narrow, its phyllaries leafy or imbricate. Achenes are ornamented with two or four ribs. Pappus is composed of hairlike setae. Leaves are alternate and cauline.

#### Key to species

- |  |                            |
|--|----------------------------|
| A. Flower-heads solitary, long pedunculate.  | B                          |
| B. Plant caespitose, arctic-alpine, caudex short thickened and sometimes branched; taprooted; leaves lobed or toothed. | <i>Erigeron compositus</i> |
| bb. Plant erect, not caespitose nor decumbent; arising from a rhizomatous base; calciophile; leaves simple and linear. | <i>E. hyssopifolius</i>    |
| aa. Flower heads more than 1.  | C                          |
| C. Leaves clasping the stem; rays pinkish.   | <i>E. philadelphicus</i>   |
| cc. Leaves sessile, but not clasping; rays nearly white.   | D                          |
| D. Cauline leaves midway coarsely toothed, ovate to lanceolate.  | <i>E. annuus</i>           |
| dd. Cauline leaves midway linear to lanceolate and   | <i>E. strigosus</i>        |



entire or nearly so.

***Erigeron annuus* (L.) Pers.**

**Daisy Fleabane; vergerette annuelle**



*Photo by Martin Thomas*



*Photo by Jamie Ellison*

Annual or biennial, this plant may reach 1m in stature. Basal leaves are widely lanceolate, borne on long petioles, their margins coarsely toothed. Cauline leaves are serrate and alternately arranged. Flower-heads are crowded with many rays (100+) and arrayed in a freely branched inflorescence. They may be white or pinkish and are less than 1cm long.

Flowers late July into September.

Fallow land, fields and roadsides.

Common throughout.

Found across Canada and throughout the US, but for the arid southwest. Introduced from Europe.

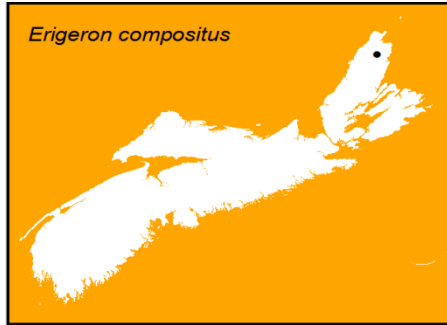
***Erigeron compositus* Pursh**

**Dwarf Mountain Fleabane; vergerette à feuilles segmentées**



*Photo by Marian Munro*

A perennial species, it arises from a taproot, its caudices simple or branched. Leaves are basal and persistent arising from stems very lightly hispid or pilose. Leaves lobed or toothed, the cauline ones are reduced to mere bracts. Flower-heads are solitary and occasionally discoid. Rays are purple (white to blue) when present. Involucre may reach



2cm tall, arranged in several series, the phyllaries purple-tipped. Pappus of the inner series is setaeiform; outer series has bristles.

Flowers June and July.

Limited to sub-alpine cliffs, talus and meadows.

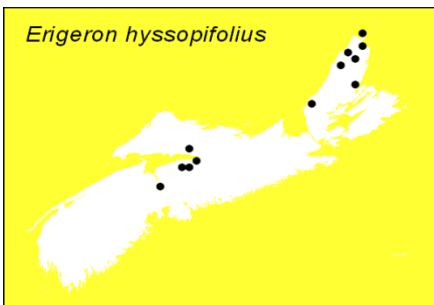
So far known only from a cliff ledge along Clyburne Brook, Cape Breton Highlands National Park. (Photo from a plant in BC).

Ranges from Greenland; arctic Canada south to NS and QC in the east and CA in the west.

***Erigeron hyssopifolius* Michx.**  
**vergerette à feuilles d'hysope**



Photo by Sean Blaney



A slender species, with multiple stems arising from the base. The leaves are linear, 1–2cm long. Flowers are solitary, borne on scapes. The rays, 20–30 may be white or pale lavender, 4–6mm long. Receptacle measures 4–6mm high. Plant is often colonial.

Flowers during July and August.

Limited to gypsum outcrops or damp stream banks and ledges in calcareous regions.

Hants Co.; near Antigonish and in northern cape Breton.

Ranges from NF to YT, south to AB, MI and NY.

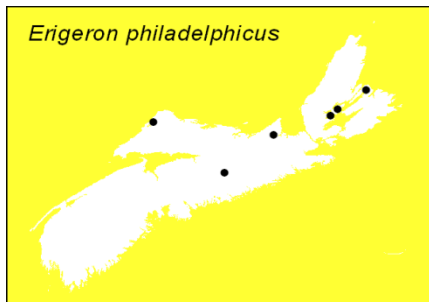
***Erigeron philadelphicus* L.**  
**vergerette de Philadelphie**



*Photo by Sean Blaney*



*Photo by Martin Thomas*



Small in stature, rarely exceeding 50cm, it bears ovate or lanceolate leaves. Their margins are coarsely toothed, rapidly reducing in size towards the top. Flower-heads are numerous, the arrays with ascending branches. Ray florets are very crowded numbering at least 100, 5–10mm long and pinkish. Phyllaries are lanceolate and even, forming an involucre only 5mm tall.

Flowers from June to August.

Habitats include fields, meadows and springy slopes.

Not common, scattered stations from Digby and Cumberland counties to central Cape Breton.

Ranges across the continent and south.

STATUS: YELLOW-listed in NS.

***Erigeron strigosus* Muhl.**

**Daisy Fleabane; vergerette rude**



Photo by Martin Thomas



Photo by Martin Thomas

Resembles *E. annuus* but it is generally smaller, with narrower leaves. Leaves are toothed near the apex and both the stem and leaves are covered in an appressed pubescence. The corollas are white, pink or blue. Both the typical variety and the var. *septentrionalis* (Fern. & Wieg.) Fern. are known from the province.

They are separated on the basis of pubescence on the phyllaries and on the stem. Var. *septentrionalis* has the stems sparsely and loosely strigose with the hairs ascending to spreading. The phyllaries have the hairs flattened. Those of the typical variety have the hairs terete and the pubescence of the stem appressed to ascending.

Flowering from July to September.

Neglected fields, roadsides and other disturbed sites.

Common throughout.

Found throughout the continent, but for the arid southwest.

***Eupatoriadelphus* (King & HE Rob)**

**joe-pye-weeds**

Formerly included with *Eupatorium*, the joe-pye-weeds have been separated from bonesets on the basis of having whorled leaves. Perennials, the species are generally tall and foliose and produce flat-topped clusters of discoid flower-heads. Florets are pink to purple. Receptacles are naked, without chaff. Angled achenes bear 5–8 ribs. Pappus comprises a single series of bristles.

Key to species



*Eupatoriadelphus dubius*

Leaves rounded at the base; plants sticky;  
florets <10.

Leaves cuneate at the base; plants not sticky; florets >9 per  
flower-head

*E. maculatus*

***Eupatoriadelphus dubius* (Willd.) King & HE Robins.**

**eupatoire douteuse**



Photo by Sean Blaney

A rare smaller relative of the common species, it may reach 1m in height. Leaves are lanceolate to ovate, abruptly narrowing to the petiole. Veins are more conspicuous at the leaf base than distally. Plants are sticky to touch, especially at the top. Inflorescence exceeds 6 cm across, each head bears 5–12 florets.

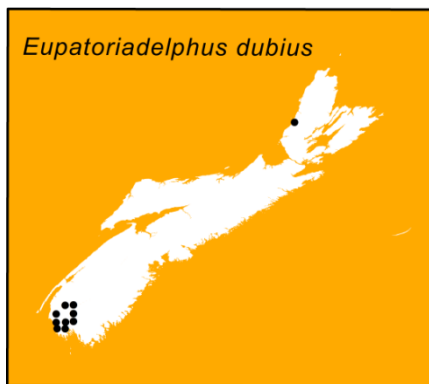
Flowers during August and September.

Associated with wetlands, as along streams, rocky lakes and in damp thickets.

Found on lakeshores of the Tusket River valley and also collected in Inverness Co. Local to rare.

Ranges along the coastal plain from NS; ME to SC.

STATUS: ORANGE-listed in NS.



***Eupatoriadelphus maculatus* (L.) King & HE Robins.**

**Spotted Joe-pye-weed; eupatoire maculée**



Photo by Martin Thomas



Photo by Martin Thomas

Usually unbranching except for the inflorescence, this colonial species is a conspicuous and tall plant, exceeding 2m. Its stem is purple blotched or streaked. Each whorl of leaves contains 3–5 serrated lanceolate leaves, cuneate at the base. Inflorescence is flat-topped and may exceed 20cm across, with the flower-heads containing 8–20 florets. Achenes are glandular-spotted, the glands yellow. Two forms are known here, var. *foliosum* (Fern.) Wieg. and the typical variety. The typical variety is found in more northerly stations of the species distribution here. Its upper leaves are shorter than the height of the corymb, while var. *foliosum* has its upper leaves longer.

Flowers in July through to October.

Forms colonies along streams, banks, meadows and swamps.

Common from Digby Neck to northern Cape Breton.

Ranges from NF to BC, south to WA, AZ and GA.

***Eupatorium* L.**

**boneset**

Similar to *Eupatoriadelphus* but for the opposite pairs of leaves, rather than whorls of more than two. Also perennial, they can be tall and with simple stems, branching only in the inflorescence. Florets are a dirty white, perfect and tubiform. Involucral bracts are imbricate, in several series. *Ageratina* is separated on the basis of the involucral bracts being of a single series.



***Eupatorium perfoliatum* L.**

**Boneset; Thoroughwort; eupatoire perfoliée**



*Photo by Martin Thomas*

A stout plant to 1.5m tall, it bears long pairs of connate leaves, perforated by the stem. Rugose on both surfaces, their margins are finely scalloped. Inflorescence is rounded, with tight clusters of white florets, each less than 4mm long. A pink form was reported from the St. Croix River area of Hants Co.

Flowers during late summer, into October.

Wet soils as on shores, in swamps, bogs, ditches and bog margins.

Scattered throughout, less so in northern Cape Breton.

Ranges from NS to MB, south to FL and TX.



*Photo by Sean Blaney*

***Eurybia* (Cass. ) Cass.**

A genus formerly included within *Aster*, these perennials are sparsely branching, their stems up to 1.2m tall. The alternate leaves may be sessile or petiolate and both basal and cauline leaves are present.

Blades range from ovate or cordate to lanceolate, often reducing in size upwards along the stem. Flower-heads are radiate and usually borne in a corymbiform inflorescence subtended by an involucre of several to many series. The phyllaries may be ciliate. The receptacles are flat to convex. Rays are pistillate and fertile, usually white to purple and coiling at maturity. The disks are bisexual and fertile, yellow maturing to purple. The pappus is of 2–4 series of bristles, variously coloured.

#### Key to species

Plants glandular; leaves cordate, petiolate.

*Eurybia macrophylla*

Plants not glandular; leaves lanceolate, sessile.

*E. radula*

#### ***Eurybia macrophylla* (L.) Cass.**

#### **Bigleaf Aster; aster à grandes feuilles**



*Photo by Sean Blaney*

A coarse plant, with large heart-shaped leaves, its flowering stems may reach 1m. Leaves 10–15cm wide, are borne on long slender petioles. They are coarsely serrate. A colonial species from rhizomes, it is often found not flowering. The pappus may be orange or tawny.

Flowers throughout the summer.



*Photo by Sean Blaney*

Found in dry open forests, thickets and on open barrens. Tolerates light shade.

Common from Colchester Co. southwestward. Less frequent east of Truro.

Ranges from NS to MB, south to MO and GA.

***Eurybia radula***

**Bog Aster; Rough aster; aster rude**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Bog arises from a simple stem. Leaves are lanceolate, rarely exceeding 2cm wide with the lower cauline leaves usually deciduous. The inflorescence has few flower-heads, but they are showy, each with no more than 25 purple ray florets. The involucre stands 8–15mm tall; the bracts are broad and green-tipped.

Flowers July to September.

Growing in peaty soils, usually limited to swales, thickets, barrens and clearings in coniferous forest.

Common throughout, especially along the Atlantic coast.

Ranges from NL to ON, south to KY and VA.

***Euthamia* Nutt.**

**goldenrods**

A native genus, there are eight North American species; two in Nova Scotia. Most distinctive is the flat-topped corymbiform array of radiate flower-heads. Rays number from 7–30 and are pistillate. The disk florets are perfect and all are fertile. The pappus is formed of white setaeform bristles. Achenes are both ribbed and pubescent. All flower from late summer into the autumn.

**Key to species**

Stems glabrous or nearly so; leaf blades to 6mm wide, noticeably glandular-spotted; lacustrine.

*Euthamia caroliniana*

Stems glabrous to hirsute; leaf blades to 12mm wide,

*E. graminifolia*

only sparsely glandular; variety of habitats.

***Euthamia caroliniana* (L.) Greene**

**(includes *E. galetorum* Greene and *E. tenuifolia* (Pursh) Nutt.)**

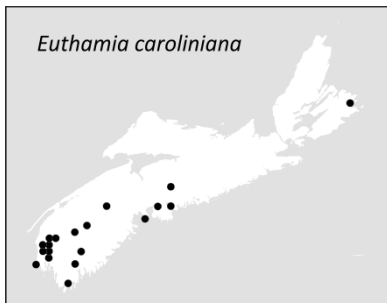
**Coastal Plain Goldenrod**



*Photo by Sean Blaney*



*Photo by Alain Belliveau*



A sparsely branching species, then only at or near the top, this plant may be 1m in height. It is mostly glabrous, but not glaucous. The linear leaves are sessile and blunt-tipped, bearing 1–5 veins and glandular. The array of radiate flower-heads is flat-topped and sparse, sometimes slightly convex, subtended by an involucre with green-tipped bracts.

Flowers from August through September.

Found on low biomass shorelines of lakes, mainly restricted to the southwestern counties.

Scattered from Cape Breton County along the southern shores to Digby and Shelburne counties.

Ranges from NS; ME to FL and LA along the coastal plain.



***Euthamia graminifolia* (L.) Nutt.**

**Grass-leaved Goldenrod; verge d'or à feuilles de graminée**



*Photo by Sean Blaney*

An erect plant to 1.5m tall and freely branching. Flower-heads are sessile, and arranged in small arrays. The ray florets are numerous but inconspicuous. Leaves are linear, with 3–5 veins and tapering at both ends, or narrowly lanceolate.

Flowers during August and September.

Widely tolerant of acidic soils, ditches, swamps, lakeshores and other poorly drained sites.

Common throughout.

Ranges across Canada and south.

***Galinsoga* Ruiz & Pavón**

**quickweeds**

A genus comprising 14 species, of North and South America. Some are weedy and a single introduction has reached Nova Scotia. Generally annuals, their leaves are opposite and toothed. Flower-heads are long-pedunculate and radiate, each bearing a few white or pink rays, scarcely exceeding the disks. Receptacle is conical. The involucral bracts are green and nerved, each subtending a ray floret. Achene is four-angled. The pappus is a cluster of scales.

***Galinsoga quadriradiata* Ruiz & Pavón**

**Common Quickweed; galinsoga cilié**



*Photo by Martin Thomas*

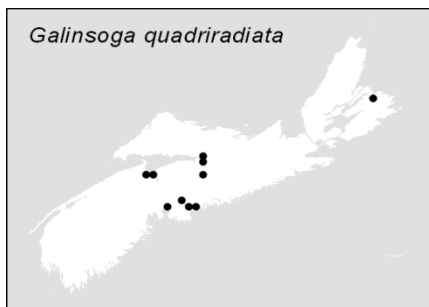
A freely branching plant, standing only 20–60cm. It is sticky from the glandular hairs on the stems and involucre. The flower-heads are scant, with only a few disk florets within 4–5 white ray florets. The involucre is only 3–4mm tall, with ovate phyllaries.

Flowers late summer.

Found in sidewalk cracks, dooryards, gardens and roadsides.

Spreading from Kings and Halifax counties northeastward.

Ranging across Canada south to CA and FL. Absent from the arid southwest. Introduced from further south.



***Gnaphalium* L.**

**cudweeds**

A widespread genus of the Americas, Australia, Asia and Africa, there are 38 species in total. Generally taprooted annuals, most are tomentose but not glandular, their stems decumbent or reclining at the base. The leaves are alternate and sessile, generally cauline and gray-tomentose. The arrays are spikelike or capitate and discoid. The involucre is campanulate and the phyllaries are in several series, and may be from white to tawny-coloured. The receptacle is flat. Pistillate flowers on the outside are more numerous than the inner perfect florets. The corollas are white to purplish. Pappus is composed of deciduous bristles.



***Gnaphalium uliginosum* L.**

**Low Cudweed; gnaphale des vases**



*Photo by Marian Munro*

A diffuse species, it is freely branching and rarely exceeds 20cm tall. Flower-heads are clustered within the upper leaf axils or at the end of upper branches. The involucre is brownish and no more than 2–3mm high, tomentose at the base.

Flowers from July through September.

Poorly drained soils as in grain fields and gardens.

Common weed throughout.

Greenland; NF to AK, south to VA, UT and OR.

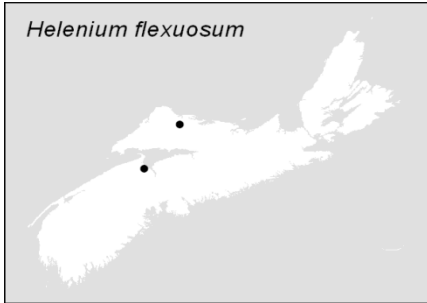


*Photo by Sean Blaney*

***Helenium* L.**

A genus of nearly 40 species, they are found throughout the Americas, with one reaching Nova Scotia. The radiate heads are numerous. Ray florets are usually yellow, each notched with three teeth. The disk florets are purple or brown. The involucre is divided into two series of phyllaries, soon becoming deciduous.

***Helenium flexuosum* Raf.**  
**Sneezeweed; h       nudiflore**



A perennial herb, the stem may reach 1m in height. The leaves are alternate and decurrent. The flower-heads are borne on slender pedicels. Disk florets are deep brown on a spherical receptacle. The yellow rays are notched, 2cm in length.

Flowers in August.

Grassy roadsides and recently seeded areas.

So far known only from Kejimikujik National Park entrance and Crowley Brook, Cumberland Co.

Ranges from NS; QC to ON, south to FL and TX. Introduced from further south.



*Photo by Sean Blaney*

***Helianthus* L.**  
**sunflowers**

Only four of 50 species of sunflowers have been introduced to Nova Scotia, from further south and west. Familiar to most, they have radiate flower-heads. The conspicuous yellow ray florets are staminate, and surround the perfect disk florets. The receptacle is flat or conical and may sometimes be chaffy. The involucre is green; the pappus is of a pair of awns. The simple leaves are opposite at least towards the base. Hybridization is common.

## Key to species

- |  |                          |
|--|--------------------------|
| A. Annual; receptacle flat; phyllaries short-ciliate and pubescent dorsally. | <i>Helianthus annuus</i> |
| aa. Perennial; receptacle conical; phyllaries long-ciliate.                  | B                        |
| B. Leaves narrowly lanceolate, <4cm wide.                                    | <i>H. giganteus</i>      |
| bb. Leaves widely lanceolate, most >4cm wide.                                | C                        |
| C. Outer involucral bracts long-acuminate, ascending or reflexed             | <i>H. tuberosus</i>      |
| cc. Outer involucral bracts acute or blunt-tipped; appressed.                | <i>H. X laetiflorus</i>  |

### ***Helianthus annuus* L.**

#### **Common Sunflower; tournesol**



*Photo by Sean Blaney*

**A crop plant, it reaches 2m or more. Its broadly ovate leaves are coarsely toothed, the lower ones cordate at the base. The disk is at least 5 cm wide, flat and the florets are yellow or red. The phyllaries are ovate, tapering distally.**

**An annual, it is included here as it is commonly encountered.**

**Found in fallow soil about yards and farms.**

**Not common nor persistent.**

**Introduced from further south and west and found throughout but for NL, NU and YT.**

***Helianthus giganteus* L.**

**Swamp Sunflower; hélianthe géant**



A plant resembling the first, but perennial and with much narrower leaves, less than 2cm wide. Generally it is seen with several flower heads. Involucral bracts exceed the disk.

Flowers in August.

Usually grows in moist, fertile soils.

Several reports exist: Mabou, Inverness Co., an old dump in Yarmouth, New Glasgow, Pictou Co. and Sherbrooke, Guysborough Co. This species should be field-checked to see if these sites are extant.

NS to MB; AB, south to MS and GA.



*Photos by Martin Thomas*



***Helianthus tuberosus* L.**

**Jerusalem Artichoke; topinambour**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

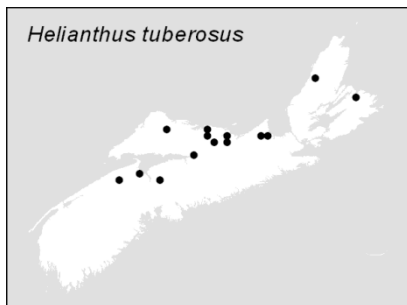
A rhizomatous species, it quickly spreads. The tubers are white, fleshy and a delicious edible. Generally 2m or more in height, it bears thick coarsely serrate leaves. They are widely lanceolate, borne on winged petioles. Flower heads are several, with bright yellow ray florets and dull yellow disk florets. The disk ranges from 1–2cm wide. The phyllaries are also lanceolate and reflexed.

Flowers during September and October.

In moist damp soils as along intervals and in fallow soils.

Actively spreading from Kings Co. through the northern half to Cape Breton.

Ranges from NS to SK; south to FL and TX and CA. Introduced from west and south as an edible and an ornamental.



***Helianthus x laetiflorus* Pers.**

**hélianthe à belles fleurs**



Photo by Martin Thomas

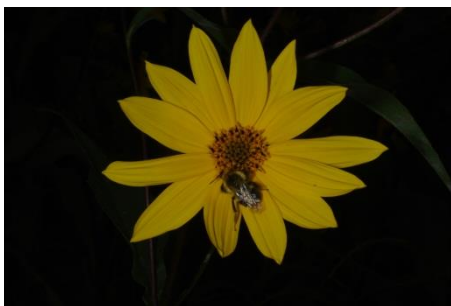
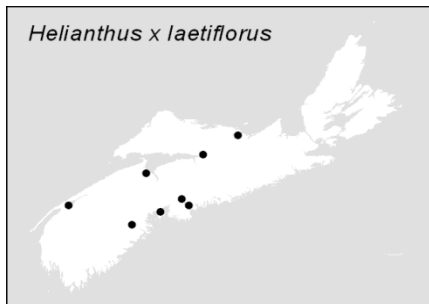


Photo by Martin Thomas

It is distinguished from *H. tuberosus* on the basis of the phyllaries. This hybrid has them blunt-tipped and appressed against the receptacle, not arcuate or reflexed. The tubers are not as fleshy nor as abundant in this hybrid. Disk florets often appear reddish. (*H. tuberosus* X *pauciflorus*).

Flowers in August and September.

An ornamental now found about old gardens, roadsides and in fallow soils.

Collected from Annapolis Royal and Bridgewater, Halifax and Truro to Pictou.

Introduced here from further west.



## ***Hieracium* L.**

### **hawkweeds**

Temperate or alpine in distribution, this genus contains about 10,000 species and forms in Eurasia alone, owing to apomixis. Nova Scotia is host to 15 species, most of them introduced. Hybridization is common, hence mature plants are required for species determination.

Generally perennial, the plants contain a latex. Flowers are ligulate and perfect, ranging from yellow to orange. The achenes are unadorned, terete and covered with fine white hairs. Leaves are either basal or basal and alternate. Plants are often stellate pubescent on the stems, involucre or leaf surfaces.

#### Key to species

- |   |                             |
|---|-----------------------------|
| A. Leaves basal or mostly so, at flowering.   | B                           |
| B. Flower-heads 2–4 per scape, or solitary.   | C                           |
| C. Flower-heads small; involucre 6–8mm tall.  | <i>Hieracium lactucella</i> |
| cc. Flower-heads large, involucre >8mm tall.  | D                           |
| D. Flower-heads solitary; leaves glaucous below.  | <i>H. pilosella</i>         |
| dd. Flower-heads 1–2 pairs; leaves green below.   | <i>H. X flagellare</i>      |
| bb. Flower-heads numerous, in corymbiform inflorescence.  | E                           |
| E. Florets orange-red.  | <i>H. aurantiacum</i>       |
| ee. Florets yellow.   | F                           |
| F. Leaves rugose and pubescent.   | <i>H. cespitosum</i>        |
| ff. Leaves glabrous at least above.   | G                           |
| G. Leaves finely pubescent; plants stoloniferous.   | <i>H. X floribundum</i>     |
| gg. Leaves bristly; stolons absent or weak.   | <i>H. piloselloides</i>     |
| aa. Leaves basal and cauline, or cauline only, generally toothed; plants not stoloniferous.       | H                           |
| H. Involucre of >2 series of phyllaries.  | I                           |
| I. Leaves in a basal rosette; cauline leaves few, greatly reduced.                                | J                           |
| J. Leaves mottled purple; elliptic to widely lanceolate, sometimes serrate at their bases.        | <i>H. lachenalii</i>        |
| jj. Leaves not mottled; basal leaves coarsely toothed or lobed basally.                           | <i>H. muorum</i>            |
| ii. Leaves only cauline, numerous.  | K                           |
| K. Leaves acute at both ends, not clasping, purple blotches; slender species restricted to alpine | <i>H. robinsonii</i>        |

ledges and crevices.

kk. Leaves clasping and not mottled; tall,  
stout and widespread.

L

L. Plant with bulbous pubescence;  
phyllaries blunt.

*H. sabaudum*

ll. Plant without bulbous hairs; phyllaries  
acuminate.

*H. umbellatum*

hh. Involucre with 2 series of phyllaries.

M

M. Plant glabrous but for the base; scapes smooth, lax.

*H. paniculatum*

mm. Plants rugose and hirsute; scapes densely glandular.

*H. scabrum*

### ***Hieracium aurantiacum* L.**

#### **Orange Hawkweed; épervière orangée**



Photo by Martin Thomas



Photo by Sean Blaney

Standing upwards of 1m tall, this plant is covered with a dark glandular pubescence. Leaves are oblanceolate and glabrous. Inflorescence is a compact corymb. The florets are reddish orange, subtended by a dark green involucre. The phyllaries have paler margins and are bristly. This is our only species without yellow flowers.

Flowers from June through August.

Leached and worn out well-drained soils.

Frequent and abundant from Yarmouth to Cape Breton.

Ranges across Canada, variously south to CA and FL.  
Introduced from Europe.

A hybrid with *H. floribundum* (*H. X dorei* Lepage) has been found at Kejimikujik National Park.

***Hieracium cespitosum* Dumort**  
**Hawkweed; épervière piloselle**



Photo by Sean Blaney

A smaller hawkweed, its height ranges from 20–50cm. Leaves are mostly arranged in a basal rosette, with a few short stolons produced. The dull leaves are rugose, bearing long hairs on the upper and lower surfaces. There are several flower-heads. Involucres are 5–7mm tall, and are covered with glandular black hairs.

Flowers June and July.

Limited to leached out and well-drained soils. Abundant in fields and pastures.

Scattered and local from Digby Co. to northern Cape Breton.

Ranges from NF to MB, south to GA in the east; west coast from BC south to OR and east to WY.

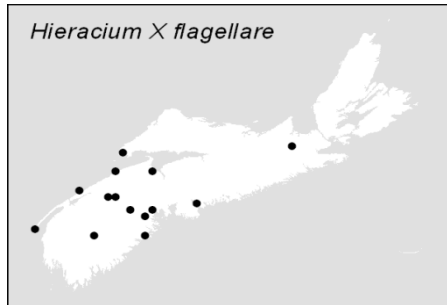
***Hieracium x flagellare* Willd.**  
**épervière à flagelles**



Photo by Martin Thomas

It is a hybrid with *Hieracium pilosella* x *cespitosum*. Those plants closest to *H. pilosella* have fewer flower-heads, rarely more than 1–2 per scape. Plants tend to be short, less than 30cm tall. Plants closer to the other parent are stouter and greener, and have upwards of six flower-heads.

Flowers June and July.



Found in old fields, pastures, lawns and other fallow ground.

Frequently found from Yarmouth and Digby counties to Cumberland and Inverness. Seems not to be collected in the eastern coastal region.

Ranges from NF to ON, south to IN and VA; WY; BC. Introduced.

### ***Hieracium x floribundum* Wimm. & Grab.**

#### **Yellow Hawkweed; épervière à fleurs nombreuses**

A hybrid, *H. cespitosum* X *lactucella*, it closely resembles *H. cespitosum*. Vigorously stoloniferous, it produces numerous secondary scapes. Leaves are narrowly oblanceolate; they are nearly smooth or with a few scattered villous hairs along the midvein. The florets are yellow. The involucre is less than 8mm tall; the phyllaries bear long hairs on their veins. The pappus is brownish.

Flowers June to late July.

Roadsides and fields.

Common throughout, but for the wettest parts of southwestern NS.

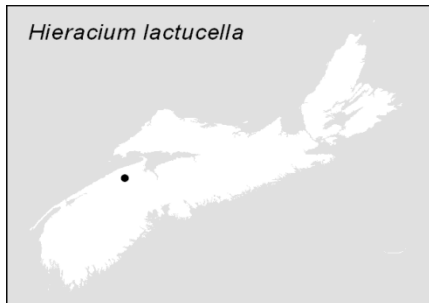
Ranges across Canada south to CT and OH. Introduced.

*H. x fernaldii* Lepage was historically collected and originally described, from Eskasoni Brook, Cape Breton Co. It has not been identified since.

All of our material may require re-examination as USDA PLANTS database doesn't include NS in the *H. kalmii* 's range.

***Hieracium lactucella* Wallr.**

**épervière petite-laitue**



The smallest of our introduced hawkweeds, it bears 2–4 flower-heads per scape. It is also slender, arising from vigorous stolons.

Flowers early, June and July.

Leached soils and bare slopes in turf.

Local: South Mountain, south of Kentville and at Waterville. Scattered elsewhere.

Recently introduced from Europe. So far known from NS; NY.

***Hieracium murorum* L.**

**Golden Lungwort; épervière des murs**



*Photo by Martin Thomas*



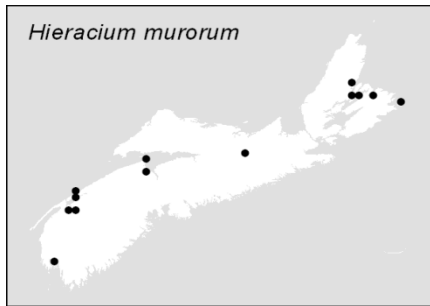
*Photo by Martin Thomas*

A tall perennial arising from a stout rhizome, it may reach 1m in height. Leaves are widely ovate and mostly basal. They are long-petiolate, coarsely and irregularly toothed, especially at their bases. The bright yellow flower-heads arise on slender glandular peduncles, subtended by an involucre to 1cm high. Phyllaries are also glandular, and linear.

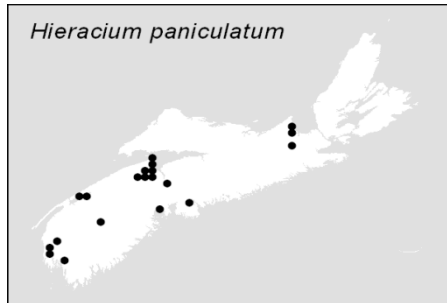
Flowers in July.

Scattered and local from Yarmouth to Halifax and Cumberland counties, east to Sydney.

Ranges from Greenland to ON, south to IL and NJ; AK; BC. Introduced from Europe.



***Hieracium paniculatum* L.**  
**épervière paniculée**



*Photo by Sean Blaney*

Another tall species, it may reach up to 1m at maturity. Leaves are broadly lanceolate to elliptic, their margins bear widely spaced shallow teeth. Flower array is a loosely branched and widely spread panicle of small flower-heads on slender peduncles. The phyllaries are lightly pubescent, arranged in several series; the involucre stands 1cm tall.

Flowers August and September.

Mixed forest on dryish soils, especially oak.

Occasional from Yarmouth east to Kings and Halifax counties. Common about Kentville and at Keji.

Ranges from NS to ON, south to GA and MS. Native.



***Hieracium pilosella* L.**

**Mouse-ear Hawkweed; épervière piloselle**



*Photos by Sean Blaney*



A short species, not exceeding 25cm in height, this species is strongly stoloniferous and readily forms large colonies. Leaves are all basal, oblanceolate and white-villous below. Flower-heads are solitary, 3cm wide, subtended by a involucre covered in short black pubescence. Peduncles are glandular. This species resembles Orange Hawkweed but for the solitary yellow flower-heads. We have both the typical variety, which is widespread and var. *niveum* Müll. Limited to NS, ME, MA and CT. The leaves have a persistent white tomentum below, while the typical variety has less pubescence with age.

Flowers mid-June to early August.

Bare soils on slopes, in pastures, lawns and roadsides.

Common from Digby and Queens counties to northern Cape Breton. Less frequent in southwestern counties.

Found from NF to ON, south to MN and GA; west coast. Introduced from Europe.

***Hieracium piloselloides* Vill.**

**King Devil; Tall Hawkweed; épervière des Florentins**



*Photos by Martin Thomas*

Another variable species, this species has several varieties and races. A perennial species, it ranges upwards of 1m in height. The leaves are narrowly oblanceolate, shiny and smooth. The stolons are absent or else weak. Flower-heads are crowded with yellow florets, subtended by black ribbed phyllaries forming a black pubescent involucre 7mm or so tall. Usually found in large patches.

Conspicuous in flower during June and July.

Fields, pastures, roadsides and waste places.

Common, from Digby Co., northward.

Ranges from NF to ON, south to IL and GA; WA; MT.  
Introduced from Europe.

***Hieracium robinsonii* (Zahn) Fern.**  
**épervière de Robinson**



Photo by Sean Blaney



Photo by David Mazerolle

A short species, it rarely exceeds 35cm tall and bears both basal and cauline leaves. Rosettes of oblong leaves form, with smooth upper surfaces. There are from 1–20 cauline leaves, gradually reducing in size upwards, the lower often sharply serrate. Flower-heads, number 1–5, armed with villous pubescence. The phyllaries are acuminate.

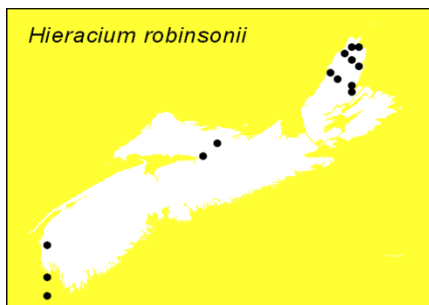
Flowers in July and August.

Found in riparian areas, in cobble, rock crevices and cliff-faces.

Local. Tusket Islands, Yarmouth Co., Truro area and northern Cape Breton.

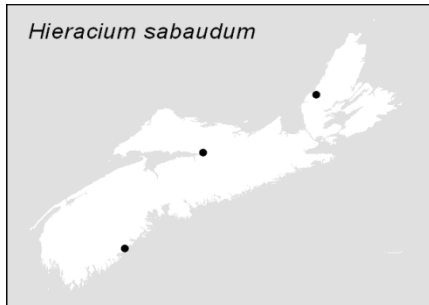
Limited to Atlantic Canada and QC; ME and NH.

STATUS: YELLOW-listed.



***Hieracium sabaudum* L.**

**épervière de Savoie**



A lax species producing thin leaves and growing to 1m. Cauline leaves are obovate and sharply toothed. The lower leaves and the stem are armed with hairs, swollen at their bases. The inflorescence is of yellow flower-heads on slender pedicels. The involucre is 6–7mm tall and may be glandular or pubescent.

Flower during July and August.

Waste soils, grasslands, open forest.

Widely scattered: Mahone Bay, Truro and Strathlorne, Inverness Co.

NS, QC, BC; mid-Atlantic states and WI. Introduced from Europe.

***Hieracium scabrum* Michx.**

**Rough Hawkweed; épervière scabre**



*Photo by David Mazerolle*

Reaching 1m in height, the stems are simple bearing obovate or elliptic leaves, reduced in size towards the top of the plant. Both stems and leaves are hirsute, their margins faintly serrate. The inflorescence is a corymb of glandular peduncles bearing yellow flower-heads. The phyllaries are acute and rimmed with paler margins.

Var. *tonsum* Fern. & H. St. John is found only in NS to ON, south to MN and ME. It differs only in the length of integument on the lower stem, 1mm or less with the lower leaf surface glabrous in this var. Var. *scabrum* is found from NS to ON, south to OK and GA. and has the pubescence on stem and midrib of leaves about 2mm long.



*Photo by Sean Blaney*

Flowers from July through to September.

Usually in poor soils in pastures, fields and fallow sites.

Common throughout.

Ranges given above. Native.

***Hieracium umbellatum* L.**

**(incl. *H. kalmii* L.)**

**épervière en ombelle**



*Photos by Beth Cameron*

Stems to 1m, the leaves are crenate, linear to narrowly lanceolate in outline, reducing in size upwards on the plant. Margins may have a few widely spaced teeth, in addition to short conical hairs. Yellow flower-heads are showy and few in number on nearly bare scapes. They are subtended by imbricate series of phyllaries, unequal in length and without the dark pubescence of other species.



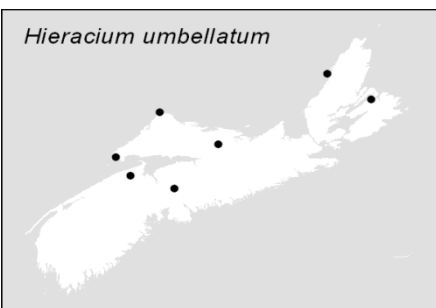


Flowers during July and August.

Rough ground, open woods and roadsides.

Scattered in central counties. Most frequent in Inverness and Victoria counties.

Ranges from NS to BC, south to MI and OR; MO and various eastern states. Circumboreal.



***Hieracium vulgatum* Fr.**

**Common Hawkweed; épervière vulgaire**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

Perennial in habit, the stem reaches 1m in height. Leaves are mostly basal, arranged in a rosette, tapering to long petioles. Sometimes, they are noticeably streaked purple. The inflorescence is widely spreading, the stalks tomentose and sparsely glandular. The involucre is 7mm tall.

Flowers during July and August.

Found roadside and in nearby thickets.

Scattered from Annapolis and Queens counties to Cape Breton. Common through the Cobequids and locally common at Halifax and White Rock, Kings Co.

Ranges from Greenland; NF to ON, south to MN and NJ; BC to OR. Introduced from Europe.

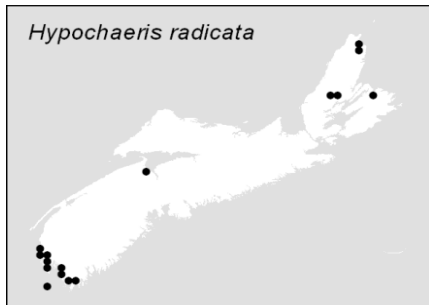
***Hypochoeris* L.**

**cat's-ear**

Cosmopolitan in range, there are about 100 species. One has been introduced into Canada. Resembling *Leontodon*, it may be distinguished on the basis of having chaffy bracts. Sometimes the stems of this species are leafy just below the inflorescence.



***Hypochoeris radicata* L.**  
**Cat's-ear; porcelle enracinée**



The hirsute stems reach 50cm in height. Leaves are coarsely lobed and arranged in a basal rosette. The pappus is sparsely plumose and the receptacle chaffy.

Flowers July to September.

Frequents fallow soils along roadsides, in yards and lawns or railbeds.



*Photo by Andy Dean*

Common in Yarmouth Co. Documented from Shelburne Digby and Kings counties. Collected from Victoria and Cape Breton counties.

Ranges across Canada, south to Gulf of Mexico, although largely absent from the plains; introduced from Europe.

***Inula* L.**

Mostly Eurasian, this genus of 200 species is only represented in Nova Scotia, by one introduction. Largely associated with French settlements, it was a prized ornamental, now found in disturbed soils nearby.

Flower-heads are radiate, comprising yellow pistillate ray florets and perfect tubular disk florets. The involucre is made up of several imbricate series of phyllaries, the outer ones wider than the inner ones. The receptacle is flat and devoid of chaff. Pappus comprises bristles and the achene is angled or nerved.

***Inula helenium* L.**

**Elecampane; inule aunée**



*Photos by Sean Blaney*



Tall plants exceeding 1m, the stem bears alternate leaves, finely serrate along the margins. The lower surfaces are velutinous or tomentose. Flower-heads are radiate; they arise from the upper leaf axils; 2–5. Disks are 3–5cm across, rimmed by the widely spaced ray florets, exceeding 1cm in length. The phyllaries are ovate, 1–2cm high.

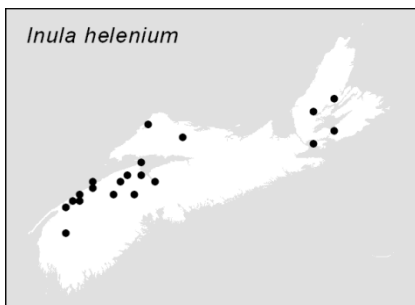
Flowers in August.

Damp soils on roadsides and in neighbouring fields or edges.

Scattered from Digby Co. to Cumberland Co; Whycomagh area beaches.

Ranges from NS to MB, south to the Gulf; BC to CA; UT. Introduced from Europe.

This species is a noted Acadian medicinal plant and a frequent marker of old Acadian habitation.



## ***Iva* L.**

### **marsh-elder**

Native to the Americas, they include about 10 species in North America; a single species is found in Nova Scotia. They resemble ragweeds, with spikelike panicles of greenish white flower-heads. All florets are discoid, each head contains from 6–20 florets, nearly sessile on the pedicels. The receptacle is chaffy. Leaves are opposite, but for the reduced leaves below the flower-heads, where they are alternate.

## ***Iva frutescens* L.**

### **Marsh-elder; iva arbustive**



*Photo by Martin Thomas*



A shrubby plant, it may reach 2m in height. The opposite leaves are lanceolate, petiolate and crenulate. Flower-heads axillary, or they are solitary on short peduncles. The short involucre is of a few ovate phyllaries.

Our material belongs to ssp. *oraria* (Bartlett) RC Jacks. It is characterized by wider leaves. This ssp. ranges south along the coastal plain to GA; TX.

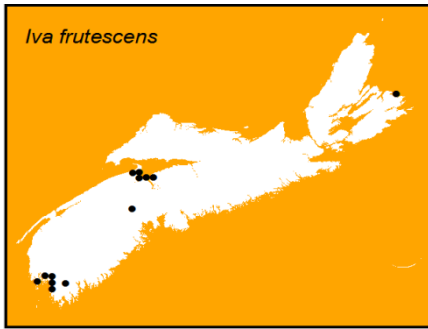
Flowers during August and September.

Disturbed and elevated areas around saltmarshes.

From Yarmouth County; Lunenburg and Kings counties, and in Cape Breton.

NS, ME, south along the coast to TX.

Photo by Sean Blaney



## ***Lactuca* L.**

### **lettuce**

Of Eurasian, African and North American distribution, lettuce includes 50 species; four reach Nova Scotia. Usually tall plants, they may be biennial or perennial, their leafy stems containing latex. Leaves are alternate, entire or lobed. The flower array is usually paniculate, with each flower-head containing only a few ligulate florets. Corollas are white, blue or yellow, the tube extending most of the length. The achenes are flattened, winged or ribbed on the margins. Pappus is made up of two rows of bristles.

#### Key to Species

- |   |                        |
|---|------------------------|
| A. Flowers pale blue; achenes short-beaked.   | <i>Lactuca biennis</i> |
| aa. Flowers cream; achenes long-beaked.   | B                      |
| B. Leaves bristly on the margin; achenes prominently ribbed.                        | <i>L. serriola</i>     |
| bb. Leaves not bristly on the margins; achenes with a single rib.                   | C                      |
| C. Flower-heads small; mature involucre <14mm tall;<br>achenes <6mm long            | <i>L. canadensis</i>   |
| cc. Flower-heads larger; mature involucre >15mm tall;<br>achenes approx. 10mm long. | <i>L. hirsuta</i>      |

***Lactuca biennis* (Moench) Fern.**

**Tall Wild Lettuce; laitue bisannuelle**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

The impressive height to 2m, makes this species particularly conspicuous in late summer. It is the only species with bluish flowers in the genus. Pappus is tawny. Leaves are variable, but usually deeply pinnately lobed, with narrow deltate lobes. The achenes are compressed and bear several ribs on each face, tapering to short-beaked tips.

Flowers from July to September.

Grows in coarse soil as along fields, roadsides and even in clearings in forest.

Scattered throughout Nova Scotia.

Ranges from NF to AK, south to NC, NM and CA.



***Lactuca canadensis* L.**

**Canada Lettuce; laitue du Canada**



Photo by Sean Blaney



Photo by Sean Blaney

Biennial, it is also a tall plant, with a variable leaf shape, both lobed and unlobed. They may be entire and lanceolate, serrate on the edges or deeply pinnate, with narrow lobes. Flower-heads are numerous in a panicle, the florets cream-coloured. Involucre is up to 14mm tall, some phyllaries longer than others, extending beyond the receptacle.

Flowers in July and August.

Found in open forest, cut-overs and edges of thickets.

Scattered throughout and sometimes common.

Ranges from NF to YT, south to FL and CA. Absent from the most arid areas.

***Lactuca hirsuta* Muhl.**

**Hairy Lettuce; laitue hirsute**



Although this plant resembles the previous one, its flower-heads are generally larger. The involucre may show purplish, with reflexed phyllaries, 15–22mm tall. The achenes reach 1cm in length; the prominent pappus is 7–14mm long. Most of the leaves are basal rather than cauline, while *L. canadensis* has a leafy stem. Our plants are





Photo by Sean Blaney

var. *sanguinea* (Bigel.) Fern., the leaves hirsute only along the midvein.

Flowers from July through September.

Grows in dryish soils in open forest and cut-overs.

Scattered in the western part of NS.

Ranges from NS; QC to ON, south to GA and TX.

### ***Lactuca serriola* L.**

#### **Prickly Lettuce; laitue scarirole**



This species is easily separated on the presence of spiny leaf midribs and margins, and stems. Leaves are usually entire, their margins sharply serrate. Flower-heads are numerous and small. Achenes have several raised veins. Prickly Lettuce has a propensity to form hybrids with cultivated lettuce.

Flowers during August and September.

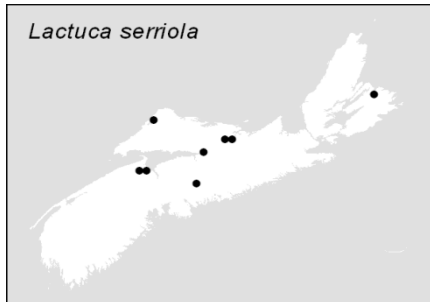
Roadsides and fallow soils elsewhere.

Collected from Sydney area and in Kings, Colchester , Cumberland and Pictou counties.

An introduced species from Europe, now naturalized throughout the continent.



Photos by Martin Thomas



## ***Lapsana* L.**

A small genus of nine species, they are native to Eurasia. One annual species, has been introduced to Nova Scotia. Lettuce-like, it contains a milky latex, bearing small alternate leaves, with wide-spaced teeth or lobes. The showy flower-heads are several; the perfect ligulate florets have yellow corollas. Peduncles are pale in colour, appearing woody. Involucre contains a single series of keeled phyllaries. The achenes are linear, curving at both ends. Pappus is absent.

### ***Lapsana communis* L.**

**Nipplewort; lapsane commune**



Freely branching this weedy species may reach 1m tall and contains a milky latex. The floral array is corymbiform, with numerous small flower-heads, about 10cm across. The ray florets are off-white and subtended by a smooth green involucre, up to 5mm tall. Pappus is absent.

Flowers mid-summer.

Frequents old gardens and fallow soils. Once established,

Photo by Sean Blaney

spreads readily in disturbed shady soils.

Scattered from Kings Co., northeastward.

Ranges from Greenland; NF to AK, south to CA and GA sporadically. Introduced from Europe.

## ***Leontodon* L.**

Another genus of Eurasian plants, with about 50 temperate species. Typically these plants have a scape bearing one or more flower-heads and a few scalelike bracts. In the Nova Scotian species, the flower-heads are ligulate, the yellow flowers perfect. They are subtended by an ovate or oblong involucre. Receptacle is devoid of chaff, although it may be reticulate or pubescent. The narrow achenes may be beaked or not. The pappus is plumose. Leaves are arranged in a basal rosette, and may be lobed or toothed.

### ***Leontodon autumnalis* L.**

**Fall Dandelion; liondent d'automne**



Photos by Andy Dean



Bearing one or two yellow-flower heads, this species differs from *Taraxacum* in not having the white latex. Flower-heads are subtended by an involucre up to 10mm tall; the phyllaries are narrowly lanceolate and puberulent. The tawny pappus is plumose. Achenes measure 4–7mm long. Basal leaves are lobed, the lobes irregular. Peduncles are sparsely branched, near the top. Two ssp. are found in Nova Scotia. The typical is listed above. ssp. *pratensis* (Less.) Koch has the involucre densely pubescent. It is as abundant here as the typical variety and of similar distribution.

Flowers from June through October.

Found on roadsides, lawns, fields and fallow soils.

Common throughout.

Ranges from Greenland; NF to ON, south to IL and VA; west

coast.

## ***Leucanthemum* Mill.**

Our daisies belong to a genus of 70 perennials and annuals native to Africa, Europe and temperate Asia. Rhizomatous, they form colonies of plants 30–100cm tall. Formerly included with *Chrysanthemum* and separated on the absence of fragrance and pubescence. Nova Scotia has a single species, well-known to most.

Leaves are cauline, irregularly lobed; the stem is usually unbranched terminating in a single radiate flower-head. It is subtended by a green involucre, its phyllaries with black margins. Stems arise from creeping rhizome. The flowers have yellow disk florets on a flat or convex receptacle. The white ray florets are usually pistillate and number about 20. Pappus is absent.

### ***Leucanthemum vulgare* Lam.**

#### **Ox-eye Daisy; marguerite blanche**



*Photos by Martin Thomas*

Stems arise to 80cm, bearing oblanceolate leaves, with deeply lobed and toothed margins. Lowermost leaves appear to be pinnate. Flower-heads are borne singly on long peduncles, their disks 1–2cm across. Ray florets are pure white, 1–2cm long. The phyllaries have membranous margins. Plants spread vegetatively by rhizomes.

Flowers June and July.

Frequents roadsides, pastures, oldfields, meadows and fallow soils.

Common throughout.

Ranges throughout the continent. Introduced.

## ***Matricaria* L.**

### **mayweeds**

This is a genus of about 40 species, widespread throughout the northern hemisphere and introduced elsewhere. Typically, the alternate leaves are finely divided. The floral array is in a corymbiform inflorescence. Both discoid and radiate flower-heads are included. If present, the ray florets are white; disks are yellow and conical. The receptacle is devoid of chaff, which separates them from *Anthemis*.

Key to species

Rays absent.

*Matricaria discoidea*

Rays present.

*M. recutita*

***Matricaria discoidea* DC**

**(=*M. matricarioides* (Less.) Porter)**

**Pineapple-weed; matricaire odorante**



*Photos by Sean Blaney*

A small freely branched plant, no more than 20cm tall. The dense finely divided leaves resemble those of carrot. There are many discoid flower-heads, to 8mm across on a conical receptacle. The involucre has ovate phyllaries, their margins translucent, 4–5mm tall. The pappus is a corona. Plant has a strong scent, not unlike pineapple.

Flowers from July through September.

Yards, roadsides, sidewalks, waste places on disturbed and compacted soil.

Common throughout.

Ranges throughout the continent, but for the Gulf States; Greenland.

***Matricaria chamomilla* L.**

**(=*M. recutita* L.)**

**Chamomile; matricaire camomille**



An annual species, it has radiate flower-heads, Chamomile also has a conical receptacle, which is nearly pointed. The achenes are marked along the margins by a pair of ribs and three ventral ribs. If present, the pappus is a short corona.

Flowers July and August.



Roadsides and fallow soils.

Found at Kejimikujik National Park in Queens Co. and at Truro.

Found across temperate Canada and in disjunct locations further south. Introduced from Europe.

## ***Oclemena* EL Greene**

Formerly included in the genus *Aster*, these three eastern North American species are now separated on the leaf arrangement. The simple stems are gray tomentose, often red at the base. The leaves are alternately arranged and contain resin glands. Their margins may be toothed or entire. The floral array is from 1–several radiate flower-heads; the disks are yellow and bulbous at the apex; the ray florets are white to blue. Involucre is composed of green phyllaries, purplish along their midribs. The achene is glandular; the pappus is a double whorl of bristles.

### Key to species

- |   |                           |
|---|---------------------------|
| A. Woodland species; leaves widely lanceolate, toothed, near the top of the plant.                                  | <i>Oclemena acuminata</i> |
| aa. Bog or edge of wetland species; leaves entire or nearly so and nearly linear, reducing in size towards the top. | B                         |
| B. Bog species; leaves entire.  | <i>O. nemoralis</i>       |
| bb. Edge of bogs and forest; leaves nearly linear but toothed.  | <i>O. x blakei</i>        |

## ***Oclemena acuminata* (Michx.) Greene**

### **Wood Aster; aster acuminé**



*Photos by Martin Thomas*

A woodland species, it may reach 50cm in height. Leaves are few, they are widely lanceolate and shallowly serrate and positioned only at the top of the plant. Lowermost leaves are smaller and usually deciduous. The flower-heads are few and borne on slender peduncles. Whitish ray florets are 1–1.5cm long and sparse. The involucre is less than 9mm tall.





Photo by Sean Blaney

***Oclemena x blakei* (Porter) Nesom  
aster de Blake**



Photos by Sean Blaney



Photo by Sean Blaney

Flowers August and September.

Found in dry soil, deciduous forest, thickets, clearings and along streams.

Scattered to common throughout.

Ranges from NF to northern ON, south to TN and GA.

A hybrid between *Oclemena acuminata* and *O. nemoralis*, it more strongly resembles *O. nemoralis*. The 20–40 leaves are nearly linear but clearly toothed. The plant has a more lax appearance. The floral array is of 1–several flower-heads, the rays pale lilac and 7–20, each less than 1.5cm long.

Flowers August and September.

Found wherever both parents converge, such as the wooded edge of bogs, lacustrine zones, etc.

More common in the south and eastern regions, but found throughout.

Ranges from NS to ON, south to MI and PA.

***Oclemena nemoralis* Ait.**  
**Bog Aster; aster des tourbières**



*Photos by Martin Thomas*

A neat slender plant 10–150cm tall, arising from a creeping rhizome. Plant is rugose. Leaves number 40–70, about 1–3cm long. Flower-heads 1–few, borne on a slender peduncle with a few reduced leaves immediately below. The involucre stands 5–7mm high, its phyllaries acute. Ray florets count 15–20, lilac in colour and to 0.5cm long.

Flowers in August and September.

Grows in peaty acidic substrate as on barrens, in marshes, sphagnum bogs and along lakeshores.

Common throughout and especially so along the Atlantic.

Ranges from NF to ON, south to MI and MD.



*Photo by Sean Blaney*

## ***Omalotheca* Cass.**

A genus formerly included within *Gnaphalium*. Perennial or annual herbs, their floral arrays are arranged in a spike-like thyse or in terminal round heads. Pappus is a distinct ring of bristles or united into a ring at the base. Achenes are sparingly strigose.

### ***Omalotheca sylvatica* (L.) Sch. Bp and FW Schultz**

#### **gnaphale de bois**



*Photos by Sean Blaney*



*Photo by Sean Blaney*

A tomentose, erect plant, it has a simple stem, reaching 40–60cm. Its leaves are alternate and sessile, nearly linear in outline. The inflorescence is long and narrow, the flower-heads are borne in each of the upper leaf axils. Involucre stand only 5–6mm tall, the phyllaries are lanceolate and dark-edged.

Flowers August and into September.

Fields, forest clearings, edges and waste places.

Scattered from Kings Co. to northern Cape Breton.  
Infrequent in the southern regions.

Found from NF to ON, south to WI and PA; BC.



***Onopordum* L.**  
**cottonthistle**

A genus including about 40 Asian species, Nova Scotia hosts one introduction. Similar to *Cirsium*, the major difference is in possessing a flat fleshy reticulated receptacle, bearing short bristles on the partitions. The leaves are deeply lobed and very spiny, decurrent and winged.

***Onopordum acanthium* L.**  
**Scotch Thistle (Scottish Thistle)**



*Photo by Jamie Ellison*

A tall stout plant, it may reach upwards to 3m. The stem is winged from the decurrent leaf bases. Flower-heads are solitary and terminal, subtended by imbricate phyllaries tapering to a spiny tip. The pappus bears simple bristles another key character separating *Cirsium* from it.

Flowers mid-summer.

Fallow soils and waste grounds, compost.

Occasionally planted and escaping as in the Kentville area.

Ranges from NS to MB; BC, south to CA, TX and VA. Locally introduced from Europe.

***Packera* A. & D. Löve**  
**ragworts**

A genus of 64 species, formerly included with *Senecio*. Molecular evidence, chromosome numbers and a variety of morphological characters indicate that they differ significantly. In Nova Scotia, two species occur. Their leaves are basal and cauline. Their margins usually have only a few callous denticles, or none. Roots are usually not fleshy and branched while those of *Senecio* are mostly unbranched fleshy.

Distributed throughout North America and eastern Asia, they are herbs with yellow to red ray florets and mostly basal leaves on long petioles.

#### Key to species

Basal leaves oblanceolate, tapering at the base.

*Packera paupercula*

Basal leaves reniform, strongly cordate at the base.

*P. aurea*

#### ***Packera aurea* (L.) A. Löve and D. Löve**

##### **Golden Ragwort; séneçon doré**



*Photo by Sean Blaney*

Standing up to 80cm, stems arise from a basal rosette of reniform leaves, strongly cordate at the base. They are long petiolate. Cauline leaves are much reduced and sharply torn or serrate. Flower-heads are long-pedicellate in umbel-like cymes. Ray florets are yellow.

Flowers during June and July.

Grows in moist soils of meadows, thickets and swamps.

Scattered through the province.

Ranges from NF to MB, south to TX and FL.

#### ***Packera paupercula* (Michx.) A. Löve and D. Löve**

##### **Balsam Groundsel; séneçon appauvri**



*Photos by Sean Blaney*

Small in stature this species rarely exceeds 50cm in height. Basal leaves are long-petiolate, acuminate to the petiole; cauline leaves reduce in size upwards along the stem. They are conspicuously serrate. One to several flower-heads bear bright yellow florets, the rays only 1cm long at most. The involucre is 3–4mm tall, its glabrous or tomentose phyllaries lanceolate. Highly variable but varieties are not recognized at present.



Flowers in July.

Confined to calcareous or gypsum soils, on cliffs, talus and outcrops.

Abundant where found but local to Hants Co. north to northern Inverness Co.

Ranges from NL to AK, south to WA, NM and FL.

## ***Petasites* P. Miller**

Northern hemisphere in scope, only a single species reaches Nova Scotia; it is circumboreal. Generally dioecious, a few florets of the opposite sex are usually present. The flower-heads open prior to the leaves expanding, like *Tussilago*. Typical of the genus is the pappus of shining silky white bristles.

### ***Petasites frigidus* (L.) Fries.**

#### **Sweet Coltsfoot; pétasite des régions froides**



A perennial species, it reaches 20–60cm in height. Typically its long-petiolate leaves are palmately lobed and white-tomentose. Cauline leaves are greatly reduced in size upwards along the stem. Flower-heads are several, creamy white and with ray florets. Fruiting heads are borne on elongating slender pedicels. Including the pappus the flower-heads are 1–2cm long. Ours is var. *palmaris* (Ait.) Cronquist.

Flowers throughout May, later than *Tussilago*.

Frequents moist soils in clearings or forests.

Scattered throughout the central counties to northern Cape Breton. Less frequent in southern NS.





Photos by Sean Blaney

Ranges from NL to AK, south to CA, CO and NY.

## ***Prenanthes* L.**

### **rattlesnake-root**

Centered in North America and Eurasia, there are 27 species in total. All are perennial herbs, containing a milky latex. Tubers are present. Their leaves are opposite. Nova Scotian species are typified by a paniculate or racemoid inflorescence of nodding flower-heads. Each flower-head comprises 15–35 perfect ligulate florets. Corollas are variously white, pink, purple or yellow. Involucre is one or more series of imbricate phyllaries. Pappus is of deciduous bristles.

#### Key to species

- |   |                            |
|---|----------------------------|
| A. Involucre hispid; florets purple.                    | <i>Prenanthes racemosa</i> |
| aa. Involucre glabrous; florets not purple.             | B                          |
| B. Florets 5–6; primary phyllaries 4–6.                 | <i>P. altissima</i>        |
| bb. Florets >8; phyllaries >7.                          | C                          |
| C. Plant <40cm tall; involucre blackish; alpine.        | <i>P. nana</i>             |
| cc. Plants >40cm tall; involucre not black; widespread. | <i>P. trifoliolata</i>     |

***Prenanthes altissima* L.**  
**prenanthe élevée**



*Photos by Martin Thomas*



*Photo by Martin Thomas*

Smaller than *P. trifoliolata*, it also has deltate leaves, cordate at the base, on long petioles. They may have a purplish hue. Always toothed, they may also be lobed at the base. Usually the involucre comprises five phyllaries and is glabrous. There are rarely more than six florets, subtended by an involucre 9–14mm tall.

Flowers during August and September.

Fertile forests and moist thickets.

Ranges from Yarmouth and Digby counties to northern Cape Breton. Less frequent along the Atlantic southwest.

Found from NS to ON, south to GA and TX.

***Prenanthes nana* (Bigel.) Torr.**

A dwarf species, similar to the previous, but shorter in stature and with a blackened involucre. The inflorescence is elongate and narrow; the florets are yellow.

Flowers during July and August.

Found in alpine habitats and barrens along the coast.

From Isle Haute, Cumberland Co., around the Atlantic coast to Cape Breton Co. Recently observed on Margaree Island, Inverness Co.

NS, ME, NH and NY.

***Prenanthes racemosa* Michx.**

**Purple Rattlesnake-root; prenanthe à grappe**



*Photos by David Mazerolle*

This plant may reach 120 cm in height although it is often much shorter in Nova Scotia. Leaves are glaucous, ovate, oblong or lanceolate, the basal leaves on long winged petioles. Florets are pink or purple, borne in erect to nodding, pubescent flower-heads.

Flowers during August and September.

Cliff-ledges and windswept headlands.

Rare: Sydney Mines, Sandy Cove, Digby Co.

Ranges from NS to BC, south to KY, and CO.

STATUS: ORANGE-listed.



Photo by Sean Blaney

A hybrid of this species and *P. trifoliolata* known as *P. X mainensis* Gray has been reported from Sandy Cove. This hybrid is also reported from NY and ME.

***Prenanthes trifoliolata* (Cass.) Fern.**  
**Lion's-paw; prenanthe trifoliolée**



Photos by Beth Cameron

Robust in stature, it may reach 120cm in height. Leaves often have three lobes, the middle cauline leaves are often palmate. Upper cauline leaves are ovate and cordate. Immature plants have basal leaves on long petioles; they are usually deltate. Flower-heads are cylindrical, pale yellow and nodding. Phyllaries are eight, also yellowish, to 14mm long. Pappus is light brown.

Flowers during August and September.

Forests, thickets, dry slopes and other habitats.

Common throughout.

Ranges from NF to ON, south to AL and GA.





Photo by Beth Cameron

## ***Pseudognaphalium* Kirp.**

### **cudweeds**

Recently this genus segregated from *Gnaphalium* on the basis of floral arrangement. There are 20 species of North America included here, although some are still under dispute. Annual or biennial, they are also white tomentose. Leaves are alternate; the inflorescence is corymbiform or paniculate.

#### Key to species

A. Leaves decurrent, forming thin wings; tips are acuminate.

*Pseudognaphalium macounii*

aa. Leaves tapered at the base, not decurrent; tips are obtuse or merely acute.

*P. obtusifolium*

### ***Pseudognaphalium macounii* (Greene) Kartesz**

(=*Gnaphalium macounii* Greene)

#### **gnaphale de Macoun**



Photos by Martin Thomas

A neat erect species, it rarely exceeds 40cm in height.

Leaves are narrowly lanceolate, acuminate at the apex and decurrent. Stem is tomentose or glandular. Inflorescence is a crowded corymb, becoming more lax with age. Phyllaries are yellow or ivory and ragged at the apices.

Flowers in August and September.

Open fallow soils, pastures, edges and waste ground.

Scattered in the western half at least to Truro. Once



*Photo by Martin Thomas*

collected in central Cape Breton.

Ranges from NS to BC, south to CA, TX and TN.

***Pseudognaphalium obtusifolium* (L.) Hilliard & BL Burtt**  
**Povertyweed; gnaphale à feuilles obtuses**



An annual species, it may reach 80cm tall, branching only in the ample inflorescence. The linear to lanceolate leaves are sessile, but not decurrent. Involucre is only 5–8mm in height, the phyllaries a dirty white and torn at the tip. Pappus bristles are distinct, falling separately.

Also flowers in August and September.

Grows in sandy, rocky soil in dry sites.

Scattered in southwestern counties, infrequent north to Pictou Co.; Sable Island.

Ranges from NS to ON, south to TX and FL.

*Photo by Martin Thomas*



## ***Rudbeckia* L.**

### **coneflowers**

Centred in North America, this genus comprises only 25 species. Flower-heads are radiate, the showy rays yellow, orange or pink. The receptacle is conical, the distinguishing feature. Both species found in NS are planted as garden annuals, and numerous hybrids have been derived from them.

#### Key to species

Leaves large and lobed; disk greenish yellow; pappus present.

*Rudbeckia laciniata*

Leaves lanceolate; disk dark brown; pappus absent.

*R. hirta*

### ***Rudbeckia hirta* L.**

#### **Black-eyed Susan; ronce sétuleuse**



*Photos by Sean Blaney*



A perennial species arising on stiffly erect simple stems, they produce familiar late-summer yellow and brown flower-heads. Leaves are lanceolate, alternately arranged along the stem. Flower-heads solitary at the end of a hirsute peduncle. The yellow ray florets are 2–2.5cm long. The dark brown disk is hemispheric, 2cm wide. The involucre is foliose, hirsute on the margins of the phyllaries. Pappus is absent. Ours is the widespread var. *pulcherrima* Farw.

Flowers July and August.

Found on roadside banks, in old fields and even thickets, often forming masses.

Common from Annapolis and Cumberland counties to the Northumberland Strait. Less common in the southwestern counties and Cape Breton.

Ranges across the continent to the Gulf of Mexico. Introduced in Nova Scotia.

*Photo by Martin Thomas*

***Rudbeckia laciniata* L.**

**Coneflower; rudbeckie laciniée**



*Photos by Sean Blaney*



*Photo by Martin Thomas*

Another perennial species, reaching more than 2m tall. Lower leaves are up to 20cm wide, with 3–7 pinnate lobes. Flower-heads 1–3, borne on long peduncles. Ray florets number 7–10; they are yellow and about 2cm long. Phyllaries are foliose. The pappus is a corona.

Flowers in August.

Grows in wet fertile soils along the edge of swamps, swales or streams. Often colonial.

Common in Kings Co., isolated colonies from Annapolis and Cumberland counties to Guysborough.

Our native material as var. *gaspereauensis*, was once considered a variety endemic to NS, although authorities no longer recognize the variety.

The species ranges throughout most of the continent, but for the prairie provinces and the southwestern states.

It is both native and introduced in Nova Scotia.



Photo by Sean Blaney

## ***Senecio* L.**

### **ragworts**

A large and diverse genus containing more than 1000 species, even after the splitting off of several additional genera. It is found worldwide. Nova Scotia has nine species, a tenth is considered an historic occurrence, after appearing but once. (*Senecio squalidus*).

Annuals or perennials, all bear lobed or toothed cauline leaves. Radiate or discoid, if the rays are present, they are yellow. Phyllaries are arranged in a single series, sometimes bearing bracteoles at the base of the involucre. Receptacle is flat; chaff is absent. The pappus is formed of numerous white bristles. Achenes are marked by 5–10 ribs.

#### Key to species

- |  |                         |
|--|-------------------------|
| A. Annuals; plant slender, 10–70cm tall.                                       | B                       |
| B. Plants densely glandular and sticky.  | <i>Senecio viscosus</i> |
| bb. Plants neither glandular nor sticky.                                       | C                       |
| C. Rays absent; bracteoles small and black-tipped.                             | <i>S. vulgaris</i>      |
| cc. Rays present, but may be inconspicuous; outer bracteoles not black-tipped. | <i>S. sylvaticus</i>    |
| aa. Perennials; coarse plants, 2–100cm tall.                                   | D                       |
| D. Flower-heads very large, disks to 4cm across; seashores.                    | <i>S. pseudoarnica</i>  |
| dd. Flower-heads smaller, disks to 1cm wide; common weed.                      | <i>S. jacobaea</i>      |

***Senecio jacobaea* L.**

**Tansy Ragwort; Stinking Willie; séneçon jacobée**



*Photos by Marian Munro*



*Photo by Sean Blaney*

A biennial or perennial species, to 1m in height, the stems are white tomentose only near the top. Stems are very leafy, the leaves pinnately lobed, with sharp irregular teeth. Flower-heads are numerous, the rays to 1cm long. Phyllaries are lanceolate and black-tipped, forming the involucre which stands 3mm high.

Flowers from July to September.

Colonial along roadsides, fields, waste land.

Very common from Pictou to northern Cape Breton; common west to Yarmouth Co.

Found from NF to ON, south to IL and NJ; BC to CA and WY; casual elsewhere. Naturalized from Europe.



***Senecio pseudoarnica* Less.**

**Beach Groundsel; séneçon fausse-arnica**



*Photo by Mary Primrose*



*Photo by Alain Belliveau*

Arising on stout white-tomentose stems, this species may reach 40cm in height. The leaves are elliptic to ovate and may be entire or coarsely toothed on the margins, to 15cm long. Their undersurfaces are also tomentose. Flower heads numbering one to several and 2cm or wider across, are arranged in a leafy array. Involucre is 2cm tall and covered in a cottony down.

Flowers from late July to August.

Found only on gravelly seashores.

Scattered along the entire Atlantic coast.

Ranges from NF to ON, south to Sable Island and ME; NT, AK south to Vancouver Island; northeastern Asia.

STATUS: YELLOW-listed in NS.

***Senecio sylvaticus* L.**

**séneçon des bois**



*Photos by Sean Blaney*

Resembling *S. vulgaris*, but for its greater height, ranging from 10cm to 1m. Freely branching, robust bushy plants bear in excess of 100 flower-heads. Ray florets are very short and recurved. Pappus exceeds the corollas of the disk florets in length.

Flowers throughout the summer.

Found in clearings and on fallow ground, especially along the coast.

Scattered to common throughout.

Ranges from NF to QC, south to ME and variously further south; BC to CA. Naturalized from Europe.

***Senecio viscosus* L.**

**Clammy Groundsel; séneçon visqueux**



*Photos by Martin Thomas*

An annual freely branching herb, this plant only reaches 60cm in height. It is covered with a dense glandular pubescence, attracting soil and chaff to cling to it. Flower-heads are numerous with the rays inconspicuous. The involucre is 6–8mm tall. Pappus contains copious bristles.

Flowers from July through December.

Found around urban areas, ports, railways, etc.

Scattered throughout.

Ranges from NF to BC south to ID, IL and NJ. Introduced from Europe.





***Senecio vulgaris* L.**

**Common Groundsel; séneçon vulgaire**



*Photo by Sean Blaney*

Another annual, this one is glabrous and green, standing up to 60cm tall. Flower-heads are discoid and numerous. The involucre is 8–10mm high, with a single series of phyllaries and well-developed bracteoles at the base. These are black-tipped. Pappus is formed of copious hairs.

Flowers well into fall. Common to see both florets and seeds at the same time.

Old gardens, near wharves, rails and waste ground.

Common throughout.

Continental North America except for NU. Introduced from Europe.

## ***Silybum* Adans.**

### **Milk-thistle**

Mediterranean in distribution, only one of the two species reaches Nova Scotia. A stout plant producing spherical flower-heads terminally on the branches. Leaves are wide and barely lobed, clasping at the base. The prickles are weak. Plants contain milky spots along the veins of the leaves. The involucre is foliose the phyllaries imbricate, broadly lanceolate, their tips spiny.

## ***Silybum marianum* (L.) Gaertn.**

### **Milk-thistle; chadon Marie**

As above. Florets purple.

Flowering in July and August.

Escape from cultivation.

Historically known from Truro and Halifax.

Elsewhere in North America, NS to ON, SK to BC and variously south. Introduced.

## ***Solidago* L.**

### **goldenrods**

North American in scope, the goldenrods number about 100 species. Nova Scotia hosts about 16. Familiar to most as they frequent dry open sites, especially in late summer.

Typically they have radiate flower-heads, most often yellow. The ray florets are pistillate while the disk florets are perfect. All are fertile. The achenes are angular, marked by several nerves. The pappus is present, made up of filiform bristles. Both basal leaves and cauline leaves may be present. All are simple and alternately arranged. entire or toothed.

Goldenrods may be separated on the form and arrangement of the inflorescences and the presence of axillary flower-heads. Mature flower-heads therefore are required to confirm identity of most species.

# Key to species

- A. Inflorescence of small axillary clusters in an erect thyrse. B
  - B. Flower-heads very large; involucre to 11mm tall; phyllaries *Solidago macrophylla*  
thin and acute; achenes 4–5mm long, smooth.
  - bb. Heads small, involucre <8mm tall; phyllaries firm, acute or blunt; C  
achenes glabrous or not, <4mm long.
    - C. Leaves mostly basal. D
      - D. Phyllaries very narrow, <1mm wide, tapering *S. puberula*  
to a hairlike tip.
      - dd. Phyllaries broad, the middle ones >1.5mm E  
long, blunt.
        - E. Lowest leaves, 7–15X longer than wide; *S. uliginosa*  
lowest petioles sheathing at the base; bogs.
        - ee. Lowest leaves <7X long as wide; petioles F  
not sheathing; upland species.
          - F. Achenes with persistent hairs; G  
rare species.
            - G. Rays 10–20; plants arctic-alpine, *S. multiradiata*  
Cape Breton.
            - gg. Rays 7–10; plants not arctic- *S. simplex*  
alpine, mostly mainland.
            - ff. Achenes glabrous, at least with H  
age.
              - H. Rays yellow. *S. hispida*
              - hh. Rays silvery white or cream. *S. bicolor*
    - cc. Leaves mostly cauline. I
      - I. Leaves with 3 prominent veins; rays 6–18. *S. canadensis*
      - ii. Leaves without 3 strong veins; rays <8. *S. flexicaulis*
  - aa. Inflorescence a terminal panicle, nodding at the summit, secund, J  
at least at the base.
    - J. Leaves basal and cauline. K
      - K. Stem and leaves hispid throughout. *S. nemoralis*
      - kk. Stem and sometimes lower leaf surfaces smooth below L  
the inflorescence, or the stem with long scattered hairs.
        - L. Leaves succulent; plants maritime. *S. sempervirens*
        - ll. Leaves not succulent, nor maritime. *S. juncea*
    - jj. Leaves cauline. M

M. Leaves without 3 main veins.	N
N. Stem hairy, at least above the middle; plant of Open land throughout.	<i>S. rugosa</i>
nn. Stem smooth below the inflorescence; wetlands of the southwest.	<i>S. elliotii</i>
mm. Leaves with 3 main veins.	O
O. Stem glaucous, glabrous below the flowers.	<i>S. gigantea</i>
oo. Stem not glaucous; sparingly pubescent to the middle or lower.	<i>S. canadensis</i>

***Solidago bicolor* L.**

**Silver-rod; White Goldenrod; verge d'or or bicolore**



*Photo by Martin Thomas*

A solitary stem arises from the base, to 50cm, often ornamented with grayish pubescence. The leaves are lanceolate to obovate. Basal leaves are petiolate; cauline leaves are sessile, rapidly reducing in size towards the top of the plant. The inflorescence is a narrow cylindrical array of whitish flower-heads, 10–15cm long. This species should be field-identified as it is difficult to separate from *S. hispida* once dried.

Flowers in August and September.

Frequents dry soil, old fields, barrens and roadsides.  
Colonizer of burns.

Common throughout, becoming less frequent in Yarmouth and Digby counties.



*Photo by Martin Thomas*

Ranges from NS to MB, south to GA and LA.

Hybrids form with *S. canadensis*.

***Solidago caesia* L., Blue-stem Goldenrod or Wreath Goldenrod** is now considered historic. There are no extant collections to substantiate its presence in NS although there are reports from Halifax, Kentville and Annapolis Royal. A plant to be expected as climate changes.

***Solidago canadensis* L.**

**Canada Goldenrod; verge d'or du Canada**



*Photo by Martin Thomas*



A tall leafy species, it may reach 1.5m in height. The sharply toothed lanceolate leaves are clearly marked by three main veins. The floral array is freely branching, the flower-heads on second branches, slightly recurved. Flower-heads small, bearing 10–15 rays, subtended by tiny involucres only 2–3mm high. Our material belongs to the typical variety, although several others are named.

Flowers from late July through most of August, one of our earliest goldenrods to flower.

Typical of edge habitat: fields, forests, roadsides and forming large colonies where competition is low.

Found throughout.

Ranges throughout the continent, with the typical variety mainly northeastern.



Photo by Alain Belliveau

***Solidago flexicaulis* L.**

**Wood Goldenrod; Zigzag Goldenrod;  
verge d'or à tige zigzagante**



Photo by Sean Blaney



Photo by Sean Blaney

This species is noticeable within its habitat. The slender stems appear to zigzag, sometimes reaching a height of 1m. The petiolate leaves are cauline and ovate, acuminate at the tip and sharply toothed around the margins. Petioles are winged. The small flower-head clusters are axillary, each with only 3–4 ray florets, subtended by an involucre standing 6mm.

Flowers from July to September.

Riparian, species-rich deciduous or mixed forests.

Common from Digby County northward. Infrequent along the Atlantic coast.

Ranges from NS to ON, south to KS, LA and GA.

***Solidago gigantea* Aiton**

**Giant Goldenrod; verge d'or géante**



*Photo by Sean Blaney*



*Photo by Sean Blaney*



Very similar to *S. canadensis*, but for the glaucous stems. The inflorescence is also puberulent. Leaves similar but the three main veins may also be ciliate, a character not found in the smaller species.

Flowers in late summer.

Found streamside, on intervalles in alluvial soils where it forms robust patches.

Common from central Colchester Co. to north-central Cape Breton. Also collected from Yarmouth, Annapolis, Kings, Lunenburg and Halifax counties.

Found throughout the continent.

Photo by Martin Thomas

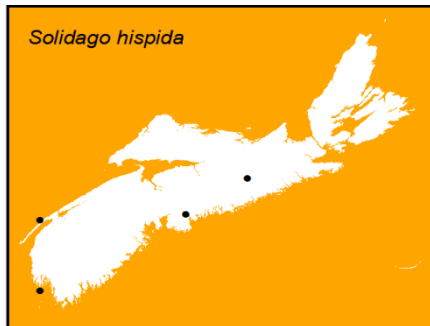
***Solidago hispida* Muhl.**  
**verge d'or hispide**



Photo by Sean Blaney



Photo by David Mazerolle



Resembling *S. bicolor* in height and compact inflorescence except in corolla colour. This species has yellow flowers as do all other goldenrods but one. The stem of this species is hispid, or with long spreading hairs.

Flowers during a brief period in August.

Grows in wooded banks and rocky shores.

In frequent, occasionally seen from Yarmouth to Colchester counties.

Ranges from NF to SK, south to OK and LA and GA.

STATUS: ORANGE-listed for Nova Scotia.

***Solidago juncea* Ait.**

**Early Goldenrod; verge d' or jonciforme**



Photo by Sean Blaney

Another tall species often exceeding a metre in height and arching. The leaves are lanceolate and the basal leaves are also long-petiolate. The large floral array is reflexed and secund, bearing bright yellow florets of 7–12 rays. The tiny involucre is only 2–3mm long. Stems and the inflorescence are glabrous.

Flowering from July to September, this species is usually the first goldenrod to produce flowers in our region.

Dry soils in fields, thickets and roadsides.

Common from Digby and Lunenburg counties to Cape Breton. Less frequent in southwestern counties.

Found from NS to MB, south to LA and FL.

***Solidago latissimifolia* Mill.**

**(=*Solidago elliotii* T & G)**

**verge d' or d'Elliott**



Photo by Sean Blaney

A tall, stout species, often 1m high, its stems bears widely lanceolate to elliptic leaves. The entire plant is glabrous. The inflorescence is from 5–10cm long, with the lowest branches to 10cm wide. There are 6–12 rays crowded around each disk, all subtended by an involucre to 6.5mm tall.

Very similar to *S. rugosa*, but differs in being glabrous.

Flowers in August and September.

Clearings, thickets and bogs, swales and lakeshores.

Common in Yarmouth Co, east to Halifax Co.



Ranges from NS to FL along the coastal plain, west to MS.

***Solidago macrophylla* Pursh**

**Large-leaved Goldenrod; verge d'or à grandes feuilles**



*Photo by Sean Blaney*

A stout plant with very wide lanceolate leaves, reaching 1m in height. Lower leaves are borne on long petioles, leaves reducing in size towards the inflorescence which is 10–15cm long. Flower-heads each have 7–12 rays. Floral arrays are axillary in the upper leaves. Involucre measures 8–12mm tall.

Flowers August through September.

Found on hillsides, in damp ravines and thickets.

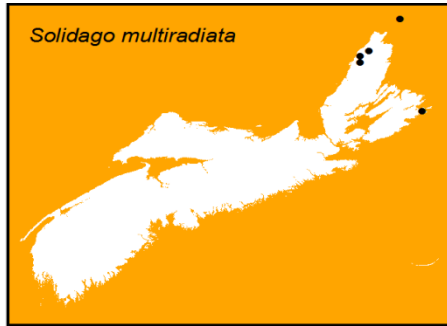
Northern in distributions from coastal Cumberland Co, to northern Cape Breton.

Ranges from NL to ON, south to NY



*Photo by Marian Munro*

***Solidago multiradiata* Ait.**  
**verge d'or à rayons nombreux**



A perennial species, no more than 45cm tall. Its basal leaves are oblanceolate and glabrescent, reducing in size towards the inflorescence, becoming sessile. Leaf margins are ciliate. The terminal corymb is about 10cm tall, with few flower-heads. Disk florets crowded, with 15–20 ray florets. The involucre is 5–7mm high.

Flowers in August.

Arctic habitats: barrens, ledges and cliff-faces.

Limited to St. Paul Island and northern Cape Breton, where it is very rare.

Ranges from NL to AK, south to CA, NM and ME; Siberia.

STATUS: ORANGE-listed.



*Photo by Sean Blaney*



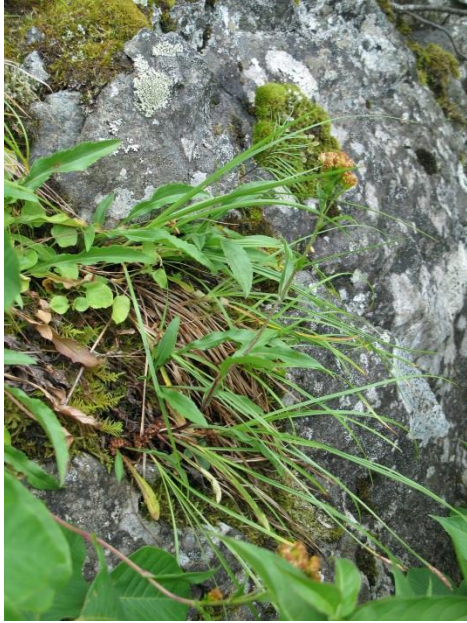


Photo by Sean Blaney

***Solidago nemoralis* Ait.**

**Old-field Goldenrod; verge d'or des bois**



Photo by Sean Blaney

A small slender plant, it reaches only 30–50cm tall. Leaves are both cauline and basal, with the basal ones oblanceolate becoming lanceolate along the stem. The upper part of the plant is reflexed, the stem covered in a hoary appressed pubescence. The inflorescence is 10–15cm tall, the lower branches 1–3cm long and strongly recurved. Ray florets number 5–8, the heads subtended by an involucre 3mm tall.

Flowers in August and September.

Grows in infertile soils on barrens, roadsides and parking lots.



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Scattered from southwestern counties to eastern Nova Scotia where it becomes frequent in suitable habitat.

Ranges from NS to BC, south to FL and NM.

***Solidago puberula* Nutt.**

**Downy Goldenrod verge d'or pubérulente**



*Photo by Sean Blaney*

A stiffly erect plant, about 50cm high, it has a simple stem. The floral branches and stem are covered in short stubby hairs. Leaves are lanceolate and smooth, the lower petiolate. The floral array is 10–15cm long and erect, the yellow rays numbering 10. The involucre is 4–6mm high, the phyllaries acutely lanceolate.

Flowers during August and September.

Grows in sterile run out soils as on barrens, plains, headlands and forests.

Very common species.

Ranges from NS to ON, south to LA and FL.



*Photo by Sean Blaney*



***Solidago rugosa* Ait.**

**Rough Goldenrod; verge d'or rugueuse**



*Photos by Sean Blaney*



*Photo by Sean Blaney*

Arising on a leafy stem reaching 2m, this plant is covered with a spreading hispid or strigose pubescence. The leaves are almost sessile, lanceolate in outline and sharply toothed. Their veins may also be pubescent. The inflorescence is upwards of 15cm tall, its branches widely divergent. Flower-heads are 3–5mm tall, with 6–9 rays.

Although it resembles *S. latissimifolia*, it is a widespread common species, whose stem is always hairy. Our material is all referenced to ssp. *rugosa* and several varieties are also named. FNA considers our material to be of var. *sphagnophila* Graves while var *villosa* is found further south. Perhaps our material should be re-examined. Var. *villosa* (Pursh) Fern. was considered to be scattered throughout NS but for the southwestern counties. It is separated on the lower floral array branches being equal in length to the leaves surrounding them.

Flowers late in August through September.

Frequents waste soils, forests and fallow fields.

Common throughout the province.

The species ranges from NF to ON, south to TX and FL.

***Solidago sempervirens* L.**

**Seaside Goldenrod; verge d'or toujours verte**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

A robust plant to 2m, it arises on a glaucous stem. The widely lanceolate leaves are succulent with entire margins. The inflorescence is ample with secund, recurving branches. Flower-heads produce 10–15 rays, surrounded by an involucre 3–7mm tall.

Flowers from July to September.

Limited to saline habitats: marshes and beaches, dykes and slopes near the sea and even roadsides where salt has built up.

Found around the entire coast and on Sable Island.

Ranges from NF and the St. Lawrence Seaway, around the Great Lakes, south to FL and TX.

Forms hybrids with *S. canadensis* (*S. erskinei* B. Boivin), *S. rugosa* (*S. asperula* Desf.) and *S. uliginosa* –all present in Nova Scotia.



Photo by Martin Thomas

***Solidago simplex* HBK**

**Verge d'or simple**



Photos by Sean Blaney

An erect plant, but it is slender, and rarely exceeding 40cm in height. The leaves are smooth and linear, the margins ciliate but entire. Stem is also glabrous but for the short stiff hairs in the inflorescence. The yellow flower-heads are borne on short crowded branches, surrounded by linear phyllaries. Achenes are puberulent.

It is difficult to separate from *S. puberula*, as the pubescence on its stem is variable. Our material belongs to several varieties of ssp. *randii* (Porter) Ringius, although collections should be re-examined

Flowers during August and September.

Found on gravel beaches, headlands, hills or bogs.

Infrequently identified and possibly extirpated from NS. Known from Liscomb, Guysborough Co. and Brier Island,



Digby Co.

Ranges from NS to ON, south to TN as ssp. *randii*.

***Solidago uliginosus* Nutt.**

**Bog Goldenrod; verge d'or des marais**



Photo by Sean Blaney

Stems reaching 1m, there are numerous cauline leaves, narrowly lanceolate reducing in size towards the floral array. Lower leaves are oblanceolate and petiolate. Floral array is often appressed, 4–10cm long and with secund branches. There are from 1–8 rays. We have two additional varieties, separated as follows.

Var. *linoides* (T&G) Fern. is from 10–90cm tall, with 5–20 cauline leaves. Var. *terrae-novae* (T&G) Fern. has a very short and slender floral array, 4–5cm wide, with its branches horizontal. This is limited to the Ingonish Barrens.

Grows in wet acidic soils as in peatlands or granitic barrens.



Photo by Sean Blaney

One of our more common goldenrods, wherever suitable habitat occurs.

Ranges from NF to MB, south to AL and GA.

***Sonchus* L.**

**sow-thistles**

There are 50 species included, Eurasian in origin; three reach Nova Scotia as introductions. Tall plants, they all contain a milky latex. The leaves may be basal or cauline and are alternately arranged.

Sometimes they are entire, toothed or dissected, usually the margins are prickly. Flower-heads are ligulate, with up to 80 florets crowded in the flower-head. The involucre is ovate or campanulate. The achenes are compressed with 6–20 midribs, acuminate but not beaked. The pappus comprises white filiform bristles.

Key to species

- A. Perennial, stoloniferous; heads 3—5 cm wide; involucre >13mm tall in fruit. *Sonchus arvensis*
- aa. Annual, not creeping; flower-heads to 2.5cm wide; involucre <13mm tall at maturity. B
- B. Mature achenes with transverse tubercles, *S. oleraceus*  
rugose with several nerves.
- bb. Mature achenes merely ribbed and not rugose. *S. asper*

***Sonchus arvensis* L.**

**Perennial Sow-thistle; laiteron des champs**



*Photo by Martin Thomas*

Reaching more than 1m in height, it arises from extensive stolons. Leaves are shallowly lobed and scarcely prickly. Flower-heads are several, 3–5cm wide and subtended by lanceolate phyllaries. The peduncles are glandular pubescent. Pappus is generous, of shining white bristles.



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Both the typical ssp. and ssp *uliginosus* (M. Bieb.) Nyman are present here. They may be differentiated on the basis of the pubescence on the peduncle and involucre. Ssp. *arvensis* is glandular pubescent, while ssp *uliginosus* is glabrous or merely pubescent.

Flowers from July to October.

Frequents coastal marshes and dykelands, about wharves and in cultivated fields.

Common throughout Nova Scotia.

Ranges across the continent, south to CA, TX and NC.

***Sonchus asper* (L.) Hill**  
**Spiny Sow-thistle; laiteron rude**



Photo by Sean Blaney

The leaves are obovate, less frequently pinnately lobed, with very spiny margins. They clasp the stem at the base, with rounded auricles. Flower-heads are small. Achenes have longitudinal ribs but are not transversely rugose like the next species.

Flowers from July through to October.

Cultivated land, usually in fertile soils.

Scattered throughout.

Ranges from NF to BC and southward. Cosmopolitan weed.

***Sonchus oleraceus* L.**  
**Annual Sow-thistle; laiteron potager**



Photos by Martin Thomas

An annual weed, rarely exceeding 1m, it bears shiny lobed leaves and angular auricles. The size and shape of the lobes are variable although the margins are always toothed and prickly. Flower-heads are small, 1.5–2.5cm wide, with the ray florets lemon yellow. Phyllaries are dark and papery. Achenes are striated, flat and rugose, about 1mm wide. Leaves are longer and more lobed than *S. arvensis*, and it lacks the creeping rhizomes.

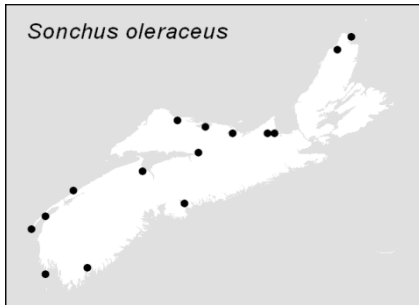
Flowers July to October.

Coastal species, cultivated fields, gardens and fallow land.

Scattered throughout.

Found across Canada and southward. Absent from NU and YT.





## ***Symphotrichum* Nees**

### **asters**

*Symphotrichum* like many other genera (*Eurybia*, *Oclemena* and *Doellingeria*) has been removed from *Aster* and given generic status. The 90 species include annuals or perennials and are usually colonial or caespitose. In addition leaf heterophylly makes identification challenging. The stems are erect or ascending and not trailing. may be winged, clasped or ciliate. Flower-heads are usually radiate in our species, although there are disciform species known. Their arrays are various sometimes even single. Phyllaries arranged in multiple series, each bearing a midrib. They are usually lanceolate or oblanceolate. The rays are fertile and pistillate and range in colour from white to purple. Disk florets are perfect and fertile, yellow to white, sometimes maturing to red. The persistent pappi are white or tawny bristles. The genus is North American, but has been introduced to Europe mainly as cultivated ornamentals.

#### Key to species

- |  |                               |
|--|-------------------------------|
| A. Plants annual; leaves and phyllaries ciliate.                                   | B                             |
| B. Flower-heads disciform.   | <i>Symphotrichum ciliatum</i> |
| bb. Flower-heads radiate.  | <i>S. ciliolatum</i>          |
| aa. Plants perennial; leaves and phyllaries not ciliate.                           | C                             |
| C. Ray florets white, sometimes tinged pink or purplish.                           | D                             |
| D. Stems sparsely to densely pubescent;<br>glabrescent at the base.                | E                             |
| E. Tips of the phyllaries flat.  | F                             |
| F. Stems ascending, sometimes arching;<br>disks purplish.                          | <i>S. lateriflorum</i>        |
| ff. Stems erect; disk florets yellow.  | <i>S. lanceolatum</i>         |
| ee. Tips of the phyllaries involute or folded.                                     | G                             |
| G. Plants colonial, with long rhizomes or<br>branching caudices.                   | <i>S. parviceps</i>           |
| gg. Plants caespitose usually with branching<br>caudices, rarely long-rhizomatous. | <i>S. pilosum</i>             |



dd. Stems glabrous or glabrate to puberulent, sometimes hairs in lines in arrays.	<i>S. tradescanti</i>
cc. Ray florets violet, purple, blue, pink, not white although albinos may be found.	H
H. Phyllaries at least in part stipitate-glandular.	<i>S. nova-angliae</i>
hh. Phyllaries eglandular.	I
I. Plants colonial and cespitose; leaves serrate or crenate.	J
J. Cauline leaves mostly clasping.	<i>S. undulatum</i>
jj. Cauline leaves not at all clasping.	<i>S. cordifolius</i>
ii. Plants merely cespitose; leaves entire or only shallowly serrate.	K
K. Phyllaries long-acuminate; whole plant hoary.	<i>S. puniceus</i>
kk. Phyllaries blunt or acute; plant may be pubescent but not hoary.	L
L. Involucre lax; stem >2.5mm thick.	<i>S. novi-belgii</i>
ll. Phyllaries appressed; stem <2.5mm thick.	<i>S. boreale</i>

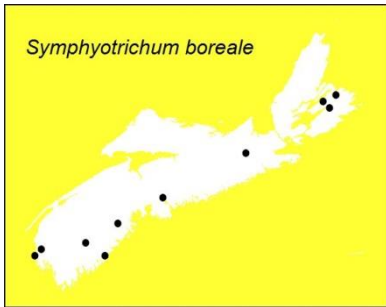
***Symphyotrichum boreale* (Torr. & Gray) A. & D. Love**  
 (= *A. borealis* (Torr. & Gray) Prov.)  
 Northern Bog Aster; aster boréal



Photo by Sean Blaney

Arising on simple stems, this aster may reach 1m in height, from an elongated rootstock. The sessile leaves are long and linear. The scanty array may be 20cm high, its branches ascending. Most of the flower-heads are terminal, each





with 20–40 nearly-white rays, about 1cm long.

Flowers during August and September.

Lacustrine gravels, streamsides and edges of peatlands.

Scattered from Yarmouth to Cape Breton and uncommon.

Ranges from NF to AK, south to WVA and CO.

***Symphyotrichum ciliatum* (Ledebour) GL Neson**

**Alkali Rayless Aster; aster à rayons courts**



*Photo by Sean Blaney*

An annual species, its single stems may reach 70cm. They may be simple or branched. The leaves are narrow and spatulate, their margins bristly. Lower leaves wither before flowering. Disciform flower-heads are white, rayless and arranged in densely packed inflorescences. The phyllaries are in 3–4 series. Plants are conspicuous in fruit due to the well-developed pappus.

Flowers late in the season, from August to October.

In NS so far found along roadsides or on coal mine tips.

A recent introduction to the province. Collected along Hwy 102 at Enfield, Elmsdale and Shubenacadie. Also reported from coal tips between Stellarton and Westville, Pictou Co.

Ranges from NS to AK, south to NM and PA.

***Symphyotrichum ciliolatum* (Lindl.) A. & D. Löve**

**(= *Aster ciliolatus* Lindl.)**

**aster ciliolé**



*Photo by Sean Blaney*

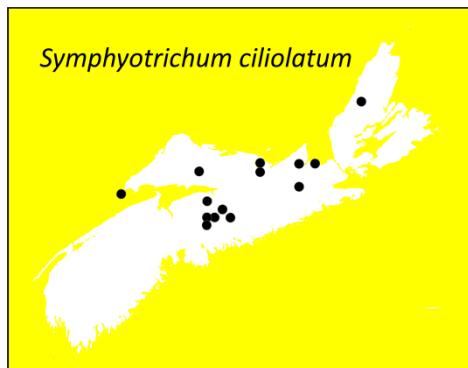
Plants are deep green, arising on erect stems to 1m. The leaves are ovate or widely lanceolate, abruptly narrowed to a winged petiole. Floral array is scant, the flower-heads interspersed with foliose bracts. Ray florets are bright blue 8–12mm long, subtended by an involucre 5–8mm high.

Flowers during August and September.

Open fields, lawns and edges.

Scattered from Hants and Colchester counties to Cumberland, Pictou and Inverness counties.

Ranges from NF to YT, south to WY and IL and NY.



***Symphyotrichum cordifolium* (L.) Nesom**

(=*Aster c. L.*)

**Heart-leaved Aster; aster à feuilles cordées**



*Photos by Sean Blaney*



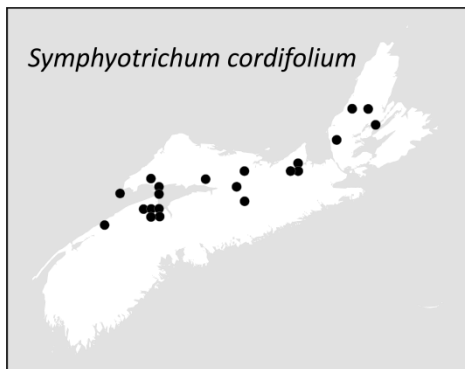
A perennial species, it is usually tall. The cordate leaves are 3–7cm wide, sharply serrate and borne on long slender petioles. The floral array is freely branching, to 15cm wide. The ray corollas are light blue; the involucre 3–6mm high. The corolla colour is highly variable.

Flowers from late summer into October.

Fallow ground, thickets, roadsides and edges; about houses and gardens.

Common from Annapolis Co. and Cumberland Co. to northern Cape Breton. Absent in southwestern counties and infrequent along the eastern shore.

Ranges from NS to MB; BC; south to KS and FL.



***Symphyotrichum lanceolatum* (Willd.) Nesom**  
**(=*Aster lanceolatus* Willd.)**



*Photos by Sean Blaney*



A colonial species to 1.5m tall, the plants arise on stout stems from creeping rhizomes. Leaves are lanceolate and scarcely serrate, the smaller ones with entire margins. The floral array is foliose, to 30cm wide. Each flower-head has 20–30 pistillate rays to 1cm long and pale violet to white, subtended by a short involucre 5mm tall. The phyllaries have a midvein extending to the tip, green.

Flowers during August and September.

Grows in damp soils as along intervalles, edges of fields and thickets.

Scattered from Yarmouth Co. east to Cape Breton and common in the central region.

Ranges from NF to NT south to the Gulf of Mexico.



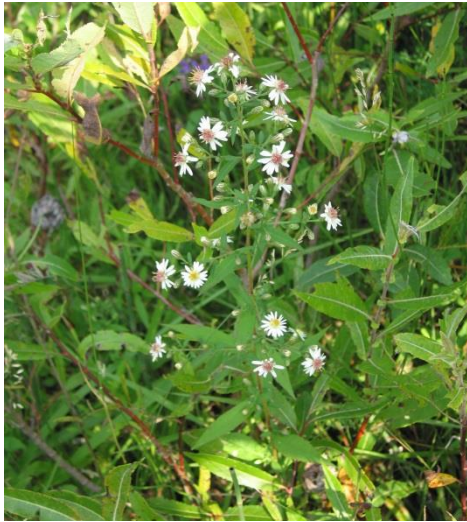
***Symphyotrichum lateriflorum* (L.) A. & D. Löve**

**(=*Aster lateriflorus* (L.) Britt.)**

**aster latériflore**



*Photos by Sean Blaney*



A slender freely-branching aster rarely reaching 1m in height. The stem and branches are densely pubescent. Leaves are lanceolate with the upper ones less than 4cm long. The floral array is also freely branched, the long racemes arching and forming most of the height. Each flower-head has 10–14 white pistillate florets and a purplish disk. The involucre is 4–6mm tall.

A more slender form has been named var. *tenuipes* Wieg. It is reported from Pictou Co. east to Cape Breton. Difficult to separate.

Flowers from July through October.

Grows in sterile soils of barrens, fields, roadsides and edges of forests.

Common throughout.

Ranges from NS to MB; BC; south to FL and TX.

***Symphyotrichum novae-angliae* (L.) Nesom**

**(=*Aster n-a* L.)**

**New England Aster; aster du Nouvelle Angleterre**

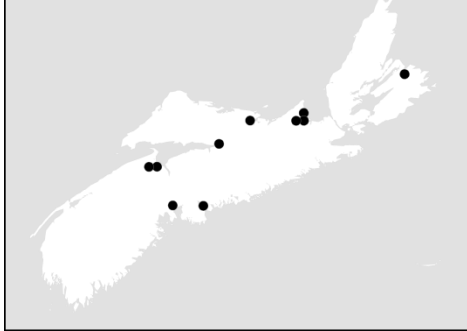


*Photos by Sean Blaney*

One of our tallest asters, it often reaches 2m. Generally it grows in patches from creeping rhizomes. The lanceolate leaves are entire and sessile, but clasping the stem. Flower-heads are few, the peduncles are densely glandular pubescent. The pistillate florets are narrow, numbering 25–100 per head and generally reddish-purple.



*Symphyotrichum novae-angliae*



It has often been grown as an ornamental.

Cultivated material occasionally escapes. Found on roadsides, edges of fields and forests.

Widespread collections from Kings Co. and Halifax northeastward.

Ranges from NS to MB; BC; variously south to CA and GA. Absent from the prairies and arid plains. Introduced.

***Symphyotrichum novi-belgii* (L.) Nesom  
(= *A. novi-belgii* L.)  
New York Aster**



*Photos by Sean Blaney*

This is a stout foliose plant, freely branching and upwards to 1m. Leaves are variously lanceolate to elliptic, often narrowing at the base and clasping the stem. Their margins may be entire or serrate. Floral array is branching, to 30cm wide, the ray florets from blue to mauve or rose-coloured. They are showy and number 20–40. The involucre is 5–7mm high. One of our most common blue asters and highly





variable. Some of our material may belong to var. *elodes*. More study is required of this complex.

Flowers from July through September.

Fields, damp soils, seashores, saltmarshes, headlands and coastal turfs.

Common throughout.

Ranges from NF to QC, south to SC.

***Symphyotrichum parviceps* (Burgess) Nesom  
(=*Aster p.* (Burgess) Mack. And Bush.)**

A slender species from 30–80 cm tall. It bears linear leaves 10cm long. The floral array is diffuse, borne on bracteate peduncles. Ray florets are white, 12–15 surrounding a disk of 6–12 perfect florets. The involucre is barely 4mm tall.

Flowers in August and September.

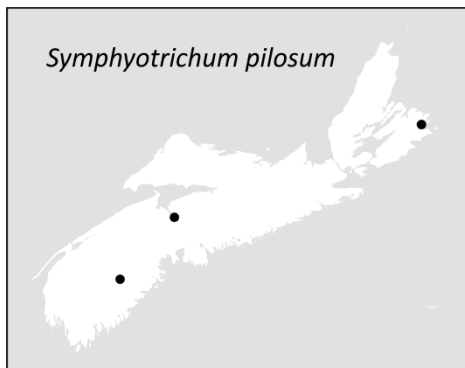
Grows in dry open soils, in fields and thickets.

Previously known from several acres west of Wentworth, Hants Co. Appears to be historic at this point.

Range is limited to IA to IL and OK; SC; introduced in to NS and ON.

***Symphyotrichum pilosum* (Willd.) Nesom  
(=*Aster pilosus* Willd.)**

**aster poilu**



Another freely-branching aster to 1m in height. The leaves are short and narrow, rigidly borne. Inflorescence bears many flower-heads on bracteate peduncles. The rays are white 15–25 of them surrounding a crowded disk. The involucre is 3.5–5mm high, the phyllaries have the apices involute and green.

Flowers during August and September.

Frequents old fields and meadows.

Collected from Windsor area and Cape Breton, with reports from Wedgeport, Yarmouth Co.

Ranges from NS to ON; BC, south to TX and FL. Introduced in Nova Scotia.

***Symphyotrichum puniceum* (L.) Nesom**  
**(= *Aster p.* L.)**  
**Rough Aster**



Photo by Martin Thomas



Photo by Sean Blaney

A coarse species, it may reach 2m in height. The stem is reddish, bearing clasping lanceolate leaves. The terminal portion of the plant is generally coarsely pubescent. The lax floral array is foliose and freely-branching, to 20cm across. The phyllaries are lanceolate, subtending 30–50 bright blue ray florets.

Flowers from late July to September.

Grows on wet sites: swamps, swales and streamsides.

Scattered to common eastward from Annapolis and Lunenburg counties.

Ranges from NF to BC and NT, variously south to TX and GA

Known hybrids with this and *S. cordifolius* have been called *S. x tardiflorus* (L.). It too is a tall plant, with the leaves abruptly tapering to a clasping winged petiole. Known from Cumberland and Richmond counties in NS, and also NB and QC.

***Symphyotrichum tradescanti* (L.) Nesom**

(=*Aster t.* L.)

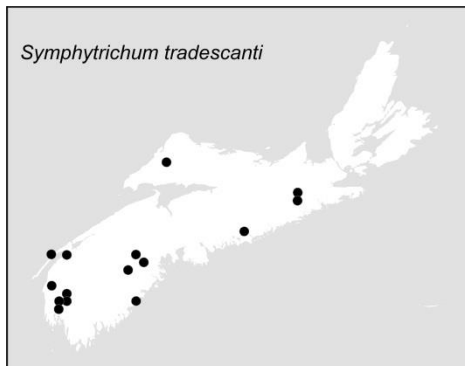
aster de Tradescant



Photo by David Mazerolle



Photo by Sean Blaney



A small and slender species it arises from creeping rhizomes, its simple stems rarely exceed 40cm. The leaves are narrowly lanceolate. The floral array comprises short foliose branches or solitary flower-heads in the axils. Rays 15–20 and nearly white, are subtended by a small involucre 4mm tall.

Flowers during August and September.

Grows on gravelly shoreline sands of lakes and streams.

Scattered in southwestern counties to Cape Breton Co.

Ranges from NF to QC, south to NJ.

***Symphyotrichum undulatum* (L.) Nesom**

(=*Aster undulatus* L.)

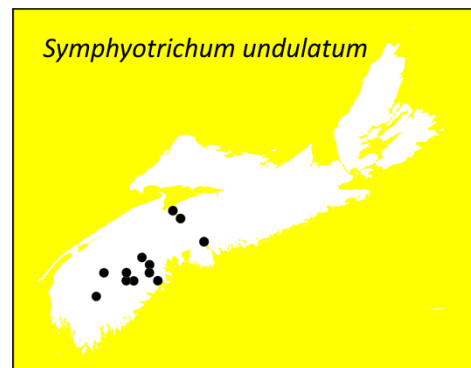
aster ondulé



Photo by Sean Blaney



Photo by Sean Blaney



A robust aster, it reaches 1m in height. Its leaves are cordate at the base with clasping winged petioles. Upper leaves are sessile and ovate in outline. The upper leaf surfaces are minutely puberulent. The floral array is much-branched and widely divergent. The flower-heads are subtended by an involucre about 4mm high, the phyllaries green and acute. Rays are few, pale violet and from 5–8mm long.

Flowers during August and September.

An aster of edges of fields and forests.

Scattered about Lunenburg Co., Queens, Hants, Kings and Halifax counties.

Ranges from NS;ON, ME south to FL and LA.



## ***Tanacetum* L.**

These perennials include 70 plus widespread temperate species of the northern hemisphere. Resembling daisies, they differ in being aromatic. Disk florets have five teeth. The achenes are five-angled. The leaves are sharply toothed and pinnately lobed.

### Key to species

Flower heads discoid; corollas yellow.

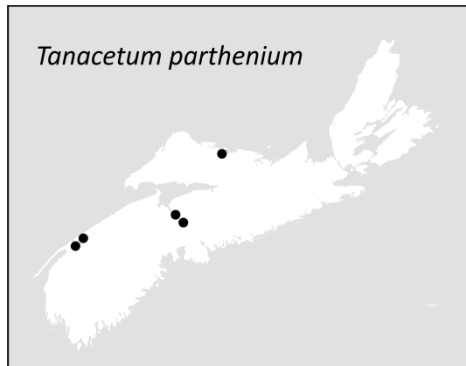
*Tanacetum vulgare*

Flower-heads radiate; ray corollas white.

*T. parthenium*

***Tanacetum parthenium* (L.) Schultz- Bip.  
(=*Chrysanthemum parthenium* (L.) Bernh.)**

**Feverfew; chrysanthème matricaire**



Freely branching and reaching 60cm, feverfew bears coarse pinnately lobed leaves, whose margins are also deeply toothed. The foliose array is lax, comprising many flower-heads. The yellow disks are less than 1cm across, surrounded by 10–20 white rays, 4–8mm long.

Flowers July to October.

Frequents fallow soils around gardens and dwellings.



Scattered from Annapolis and Digby to the Northumberland shore.

Ranges from NS to MB south to MS and AL; BC to CO and CA. Introduced here from Europe.

Photo by Pierre M Taschereau

### ***Tanacetum vulgare* L.**

#### **Tansy; taniaisie vulgare**



Photo by Martin Thomas



Photo by Martin Thomas

Strongly aromatic this perennial arises from a stout caudex. Cespitose, it reaches 40–150cm tall. The flower-heads are discoid and buttonlike, numerous. They are yellow and measure 6–10mm wide. Leaves are finely pinnate.

Flowers during midsummer.

Roadsides, fields, orchards and elsewhere in fertile soils.

Scattered throughout Nova Scotia.

Now ranges from NF to AK, south to CA, NM, LA and VA, after its introduction from Europe.

An Acadian medicinal plant.

### ***Taraxacum* Wiggers**

#### **dandelions**

Dandelions include 60 temperate species in the northern hemisphere. Two are found in Nova Scotia and probably are the most recognized of all our wild flora. Flower-heads are ligulate and all are perfect. The involucre comprises two series of phyllaries, the outer shorter than the inner and reflexed at maturity. The achenes are tubular, and marked by 4–5 angles. The filiform bristles of the pappus are white. The stem is simple, hollow and produces a sticky latex, arising from the basal rosette of leaves, each of which is deeply lobed.

Key to species

Inner phyllaries with an appendage near the tips;

*Taraxacum laevigatum*



achenes reddish or purple at maturity.

Inner phyllaries without appendages; achenes brown or tawny at maturity.

*T. officinale*

***Taraxacum erythrospermum* Andrzej.**

**(=*T. laevigatum* (Willd.) DC)**

**Red-seed Dandelion; pissenlit à graines rouges**



Photo by Martin Thomas

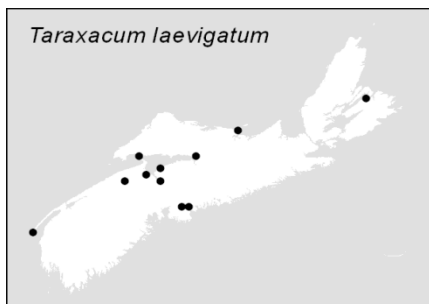
Easiest to confirm its identity when mature, this dandelion is less frequent. The achenes are rugose and reddish, with a stramineous beak, extending half their length.

Flowers late May through June.

Dry soils as found on turfy hillsides, pastures, recent clearings and open forest. Less aggressive than the next species.

Scattered throughout the province and common in the Annapolis Valley.

Ranges throughout most of North America. Introduced from Europe.



***Taraxacum officinale* Weber**  
**Dandelion; pissenlit officinal**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

The bright-yellow flower-heads are borne single atop a scape. The involucre reaches 2.5cm tall, and is formed of two series of phyllaries. The inner series is erect, while those in the outer series are reflexed. The achenes are greenish brown with tubercles at the summit.

The irregularly pinnate leaves show great variety in size and shape. Numerous named varieties reflect this, although our collections do not show this.

Flowers from May through July.

Can be an aggressive weed in lawns, pastures and even cultivated fields. Difficult to eradicate, due to vegetative spread via root fragments.

Common throughout.

Throughout the continent and now cosmopolitan.

***Tragopogon* L.**  
**goat's-beards**

Herbaceous plants, the 50 species included here are centred in Europe and North Africa. The species occurring in Nova Scotia are introductions. Typically the leaves are alternate, linear and clasping; their margins are entire. The ligulate flower-heads are carried singly at the ends of the branches. All florets are perfect. The involucre is campanulate or tubular with the phyllaries arranged in a single series. Receptacles are naked of chaff. Achenes are linear and may be round or angled in cross-section and sometimes beaked. Pappi are composed of a single series of bristles.

Key to species

A. Rays purple.

*Tragopogon porrifolius*

aa. Rays yellow.

B

B. Peduncles swollen and hollow above; phyllaries longer than the ray florets.

*T. dubius*

bb. Peduncles not swollen in flower, barely so in fruit;  
phyllaries not exceeding the rays in length.

*T. lamottei*

***Tragopogon dubius* Scop.**

**Western Salsify; salsifis majeur**



*Photo by Sean Blaney*

This perennial species is smooth with hollow peduncles, even in flower. The phyllaries measures 5–7mm in height, exceeding the length of the rays. Achenes are also slightly longer, at 2.5–3.5mm.

Flowers during July and August.

Disturbed soils as on roadsides and fallow fields.

Collected only from Sydney.

Absent in North America only from the extreme southeast.

***Tragopogon pratensis* L.**

**(=*Tragopogon lamottei* Rouy)**

**Goat's-beard; salsifis des prés**



A common and conspicuous plant in flower, with its large globular flower-head and ample pappus. The involucre comprises several phyllaries 2–3cm long. Achenes bear long beaks and are nearly 2.5cm in length.

Flowers from June through August.

Frequents turf and meadows, fallow soils.

Scattered throughout, although less frequent on the northern plateau of Cape Breton.

Found across Canada and variously south to CA, OK and GA.

*Photo by Sean Blaney*



*Photo by Martin Thomas*

***Tragopogon porrifolius* L.**

**Purple Salsify; Oyster Plant; salsifis cultivé**

A cultivated species with bronze or purple rays, it reaches only 60cm in height. The phyllaries are longer than the rays.

Flowers from July to September.

A cultivated species grown for the flowers, edible tubers and as an herbal medicine. Escaping to nearby fields.

Reported from the ridge above Grand Pré. No collections to date.

Ranges from NS to MB; BC, variously south to CA, TX and GA.

***Tripleurospermum* Schultz-Bip.**

A genus of about 38 herbaceous annuals and perennials resembling daisies. Formerly included with *Matricaria*, they are now separated on the characters of the fruit. Achenes have three midribs and a pair of resinous glands at the base. The leaves are alternate and deeply incised, with 1–3 pairs of leaflets split almost to the midrib. Flower-heads are radiate, at least in our single species.

***Tripleurospermum maritimum* (L.) WDJ Koch**

**Seaside Mayweed; Scentless Mayweed; matricaire maritime**



*Photo by Sean Blaney*

A common succulent herb, this species resembles our Ox-eye Daisy. The finely dissected leaves are rather fleshy. Flower-heads are borne singly terminal on the branches of the floral array. The receptacles are hemispheric. Ray florets are white; disks are yellow. The plants are scentless unless crushed, when they exude a very faint chamomile scent.

Flowers from June to August.

Seashores, roadsides and about wharves.

Common around the coast. Infrequently seen in urban waste ground.

NF to AK, south to OH and NJ; west coast. Introduced from Europe.

***Tussilago* L.**

**Coltsfoot**

A monotypic genus, originating from the Eurasian continent, Coltsfoot is now naturalized in Canada and the US and is invasive. A perennial species, it spreads by creeping rhizomes, sometimes forming large colonies. It is probably our first vascular plant to flower, often in March. Flower-heads yellow, borne singly at the top of scapes bearing imbricate scales, prior to the leaves appearing. Leaves appear after seed-set. They are alternate and nearly cordate, scalloped and dentate, with a white tomentum below.



***Tussilago farfara* L.**

**Coltsfoot; tussilage pas-d'âne**



*Photos by Ross Hall*



The scapes may reach 50cm tall, bearing pink scales and white pubescence. The yellow radiate flower-heads produce tubular seed-heads with copious shining white bristles. Leaves are cordate and dark green above, white woolly below.

Flowers as early as mid-March to early May.

Disturbed stony soils in ports and gravel bars, roadsides. Forms pure colonies. Invasive in rocky streams and streamsides.

Common throughout.

Ranges from NF to ON, south to TN and NC; BC and WA.



## ***Xanthium* L.**

### **cocklebur**

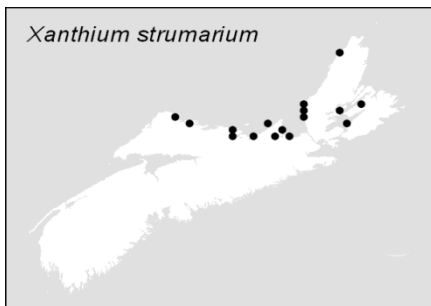
A small genus of only three species, the cockleburs are North and South American in range. Generally they have small flower-heads; the staminate and pistillate florets are separate on the same plant. Staminate florets are uppermost. The involucre is absent or vestigial. Pistillate flower-heads are split and the involucre encloses two florets forming an armed burr.

### ***Xanthium strumarium* L.**

#### **Cocklebur; lampourde glouteron**



*Photo by Sean Blaney*



This plant is prostrate to ascending, reaching 60cm in height. The large coarse leaves may reach 12cm in width, irregularly toothed or lobate. The pappus is absent. Burrs enclose the seeds. They are yellow to light brown and provide certain identification. At maturity they measure 2cm in length and are armed with hooked and toothed bristles. Ours is considered to belong to var. *canadense* (Mill.) Torr. & Gray.

Flowers during August and September.

Frequents sandy gravelly seashores, just above the salt water reach, and occasionally spreading into nearby fields.

Most frequent along the Northumberland Strait, extending northward and into the Bras d'Or region. Also collected in Wolfville area.

Ranges from NS to BC, south to the Gulf of Mexico.  
Cosmopolitan.

## **Balsaminaceae**

### **touch-me-not-family**

Two genera are included in this small family of succulent herbs. Leaves are simple, lobed or toothed, with pinnate veins. The irregular flowers are perfect and twisted, so that they are pendulous. Sepals are three, the lowermost pouch-shaped and reflexed to form a spur, containing a nectary. The irregular

corolla is made up of five fused petals. The uppermost is distinct, while the lower is lobed. Five stamens unite to form a cap over the ovary, of 4–5 carpels. Fruit is an explosive dehiscent capsule or a drupe.

## ***Impatiens* L.**

### **touch-me-nots**

There are about 450 species of *Impatiens*, mostly tropical and found in Africa or Asia. Ours has the calyx and corolla, three-merous. The calyx has two vestigial sepals above, the lowermost modified into an enclosed pouch, opening forward and extending beyond the corolla to the rear. The corolla is seemingly made up of three petals —two lateral petals, each bilobed and an upper petal, wider than long. Fruits are explosive capsules, splitting along the sutures to reveal five valves.

#### Key to species

A. Leaves opposite or whorled.

*Impatiens glandulifera*

aa. Leaves alternate.

B

B. Flowers orange-yellow; spur curving forward.

*I. capensis*

bb. Flowers pale yellow; spur spreading 90 degrees or straight but not recurved.

C

C. Nectary spur spreading to form 90 degree angle.

*I. pallida*

cc. Nectary spur straight.

*I. parviflora*

## ***Impatiens capensis* Meerb.**

### **Spotted Touch-me-not; Jewelweed; impatiente du Cap**



Photo by Marian Munro

Leaves are alternate and widely lanceolate, their margins toothed. Flowers are orange with distinctive reddish spots. The nectary may extend 8mm and is strongly recurved.

Flowers July and August.

Grows in moist shady soil, streamside or along ditches, in thickets. Usually in alluvial soil with lots of leaf mould.



*Photo by Martin Thomas*

Common throughout.

Ranges across Canada south to OR, TX and FL.

***Impatiens glandulifera* Royle**  
**Impatiente glanduleuse**



*Photo by David Mazerolle*

A tall coarser species than our native ones, this plant is a showy garden escape. The nearly-sessile lanceolate leaves are arranged in whorls. Margins serrate and the apices are long-acuminate. Flowers are quite large, pink to purple, with bluish spots. They are arranged in racemes on long peduncles.

Flowers during August and September.

Fallow soils and roadside thickets.

Scattered from Brier Island to Halifax and Pictou counties. An introduced species, with a tendency to be invasive.

NS to MB, south to NY in the east;; BC to MT and southward in the west.



*Photo by Sean Blaney*

***Impatiens pallida* Nutt.**

**Pale Touch-me-not; impatiente pâle**



Photo by Marian Munro

A smooth plant with broadly ovate leaves, their margins are sharply toothed. Flowers are pale yellow and without spots. The nectary spurs diverge at a ninety degree angle from the corolla. The brownish red spur is only 5mm long.

Flowers during July and August.

Alluvial soils as along intervals and in thickets.

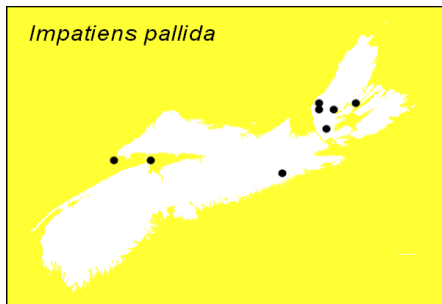
Uncommon from Kings Co., Isle Haute, to northern Cape Breton and more frequent eastward.

NF to ON, south to OK and GA.

STATUS: YELLOW-listed in NS.



Photo by Sean Blaney (*I. pallida* & *I. capensis*)



***Impatiens parviflora* DC**

**Small-flowered Garden Touch-me-not; impatiente à petites fleurs**

Resembling the Pale Touch-me-not, but it has the nectary spur straight, not diverging.

Flowers from July to September.

Escape from cultivation, tending to be found near old gardens.

Wolfville.

NS to QC; BC. Introduced from Eurasia.

## Berberidaceae

### Barberry Family

Mostly Asian in distribution, this family is closely allied with the buttercups. Of the 650 species in 13 genera, NS has only three genera and four species.

Perfect flowers are regular in form and hypogynous. Sepals 4–6 and sometimes petaloid, they are usually deciduous. Petals when present are half as many or equal to the number of stamens. Both shrubs and herbs are found here, the woody species have alternate leaves and simple thorns. Fruits are berries in all species.

#### Key to genera

- A. Shrubs with spines; berries red. *Berberis*
- aa. Perennial herbs; berries blue or yellow. B
- B. Leaves in a terminal whorl, deeply cleft and radially lobed; flowers solitary, white; to 5cm across; fruit 4–5cm long; yellowish. *Podophyllum*
- bb. Leaves 2–3 times ternate; terminal leaflets trilobed; flowers several, greenish purple, <1cm wide; fruit blue. *Caulophyllum*

### ***Berberis* L**

#### Barberries

Barberries are shrubs, with simple thorns arising from the leaf nodes. Bark is yellow. Inflorescence an umbel or raceme; flowers yellow. Petals and stamens are six-merous, arranged around a single pistil.

#### Key to species

- A. Thorns solitary; berries clustered; leaves entire. *Berberis thunbergii*
- aa. Thorns in threes; berries in pendent racemes; leaves sharply toothed. *B. vulgaris*



***Berberis thunbergii* DC**

**Japanese Barberry; épine-vinette du Japon**



*Photo by Sean Blaney*

A thorny shrub, it has small obovate leaves. Their margins are entire.

Flowers early, April and May.

Formerly planted as an ornamental and still seen as an escape. Spreading from cultivation to pastures, forest edges and other open land.

Collected around the coast from Halifax to Wolfville and also at Cape Split.

Introduced from Japan and found throughout the continent.



*Photo by Alain Belliveau*

***Berberis vulgaris* L.**

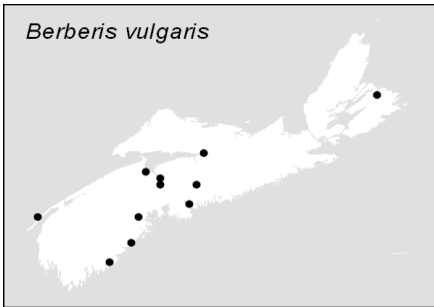
**Common Barberry; épine-vinette commune**



*Photo by Martin Thomas*

Branches are heavily armed with short thorns, three per node. This shrub has thick oval leaves which are sharply toothed. Racemes hang on pedicels from the leaf nodes. Fruits about 1cm in length.

Flowers May and June.



*Berberis vulgaris*

Thickets and fields.

Collections mostly from west of Halifax and Truro. It is also found at Sydney, Cape Breton.

Another widely introduced species, although not often planted anymore.

## ***Caulophyllum* Michx.**

### **Blue Cohosh**

Only two species comprise this genus, the other is limited to Asia. Flowers emerge from bare stems very early spring simultaneously with leaf-out. Leaves are compound: leaflets three, lobed in threes. Sepals, petals and stamens are six-merous. The single ovary produces two seeds. Seeds are large and fleshy-coated, resembling fruits, glaucous-green becoming blue at maturity. Although the leaves resemble those of *Thalictrum* or *Aquilegia*, *Caulophyllum* is generally glaucous, while the others are not.

## ***Caulophyllum thalictroides* (L.) Michx.**

### **Blue Cohosh; caulophylle faux-pigamon**



Photo by Sean Blaney

Flowers are purplish-brown forming fruit that quickly turning blue. Peduncle bears a single sessile. Inflorescence may be subtended by a smaller leaf. Entire plant appears glaucous or bluish-green.

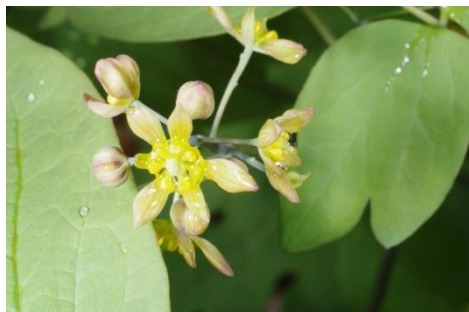
One of our earliest wildflowers, appearing in April, until beginning of June.

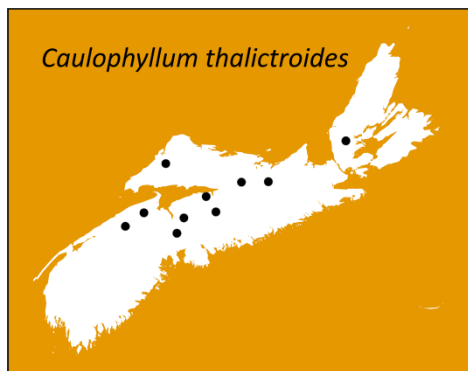
Shade-tolerant, restricted to river floodplain deciduous forests.

A wide and patchy distribution over northern portion of the province from Annapolis River to River Denys in Cape Breton.

NS to MB, south to OK, AL and GA.

STATUS: ORANGE-listed for NS.





### ***Podophyllum* L.**

#### **May-apple, Mandrake**

Ten species comprise the genus; all are poisonous. A single species has been occasionally collected in NS. Colonial, the plants have whorled leaves, which are radially divided. Peduncle bears a single pair of leaves. Flowers have 6 –9 petals, 12–18 stamens, the sessile stigma and ovary both solitary. Fruit is a berry with many seeds.

### ***Podophyllum peltatum* L.**

#### **May-apple, Mandrake; podophylle pelté**



*Photo by Beth Cameron*

The large basal leaves may be up to 40cm across. Cauline leaves are usually smaller. Berry is large with rows of seeds. Forms large colonies of robust plants and once established, can rapidly spread.

Flowers in early June.

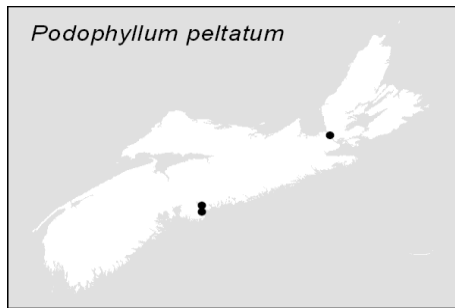
Forests, thickets, fields and pastures.



Reports of localities are not borne up by collections, which include Halifax, Sydney River area and Mulgrave or Port Hawkesbury. With no recent reports, this species may well be extirpated or at best considered as historical occurrences.

Elsewhere NS to ON, south to FL and TX. Introduced to NS.

Photo by Beth Cameron



## Betulaceae

### Birch Family

Betulaceae is a family of trees and shrubs included in six genera; four of which contain species native to Nova Scotia. Mostly ranging throughout the northern hemisphere, 120 species are found worldwide, generally in temperate climates. Flowers are unisexual; species are monoecious. Staminate catkins are pendulous; pistillate catkins are erect or pendulous, usually firm and often woody. Petals are lacking; sepals tend to be tiny. Fruit is a samara or a nut with a single seed. Leaves are simple, alternate and mostly serrate. Venation is straight and pinnate.

#### Key to species

- |   |                |
|---|----------------|
| A. Bark of older twigs and trunk without lenticels; fruit not winged, enclosed in an involucre.   | B              |
| B. Shrub, wiry with creeping stems; mature fruits 1–2 nuts, 1cm thick, the involucre long-beaked, bristly when immature; leaves with 5–8 pairs of veins, doubly serrate; winter buds velutinous, ovate. | <i>Corylus</i> |
| bb. Small tree; nutlets enclosed in a loose sac; leaves with 9 or more pairs of veins, merely serrate; winter buds dark brown.  | <i>Ostrya</i>  |
| aa. Bark of twigs with elongated lenticels; fruit small, exposed in the axils of the scales, winged.  | C              |
| C. Scales of pistillate catkins, thin and papery, deciduous, usually 3 lobed; bark of mature specimens white to yellowish, often peeling; stamens 2; fruit a tiny samara, with thin wings.              | <i>Betula</i>  |
| cc. Scales of pistillate catkins woody, 3–5 lobed at the tip, persistent; bark not white nor yellowish, never peeling; stamens 4; tiny nuts with thick wings.   | <i>Alnus</i>   |

## ***Alnus* Miller**

### **alder**

Three of 30 species of alders are found in NS. They are very common shrubs especially in wet fertile zones, where drainage is imperfect. As pioneer species, they colonize fallow fields during early succession.

Pendulous, staminate catkins flower in early spring. Pistillate cones are erect, becoming woody and persisting, unlike the birch catkins.

#### Key to species

- A. Buds sessile; leaves with 6–8 pairs of main veins; pistillate catkins enclosed in the bud during the winter, opening the following summer. *Alnus viridis*
- aa. Buds stalked; leaves with 8–11 pairs of veins; pistillate catkins exposed over winter, opening on old growth later. B
  - B. Leaves round or cordate at the base, doubly serrate; mature leaves glaucous below and with prominent cross-veins between the main veins. *A. incana*
  - bb. Leaves wedge-shaped at the base, or only slightly rounded, almost evenly serrate, greenish below at maturity and finely reticulated with only weak cross-veins. *A. serrulata*

*Alnus glutinosa* (L.) Gaertn. has been introduced in Yarmouth. It is reported to be escaping around Dennis Pond there, and in the gardens at Acadia University. To date no further records have been received of this European species in NS. The leaves of this species are fan-shaped in outline, each vein ends in a tooth. The apices are retuse.

### ***Alnus incana* (L.) Moench**

#### **Speckled Alder; aulne rugueux**



Photo by David Mazerolle (staminate)

Highly variable in terms of pubescence, make it easier to use flower and bud characters to separate it from Downy Alder. Both new buds and the staminate catkins are pedicellate in this species. Additionally the leaf venation is more profuse here than in the other species. Our subspecies is separated from the typical subspecies which is strictly European, as ssp. *rugosa* (DuRoi) Clausen. Var. *americana* (Regel) Fern. is no longer recognized.



Staminate catkins flower from March until May, earlier than in the Downy Alder.

On low-lying ground in alluvial soils.

Common throughout NS.

NS to MB, south to IL and PA.

***Alnus serrulata* (Ait.) Willd.**  
**aulne tendre**



Photo by David Mazerolle

Leaves are obovate, unlike the other two common species. The buds are on short petioles.

Flowers appear from February to May throughout its range. No phenology data exists for NS material.

Lakeshores. Uncommon and local in southwestern NS from Lunenburg Co.

NS to QC, south to FL and TX.

STATUS: YELLOW-listed in NS.

Forms hybrids in the southwest with *A. incana*. These have intermediate abaxial venation of the leaves, to the parent species.



Photo by Sean Blaney

***Alnus viridis* (Villars) Lam.**

**Downy Alder; aulne crispé**



Photo by David Mazerolle

Tall shrubs, they have ovate to elliptic leaves which are finely serrate on the margins. New buds in the leaf axils are sessile. Catkins are carried on the terminal ends of the branches. Staminate catkins are long and pendulous while the pistillate catkins are ovate or globose, remaining enclosed until spring. Ours are placed in the ssp. *crispa* (Ait.) Turrill separate from the European ssp. *viridis*.

Flowers from June to August.

Grows best on imperfectly drained soils of coastal headlands, seashores and barrens. On heavier soils in abandoned pastures.

Common throughout.

NF to AK, south to BC, WI and PA; disjunct in NC and TN; Eurasia.

***Betula* L.**

**Birches**

Extensive hybridization amongst these north-temperate species makes it difficult to assign an exact number of species. There are approximately 50 species; seven species in three groupings extend their range to NS. We have Yellow Birch, White Birch and its relatives and the shrubby dwarf birches.

The trees are marked by long horizontal lenticels, noticeably different in colour from the bark. Birch bark is thin and papery becoming rough and leathery with age. Young branches are marked by spurs; the terminal bud is absent. Leaves are alternate and simple, with serrate margins. Staminate catkins are tassel-like appearing with the pistillate flowers in spring. Fruits are conelike with trilobed scales enclosing the tiny samaras, which are released later in spring.

**Key to species**

A. Leaves with 9–11 pairs of veins; pistillate catkins ovate and sessile; bracts persistent; bark yellowish.

*Betula alleghaniensis*

- aa. Leaves with 7 or fewer pairs of veins; pistillate catkins cylindrical, stalked; bracts quickly deciduous; bark not yellow. B
- B. Erect trees; leaves mostly > 5 cm, acuminate. C
- C. Bark chalky, ashy or grey, not flaking off in layers; twigs slender and wiry; staminate catkins carried singly; pistillate catkins 1.3–3cm; leaves long-acuminate. *B. populifolia*
- cc. Bark silky or lustrous, white to cream to pinkish, flaking in layers; staminate catkins >1 per cluster; pistillate catkins 3–6.5cm long; leaves acuminate. *B. papyrifera*
- bb. Shrubs, dwarfed; bark dark and tight; leaves round or ovate, < 3cm long. D
- D. Leaves fan-shaped, sessile; nutlets wingless; shrubs < 1m tall. *B. michauxii*
- dd. Leaves globose or elliptical on sort petioles; nutlets winged; 1–4m tall. E
- E. Twigs and young leaves with resin glands; leaves green upper and lower surfaces. *B. glandulosa*
- ee. Twigs and young leaves without resin glands; leaves whitish on the lower surfaces. *B. pumila*

***Betula alleghaniensis* Britt.**

**Yellow Birch; bouleau jaune; mnnoqon**



*Photo by Sean Blaney*

Leaves are ovate or oblong, sharply pointed at the summit and with serrate margins. Petiolate, the petioles are puberulent. Pistillate catkins are ovate, 2–3cm in length. Twigs are shiny brown, and have a wintergreen scent when broken.

Flowers in May and June.

Often dominant in riparian areas, but tolerant of a variety of



*Photo by Alain Belliveau*

soils, from moist lowlands to dryer slopes.

Scattered throughout southwestern counties. Common to prevalent in the deciduous forests eastward. In Cape Breton, found at higher elevations (330m) than Sugar Maple.

Elsewhere ranges from NF to ON south to GA.



*Photo by Sean Blaney*

***Betula glandulosa* Michx.**

**Dwarf Birch; bouleau granduleux**



*Photo by Sean Blaney*

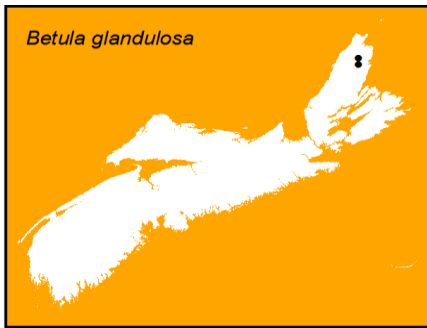
A dwarf species, it is larger than the following species, but less than 4m in height. Petiolate leaves are a shiny green. Twigs are covered by sessile glands.

Flowers from June to August.

Favours acidic soils in arctic conditions.

Higher elevations in northern Cape Breton. So far known





only from the margin of Twin Island Lake (Two Island Lake) in the Ingonish Barrens, at 500m.

Ranges across the continent south to the mountains of CA, CO and NY.

STATUS: ORANGE-listed for NS.

### ***Betula michauxii* Spach**

#### **Dwarf Birch; bouleaux de Michaux**



*Photo by Sean Blaney*

A dwarf species, it has small sessile leaves clustered on the stems. Leaves are fan-shaped and scalloped at the summit, rarely exceeding 1cm in length. Plants form neat rounded colonies where competition from taller shrubs is low.

Later flowering than many, in July and August.

Limited to peat bogs.

Scattered localities from Brier Island, Digby Co., east to Guysborough, Cape Breton and Inverness counties.

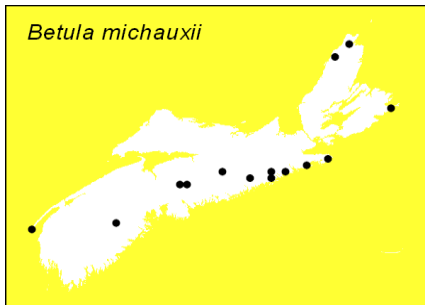
NF, NS and QC.

STATUS: YELLOW-listed. Of conservation concern.



*Photo by Sean Blaney*





***Betula papyrifera* Marshall**

**Paper Birch; bouleau à papier; masgwi**



*Photo by Sean Blaney*

Easy to identify on the basis of its peeling white papery bark when mature, but with variable leaves, bark and catkins. Generally the serrate leaves are ovate, tapering to a petiole. Historically three varieties were recognized as present in NS, var. *pensilis* Fern., var. *macrostachya* and var. *commutata* (Regel) Fern. These are now included in the typical variety.

*Betula cordifolia* is now considered to be a variety, as var. *cordifolia* (Regel.) Fern. The leaves are heart-shaped in outline abruptly tapering to a point.

Successional forests, especially on slopes. Frequent after fires and other disturbances, but a pretty short-lived tree.

Common throughout NS.

NL to AK, south to OR, CO and NC.

***Betula populifolia* Marshall**

**Wire Birch; Gray Birch; bouleau gris**



A small tree, it has doubly serrate leaves, tapering to a long, narrow point. Generally it is smaller than *B. papyrifera*. Its bark does not peel nor flake. Catkins are short, erect, ovate or cylindrical and borne on short pedicels. Staminate catkins are carried singly.

Flowers mid-April and May.

Photo by Marian Munro

Found on light soils as in pastures and barrens. Considered to be an early-successional species, especially after fires.

Very common in western and central NS, less frequent eastward. Only a few Cape Breton collections.

NS to ON, south to IL and NC.

***Betula pumila* L.**

**Bog Birch**



Photo by David Mazerolle

A shrub its small, alternate leaves are borne on very short petioles. Nearly ovate or round and serrate, they may even be clustered. Pistillate catkins are 1–2cm long.

Other than the typical variety, two varieties are retained. Var. *renifolia* Fern., unlike the typical variety, is prostrate with round leaves, subtended by persistent white pubescence. It is found at higher altitudes than var. *pumila*. Also, var. *glandulifera* Regel is a form with larger villous leaves and is known from similar habitats.

Flowers in May and June.

Bogs and meadows amongst alders.

In NS limited to the northern plateau of Inverness and



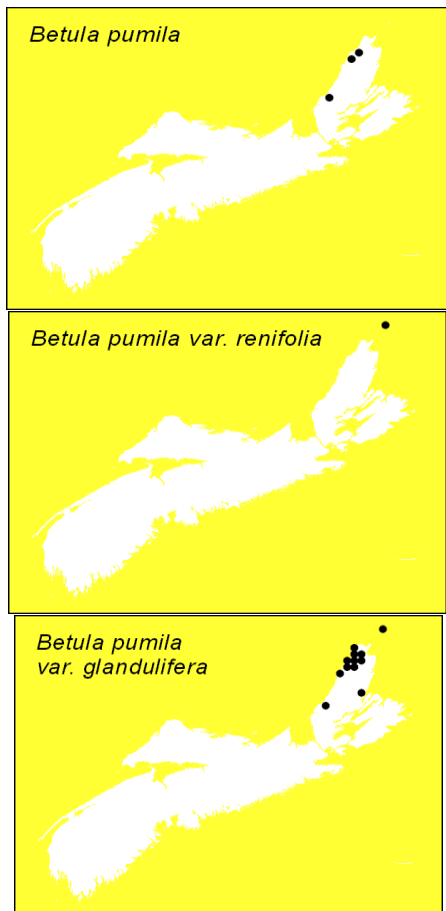
Photo by Sean Blaney

Victoria Counties. Recently found at Black River, Inverness Co., its southernmost locality in NS.

NL to AK, south to CA, KS, IL and NJ.

Several European species have been collected or reported from the province. These are probably not persisting in the wild so are not at this time considered introductions.

Hybrid birches reported from NS include *B X minor* (*B. glandulosa X papyrifera*) and *B. X dutillyi* Lepage *B. glandulosa X saxophila*). The latter has been collected from Twin Island Lake. Little study has been conducted on our birches in recent years.



## ***Corylus* L**

### **Hazelnut**

At least 10 species comprise this genus; only one is native to Nova Scotia. A tall shrub, its wiry branches bear distinctive green bristly fruits, often basally joined in pairs. Staminate catkins emerge in fall although anthesis is delayed until spring. Nuts are edible, but covered in a hard shell. Several European species are grown commercially.

#### ***Corylus cornuta* Marshall**

#### **Hazelnut; Beaked Hazelnut**



*Photo by Marian Munro*

Leaves are ovate or oblong, slightly cordate or round at the base and short-petiolate. Margins are doubly serrate, short-acuminate. Nut is ovate, bearing a long-beaked involucre, that is lobed at the tip.

Flowers early, in April and May.

Understory shrub of dry forests with open canopies, or successional or climax forests.

Found throughout the province, except in southwestern counties.

NF to BC, south to CA, WY, AL and GA.



*Photo by Sean Blaney*

## ***Ostrya* Scop.**

### **Ironwood**

Ten species comprise the genus; a single tree species reaches NS. Notably tough and wiry, the young twigs are reddish brown, often shiny. Serrate leaves are velutinous on the undersurface, easily distinguishing them from the birches. Staminate catkins appear in autumn, anthesis is delayed until spring. Pistillate catkins appear with the leaves. Fruit matures in fall, enclosed in a brittle papery sac, borne in pendulous clusters.

### ***Ostrya virginiana* (Miller) K. Koch**

#### **Ironwood; Hop-hornbeam; ostryer de Virginie**



*Photo by Sean Blaney*



Mature height approaches 20m. Its leaves are ovate, finely serrate on the margins and slightly cordate at the base. The pistillate catkins are several cm long, made up of numerous papery sacs containing the seeds. They are densely villous at the bases.

Early flowering, April to May.

In rich alluvial soils on intervals from the basaltic scree of the North Mountain to deciduous intervals.

Scattered from Annapolis County to Cape Breton. Generally uncommon in acidic regions of the Atlantic coast and southwestern parts of the province.

NS to MB, south to WY, TX and FL

*Photo by Martin Thomas*

## **Boraginaceae**

### **borage family**

A family of mostly herbaceous plants, there are about 2000 worldwide. Some are cultivated as ornamentals and others have had herbal significance historically. Most have simple alternate leaves and the plants are generally hirsute. Inflorescence is often circinate. Flowers are perfect and five-merous. Petals join to form a corolla tube; the sepals are distinct or merely joined. Corolla is tubular or salverform, and often has fornicies in the throat. Stamens alternate with the lobes. Ovary is superior, divided into two carpels, each with two locules. Fruits are usually of 1–4 nutlets.



# Key to the genera

A. Corolla tube absent; anthers large and conspicuous, dorsal appendage prominent.	<i>Borago</i>
aa. Corolla tube well-developed; anthers inserted, dorsal appendage absent.	B
B. Corolla irregular, lobes unequal.	C
C. Stamens exerted; corolla not constricted at the throat.	<i>Echium</i>
cc. Stamens inserted; corolla constricted at the throat.	<i>Anchusa</i>
bb. Corolla regular, limbs similar.	D
D. Corolla tubular or campanulate; lobes erect or ascending.	E
E. Calyces and pedicels glabrous or puberulent, the hairs appressed; plants glaucous; prostrate on coastal beaches.	<i>Mertensia</i>
ee. Calyces and pedicels bristly; not glaucous; plants erect, not coastal.	<i>Symphytum</i>
dd. Corolla salverform or funnelform.	F
F. Nutlets prickly and visible before ripening.	G
G. Plants annual; flowers bracted.	<i>Lappula</i>
gg. Plants biennial; flowers not bracted.	<i>Cynoglossum</i>
ff. Nutlets glarous or hirsute, but not prickly.	H
H. Flowers blue.	<i>Anchusa</i>
hh. Flowers blue, white, pink or yellowish.	I
I. Flowers yellow; weed with limited distribution.	<i>Buglossoides</i>
ii. Flowers pink to blue; widespread and generally appearing native.	<i>Myosotis</i>

## ***Anchusa* L.**

Native to Eurasia, there are about 40 species described. One has occasionally been inadvertently introduced to NS. Plants are usually hirsute and leafy, bearing blue flowers in a terminal circinate inflorescence. Corolla tube is about equal in length as the lobes and the throat is not well-defined. Base of the fruits fit into pits on the receptacle.

***Anchusa arvensis* (L.) M. Bieb.**

**Small Bugloss; lycopside des champs**

An annual species, this bugloss is hispid. Leaves are narrowly oblong and sometimes toothed. The corolla tube ranges 4–7mm long, with a distinct curve. Lobes equal in length to each other.

Dry and sandy soils.

Rarely seen. Reported historically from Pictou. Collected recently from White Rock, Kings Co. from below a bird feeder.

Found from NS west to BC, south to CA and NC. Adventive from Europe.

***Borago* L.**

**borage**

Native to the Eurasian continent, of the three species, one is an occasional escape in Nova Scotia. Tall in stature, it bears broad hispid leaves along its stem. The blue flowers are borne in cymes, their corollas are ornamented with distinctive fornicies and elongated lobes. Another appendage is formed by the filaments. In fruit the long pedicels are reflexed.

***Borago officinalis* L.**

**Borage; bourrache officinale**

A hispid species, it also has a sprawling growth habit. Its sessile leaves are obovate. The inflorescence is crowded with blue-violet flowers subtended by leafy bracts.

Flowers July to September.

Waste ground and fallow soils.

A garden plant occasionally seen as an escape, but not often collected: Inverness County.

Ranges across Canada to AK, variously south to CA and TN. Introduced.

**Buglossoides L.**

A genus restricted to mountains of Eurasia and Africa, and historically introduced to Nova Scotia. These plants are covered in fine bristles or hairs. The stems are upright or sprawling, branched or unbranched, with simple ovate to lance-shaped leaves. The small funnellform flowers have flaring lobes and are

usually blue or white, arranged in a leafy cyme. Corollas are sometimes ornamented with fornices. Fruits are smooth or pitted, attached basally, the attachment persisting as a thickened ring.

***Buglossoides arvensis* (L) IM Johnst.**

**(=*Lithospermum arvense* L.)**

**Gromwell; grémil des champs**

A tall slender annual, producing solitary pale flowers from the axils in the upper portion. They are almost obscured by bracts. Lanceolate leaves are acuminate pointed. The entire plant is covered with a shining appressed pubescence.

Flowers early, April to June.

Waste ground, may have been introduced as a contaminant in livestock feed.

Scattered reports but collected only from Cambridge, Kings Co.

Known from NS; QC to MB; BC; southward.

***Cynoglossum* L.**

A worldwide genus of 80 species, they tend to be robust and pubescent herbs. Flowers are arranged in terminal or axillary raceme-like inflorescences, without subtending bracts. Corolla tube is short and constricted by the fornices. The stamens are inserted. Nutlets bear prickles.

Key to species

Perennial species; inflorescence a terminal raceme with glabrous axis; *Cynoglossum virginianum*  
nutlets without a margin.

Biennial species; inflorescence axillary or distal on the branches; nutlets with a raised margin. *C. officinale*

***Cynoglossum officinale* L.**

**Hound's Tongue; cynoglosse officinale**

A coarse unbranching species, it reaches 1.2m and plants are long-villous. Lowermost leaves are often 30cm long, reducing in size up the stem. Corollas are reddish purple, ornamented with protruding fornices. Nutlets form a pyramidal shape; they remain attached to the style upon dispersal.

Flowers May until July.

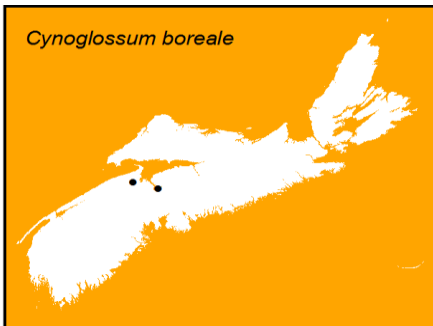
Usually in fields or edge habitat.

Historically reported although there are no collections. Introduced from Asia.

***Cynoglossum virginianum* L.**

**(=*C. boreale* Fernald)**

**Wild Comfrey**



Another coarse species, this one is also covered in bristly pubescence. Leaves are long-petiolate and lanceolate, decurrent. The tiny blue flowers are borne in circinate racemes, straightening as the flowers expand. Fruits are covered in hooked bristles.

Flowers May and June.

Associated with open beech forest on dry soils or gypsum, in forest or thickets.

A rarely encountered species: west of Kentville and around Windsor.

Ranges across Canada and south to SD, IN and NJ.

***Echium* L.**

A genus of 50 species, their native range limited to Eurasia. The single species reaching Nova Scotia is a biennial with brilliant blue flowers, borne in coiled cymes, each subtended by bracts. Corollas are irregular and funnelform, the upper side longer. Lobes are unequal in size and fornicies are absent. The style is exerted as are some of the stamens.

***Echium vulgare* L.**

**Blueweed; Viper's Bugloss; vipérine commune**



*Photo by Marian Munro*



*Photo by Sean Blaney*

Biennial in habit, this tall species is extremely bristly. The large bright-blue irregular flowers are quite showy, making this species a distinctive one. The inflorescence is made up of arching cymes. Flowers have the stamens exerted. Leaves are obovate and pointed distally.

Flowers from June through September.

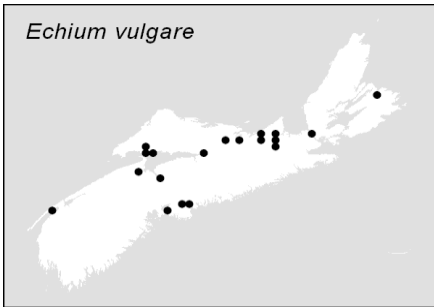
Weedy roadside and in fallow land, often in alkaline soil.

Local but abundant: Shearwater, Truro, New Glasgow, Antigonish and Parrsboro. Known from Digby Co. eastward.

Ranges from NF to AK, south to OR, TX and GA. Introduced from Europe.

Our material needs to be re-examined for inclusion in *Echium pustulatum* Sm. A new report of it needs to be verified. It was formerly included in *E. vulgare* as a variety.





## ***Lappula* Moench** **stickseed**

A small genus of the northern hemisphere; only one of 12 species has reached Nova Scotia, as an introduction. All of them are erect, annual herbs, usually hirsute. Corolla tube is about equal in length to the calyx and bears fornicies in the throat. Flowers are blue or white and arranged along a circinate raceme-like inflorescence. Bracts are present. Nutlets have several rows of bristles.

### ***Lappula squarrosa* (Retz.) Dumort** **Stickseed; bardanette épineuse**

A slender species pubescent with grey or white spreading hairs. The simple or branching stem is leafy. Vegetative rosettes are formed with upwards of 50 leaves imbricate in the bud. Mature leaves have a prominent midrib. Tiny blue flowers are crowded into 1–3 long slender racemes. Several flowers may arise in the upper leaf axils. Floral bracts to 1cm long and the calyx lobes to 3mm. Corolla is sympetalous, five-merous, ornamented with five yellow fornicies. Stamens inserted. Vegetative rosette bolts prior to the plant setting seed. Nutlets bear tiny hooked bristles.

Flowers June to September.

Frequents railbeds and roadsides, dry fallow soils.

Shelburne to Inverness Counties. Short-persistent.

Ranges from NF to AK, south to CA, TX and TN. Introduced from Eurasia.

## ***Mertensia* Roth**

### **bluebells**

About 35 species are known, spread across North America and Eurasia. Nova Scotia's single species is a prostrate coastal plant, with succulent leaves. The blue, pink or white flowers are funnelform or campanulate, carried in small cymes.

### ***Mertensia maritima* (L.) SF Gray**

#### **Sea Lungwort; Oyster Plant; *mertensie maritima***



*Photo by Sean Blaney*

These sprawling plants have strongly glaucous leaves, the uppermost which are sometimes sessile. They may be ovate or elliptic. The inflorescence is freely branching, crowded with pink or blue flowers, subtended by leafy bracts.

Flowers from mid-June to August.



*Photo by Martin Thomas*

Sandy, stony coastal beaches, dunes and shorelines above the high water level.

Common.

Ranges from Greenland to AK, south to New England.

## ***Myosotis* L.**

### **forget-me-nots**

Boreal and temperate, the genus includes about 50 species in total. Pale flowers, blue to pink or even yellow are arranged in terminal circinate cymes, generally leafless and without bracts. Corolla is funnel-shaped and exceeds the length of the calyx. The tube is constricted by small scales. Nutlets are smooth and shiny.

#### **Key to species**

A. Perennial, appearing native; calyx bearing straight appressed pubescence.

B

B. Corolla lobes 5–10mm wide; nutlets not exceeding the

*Myosotis scorpioides*

- style.
- bb. Corolla lobes <5mm wide; nutlets obviously exceeding the style height. *M. laxa*
- aa. Annual or biennial, escaped from cultivation; calyx hairs not appressed. C
- C. Corolla showy, lobes 5–8mm wide. *M. sylvatica*
- cc. Corolla not showy, lobes <5mm wide. D
- D. Fruiting pedicels exceeding the calyx tube. *M. arvensis*
- dd. Pedicels shorter than the calyx tube. E
- E. Inflorescence extending almost to the base of the plant; lower flowers scattered amongst the leaves. *M. stricta*
- ee. Inflorescence limited to the top half of the plant, without leaves. *M. discolor*

***Myosotis arvensis* (L.) Hill.**

**Rough Forget-me-not; myosotis des champs**



*Photo by Martin Thomas*

Noticeably pubescent, the plant is covered with stiff appressed hairs. The leaves are obovate. Flowers are pale blue and arranged along a long, slender arching inflorescence. Pedicels are longer than the calyx which is ornamented with hooked bristles.

Mid-May through June.

Grows in moist fertile soils.

Common throughout the Annapolis Valley and scattered throughout western counties. Cape Breton.

Ranges from NF to BC; south to OR, IL and SC. European introduction.

***Myosotis discolor* Pers.**

**myosotis versicolore**

Small and delicate, this species has the inflorescence occupying most of its height. A pair of leaves may subtend the flowering stalk, otherwise the leaves are sparse. Corolla is pale yellow, eventually changing to blue then violet.

Flowers early May and June.

Limited to dry soils as on hillsides.

Scattered on the Wolfville Ridge and along the Gaspereau River, Kings Co.

NS to ON, south to MS and GA; west coast. Introduced from Europe.

***Myosotis laxa* Lehm.**

**Small Forget-me-not; myosotis laxiflore**



*Photo by Martin Thomas*

A leafy species, the leaves are linear or oblanceolate but narrow. Small flowers are arranged in circinate racemes, sometimes branching and bearing 1–2 leaves at the base of the longest branch.

Flowers during June and July.

Tolerates wet, muddy sites such as streamsides, meadows and roadside ditches.

Very common throughout and our only native species.

Ranges from NF to ON, south to AL and GA; BC and the western states.

***Myosotis scorpioides* L.**

**Forget-me-not; Scorpion-grass; myosotis scorpiöide**



*Photo by Martin Thomas*

A tall species with reclining weak stems, it bears lanceolate leaves. Flowers are deep-blue, borne in a bractless inflorescence. Calyx pubescence is straight and not hooked.

Flowers early June to July.

Wet soils in mud.

Common throughout.

Ranges from NF to MB, south to GA; AK to CA and NM.  
Introduced from Europe.



*Photo by Sean Blaney*

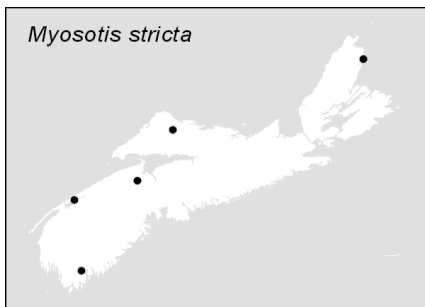


***Myosotis stricta* Link**

**Blue Scorpion-grass; myosotis à tiges dressées**



Photo by Sean Blaney



Considered to be an annual or winter-annual here, this species branches from the base where there is a tidy rosette of leaves. It may reach 20cm in height and is often lightly pubescent. Pedicels are erect or ascending, bearing light blue flowers.

Flowers from early spring through July.

Waste ground and compacted, disturbed soils. Associated with vehicular traffic.

Recently discovered here: Island Provincial Park, Shelburne Co.; Ellenwood Provincial Park, Yarmouth Co.; Smileys Provincial Park, Hants Co.; Lumsden Dam Day Park, Kings Co. and Cape Breton Highlands national Park, at Broad Cove.

Ranges from NS to ON, south to MO and NC; AB and BC south on the Pacific. Introduced from Eurasia.

***Myosotis sylvatica* Hoffmann**

**Garden Forget-me-not; myosotis des forêts**



Photo by David Mazerolle

One or more unbranched stems arise from a compact base that are sometimes softly pubescent. The terminal inflorescence may be simple or branched. Single blue flowers arise on short pedicels and the inflorescence terminates in tiny flowers. Calyx has numerous hooked hairs. It is prized as a rock garden ornamental.

Flowers very early spring through July.

Occasionally persisting, but rarely escaping.

Occasional reports.

NS to BC, south to New England. Introduced from Europe.

## ***Symphytum* L.**

### **comfrey**

Native to the Mediterranean area of Europe, these coarsely erect perennials are represented by two species in Nova Scotia. Their leaves are broad and hirsute and the flowers are borne in modified cymes of white to blue flowers. Corollas bear a well-developed tube, which is longer than the lobes. Fornices are present, and they are erect and elongated. The stamens are inserted.

#### Key to species

Leaves decurrent; nutlets smooth.

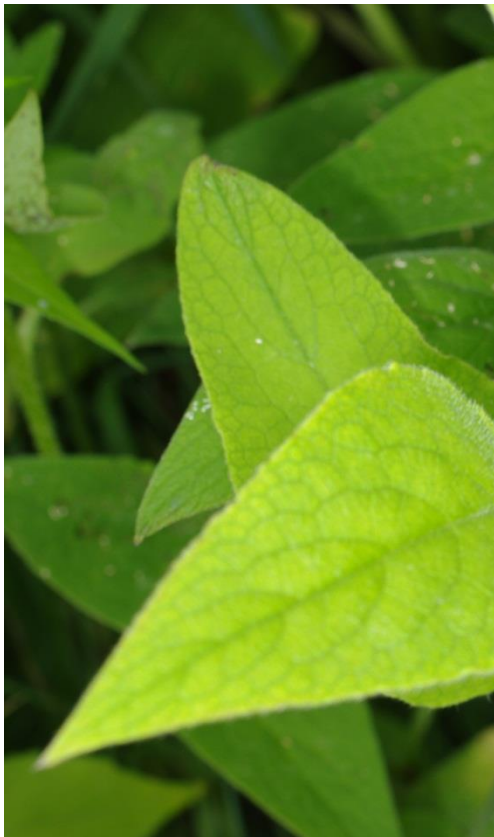
*Symphytum officinale*

Leaves not decurrent or only slightly; nutlets rugose.

*S. asperum*

## ***Symphytum asperum* Lepechin**

### **Rough Comfrey; consoude âpre**



*Photo by Martin Thomas*

Stems and leaves are covered with coarse recurved pubescence. Leaves long and lanceolate, their bases merely slightly decurrent. Flowers are purple, borne in coiled racemes.

Flowers from mid-June to July.

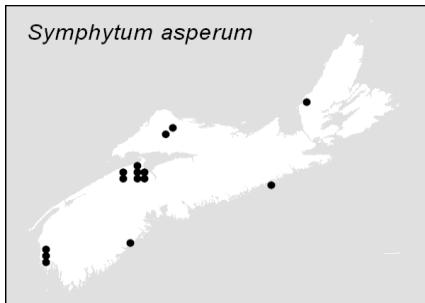
Dry sandy soils near old gardens where it is persistent.

Not common, Pictou. Abundant at Grand Pre and Yarmouth and at Canning. Scattered reports.

NS to SK, south to OH; BC south along the coast. Introduced.



Photo by Martin Thomas

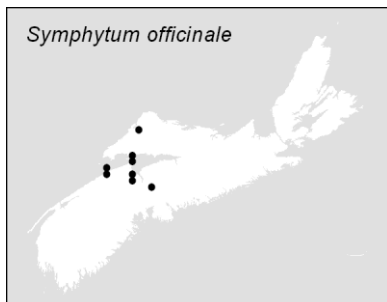


***Symphytum officinale* L.**

**Common Comfrey; consoude officinale**



Photo by Sean Blaney



The narrow lanceolate leaves are strongly decurrent, forming winged portions at the nodes. Coarsely pubescent, the hairs are hooked bristles. Flowers are cream-coloured.

Look for flowers from mid-June through July.

Garden escape and probably not spreading.

Most common from Kings and Cumberland counties to Truro.

Ranges across Canada and south to the Gulf of Mexico. Naturalized in North America from Europe.

## Brassicaceae

### mustards

Nearly 3000 species in 340 genera comprise this large family. Oils, seeds, greens and condiments are produced from cultivated species.

Flowers typically are four-merous: petals and sepals, with six stamens and a single superior ovary, divided into two locules. The inflorescence is terminal, with the flowers borne singly or in racemes.

It is not unusual to have fruit and flowers present simultaneously. Fruits are capsules, splitting longitudinally or siliques.

Leaves are alternate, pinnately lobed. Ours are all herbaceous plants.

Keys (first based on flower colour. Mature fruits are often required to confirm species.)

Flowers yellow.

Key 1

Flowers white, green or violet, but not yellow.

Key 2

Key 1 Flowers yellow.

A. Fruits < 6mm long, <3 times longer than wide.

B

B. Leaves entire or serrate.

C

C. Leaves glossy; fruit oval and smooth.

*Camelina*

cc. Leaves rugose; fruit round and rugose.

*Neslia*

bb. Leaves palmately lobed or finely cleft.

D

D. Leaves finely divided; fruit 2 connate nutlets.

*Coronopus*

dd. Leaves at least the lower lobed; fruit oblong and not doubled.

*Rorippa*

aa. Fruits >6mm long, 4 or more times longer than wide.

E

E. Fruit indehiscent; the septum fleshy and hardening, breaking up into single-seeded sections.

*Raphanus*

ee. Fruit dehiscent lengthwise.

F

F. Seeds in 2 rows in each locule.

*Diplotaxis*

ff. Seeds in 1 row in each locule.

G

G. Leaves pinnate or pinnately lobed.

H

H. Racemes bracteate.

*Erucastrum*

hh. Racemes not bracteate.

I

I. Fruits appressed; flowers 3mm wide.

*Sisymbrium*

ii. Fruits not appressed, or if so flowers

J

large.	
J. Fruits very long and no wider than pedicels.	<i>Sisymbrium</i>
jj. Fruits wider than pedicels.	K
K. Plants with stellate pubescence; leaves finely divided.	<i>Descurainia</i>
kk. Plants merely pubescent or smooth; leaves pinnately lobed.	L
L. Plants biennial or perennial; flowers less than 1cm wide.	M
M. Leaves much-lobed; creeping rootstocks; flowers <5mm wide.	<i>Rorippa</i>
mm. Leaves with a large terminal lobe and many smaller lateral ones; creeping rootstocks absent; flowers >5mm wide.	<i>Barbarea</i>
II. Plants annual, flowers 1–1.5cm wide.	N
N. Capsule with 3–5 raised veins.	<i>Sinapis</i>
nn. Capsule with a prominent midrib and weaker lateral veins	<i>Brassica</i>
gg. Leaves entire or merely toothed.	O
O. Leaves smooth, sagittate, clasping at the base.	<i>Conringia</i>
oo. Leaves rugose, not sagittate, toothed, not clasping.	P
P. Leaves ovate, >1.5cm wide, coarsely toothed; plant merely pubescent.	<i>Brassica</i>
pp. Leaves linear or lanceolate, usually <1.5cm; plants with bifurcate or stellate hairs.	<i>Erysimum</i>

## Key 2 Flowers white, green or purple

A. Plants of marine habitat, fleshy; fruits divided into 2 cells crosswise or lengthwise.	B
B. Fruit crosswise divided; widespread beach plant.	<i>Cakile</i>
bb. Fruit lengthwise split; limited to offshore islands.	<i>Cochlearia</i>
aa. Plants not restricted to marine habitat, not fleshy; fruits split lengthwise.	C
C. Fruit, short, less than 4X the width.	D
D. Fruit flattened parallel to the septum.	E
E. Plant low and compact; leaves toothed; stems and capsules green; petals not lobed.	<i>Draba</i>
ee. Plants tall and freely branching; leaves	<i>Berteroa</i>



entire; stems and capsules with white hairs; petals deeply two-lobed.	
dd. Fruit flattened perpendicular to septum, or nearly round in cross-section.	F
F. Leaves irregular, deeply pinnately lobed.	<i>Capsella</i>
ff. Leaves entire or sparsely toothed.	G
G. Fruit rounded, flat, pointed or notched distally.	H
H. Fruit 10–12mm wide; plants rarely branched.	<i>Thlaspi</i>
hh. Fruit 2–4mm wide; freely branching at the top.	I
I. Fruits ovate to round, notched.	<i>Lepidium</i>
ii. Fruits cordate, acutely tipped with prominent style.	<i>Cardaria</i>
gg. Fruits round to cylindrical.	J
J. Fruits round; leaves widely clasping	<i>Neslia</i>
jj. Fruits ovate or oblong; leaves various.	K
K. Lacustrine plants; 3–8cm tall; leaves linear and basal.	<i>Subularia</i>
kk. Plants not limited to lacustrine habitats; not as above.	L
L. Leaves clasping; not toothed.	<i>Camelina</i>
ll. Leaves not clasping; toothed.	<i>Armoracia</i>
cc. Fruit >4X the width in length.	M

M. Leaves simple; cauline leaves not clasping.	N
N. Plant with strong odour of garlic; leaves reniform at the base of the plant; cauline leaves cordate.	<i>Alliaria</i>
nn. Plant without strong odour; leaves lanceolate; cauline leaves usually sessile.	<i>Hesperis</i>
mm. Leaves pinnately lobed; cauline leaves clasping or auriculate; petals generally shorter than 15mm.	O
O. Leaves lanceolate, entire or serrate.	P
P. Basal leaves pubescent, the hairs entirely unbranched or hairs on short stalks or absent. Stalks < 0,06mm long; siliques 1-2.5mm wide.	<i>Boechea</i>
pp. Basal leaves pubescent but the hairs with 2-4 rays, long-stalked to 0.6mm long; siliques <1.3mm wide.	Q
Q. Petals very pale yellow; stem leaves glabrous and glaucous; siliques terete.	<i>Turritis</i>
qq. Petals white or slightly pink; cauline leaves pubescent and not glaucous; siliques compressed.	<i>Arabis</i>
oo. Leaves pinnately lobed.	R
R. Stems freely branching, leafy, diffuse; capsules straight with the seeds in 2 rows in each locule.	<i>Rorippa</i>
rr. Stems unbranched or only near the base, erect; leaves mostly basal; capsules straight, seeds in a single row per locule.	<i>Cardamine</i>

### ***Alliaria* Heister ex Fabr.**

Tall coarse biennial herbs, they exude a strong odour of garlic or onions when crushed. The leaves are simple, the basal leaves reniform and long-petiolate. Cauline leaves reduce in size upwards on the plant; the uppermost are sessile. Flowers are arranged in a raceme, white-petalled, producing long, linear siliques. Seeds are borne in a single row per locule.

***Alliaria petiolata* (Bieb.) Cavara & Grande.**

**Garlic Mustard; alliaire officinale**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

As above.

Long known as a culinary herb, the leaves, flowers and fruit are delicious in salad when collected young. Plant can self-fertilize, promoting its rapid spread.

Invades roadsides, fallow fields, riparian areas and disturbed sites. Invasive threat to our herbaceous communities of floodplains and deciduous forest.

Kings Co.: Grand Pre, along the Ben Jackson Road, Hortonville, Lower Wolfville, Gaspereau River valley; Port Williams; along the Cornwallis River in Coldbrook; Colchester Co.: Truro and spreading into Victoria Park.

Elsewhere in North America, from NS to ON, south to KS and GA. BC to OR and CO. Native to Eurasia and Africa.

***Arabis* L**  
**rock-cresses**

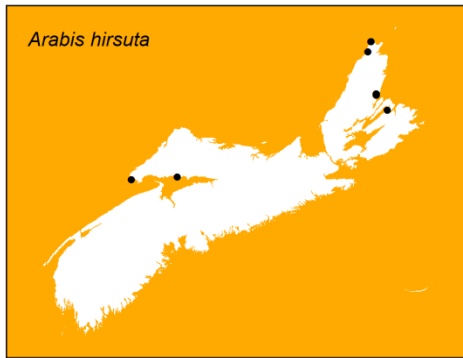
Northern hemisphere species, there are about 180 *s.l.* in total, although more recently New World species have largely been placed in *Boechera*. Erect and unbranching, generally the leaves clasp at the base. Flowers have white petals. Fruit are stiffly erect on short pedicels. Valves may be marked with a rib. Nova Scotia has a single species

***Arabis hirsuta* (L.) Scop.**



Its long slender stems bear lanceolate or oblong leaves clasping it. Basal leaves are arranged in a petiolate rosette. Flowers are loosely clustered in a long raceme. The species is Asiatic and western. Our plants belong to *var. pycnocarpa* (M. Hopkins) Rollins.

Photo by Martin Thomas



Also flowers May and June.

Species of dry sites as along ledges, in crevices, cliffs, talus slopes and gravels.

Rare and locally distributed in Nova Scotia: Refugee Cove, Cumberland Co., Moose Island, Colchester Co. and at several Victoria, Inverness and Cape Breton Co. stations.

NS to AK, south to GA, MO and CA.

STATUS: ORANGE-listed.

### ***Armoracia* Gaertn., Meyer & Scherb.**

A Eurasian genus, it has a single escape from cultivation in Nova Scotia. Lower leaves are large, borne on long petioles, while the cauline leaves reduce in size towards the top of the plant. Fruits are ovate and inflated, and the style is exerted and persistent. Valves are marked by a faint midrib.

#### ***Armoracia rusticana* (Lam.) G.M &S.**

Horse-radish; raifort



Photo by Martin Thomas

Arising from creeping rootstocks, the stout stems may reach 1m in height. The lower oblong leaves are superficially similar to dock. The blades may be 30cm long, arising from long-winged petioles. Lanceolate cauline leaves sessile or nearly so, toothed on the margins. White petals narrow to a claw form racemes on elongated peduncles in the upper



*Photo by Martin Thomas*

leaf axils.

June flowering.

Fertile soils near old gardens.

Established colonies at various places from Truro and westward.

Widely introduced and found from NS to BC south to CA and NC; FL and LA.

## ***Barbarea* R. Br.**

### **winter-cress**

Another north-temperate genus, it has 20 species. Nova Scotia has one species, a smooth herb, bearing dark green foliage. Basal leaves each have terminal lobes, with several smaller ones beneath. Cauline leaves are smaller, entire or variously cleft. The linear fruits are round in cross-section or only slightly angled. Valves are marked with strong midveins.

***Barbarea vulgaris* WT Aiton**

**Yellow Rocket; Winter-cress; barbarée vulgaire**



*Photo by Ross Hall*

The dark green basal leaves are long-petiolate, with 1–4 lobes. Cauline leaves are sessile, clasping the stem. Fruits are ascending, to 3 cm long.

Flowers from late May to early June, rather early for mustards in Nova Scotia.

Spreading to alluvial soils and other fertile situations from agricultural land.

Common throughout where suitable habitat occurs.

Widely introduced from Europe.



*Photo by Martin Thomas*



## ***Berteroa* DC**

Five species comprise this small genus of Eurasian natives. A single herb reaches Nova Scotia. Leaves are entire. Flowers have white or yellow, deeply-cleft petals. Fruit is round or ovoid and flattened along the valve constriction.

### ***Berteroa incana* (L.) DC**

**Hoary Alyssum; bereroa blanc**



*Photo by Andy Dean*

A tall erect species it is densely covered in soft pubescence. Leaves are small and elliptic. Branching loosely, the branches terminate in columns of small white flowers producing erect fruit, 5–8mm tall.

Flowers June through to September.

Grows in sandy soils and can be an aggressive colonizer.

Limited to several localities in the Annapolis Valley, including Aylesford and Greenwood.

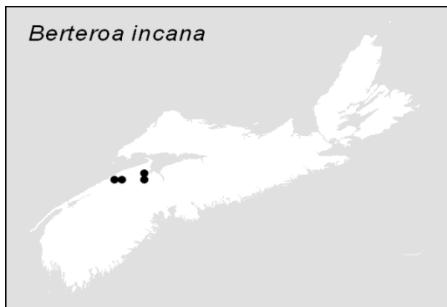
NS to BC and AK, south to NV, NM and VA.



*Photo by Andy Dean*



*Photo by Martin Thomas*



### ***Boechera* A. Löve & D. Löve**

Species were formerly included in *Arabis*, genetic and cytological evidence now places them in their own genus, of North American species. Many are triploids and most diverse in the western part of the continent. Apomixis occurs in some species, a form of asexual reproduction. Nova Scotia has a single species.

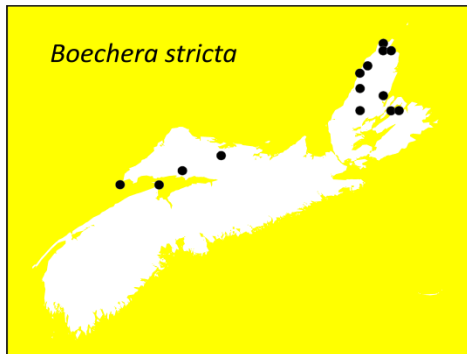
***Boechera stricta* (A. Gray) A. Löve & D. Löve**  
 (= *Arabis drummondi* A. Gray)  
 arabette de Drummond



Photo by David Mazerolle



Photo by David Mazerolle



Cauline leaves are numerous and lanceolate, sessile to the stem and often appressed. Basal leaves are borne on short petioles. Fruit is long and narrow, 1.5mm wide and 4–7mm long. Seeds are arranged in two rows per valve.

Flowers May to July.

At higher elevations it is associated with talus slopes; at lower elevations may be in more fertile soils.

Rare and limited to northern sites, from the Fundy shores to northern Cape Breton. New Annan, Colchester Co.

Across the continent south to the Gulf of Mexico.

## ***Brassica* L.**

### **mustards**

The mustards are another Eurasian genus of 35 annuals or biennials. Many have been genetically confused by back-crossing with cultivated forms. Sometimes the root crops appear as short-lived escapes, not really introductions. Cabbages, kohlrabi, kale, Brussel sprouts, broccoli and cauliflower are all races of *Brassica oleraceus*, apparent in flower and fruit structure.

Typically they have irregularly lobed and toothed leaves, ascending sepals, yellow clawed petals and elongated angular fruit. Each valve contains a single row of seeds.



Caution should be shown, as the handling of some plants may cause a contact dermatitis.

#### Key to species

- |  |                      |
|--|----------------------|
| A. Upper leaves sessile and clasping.                              | <i>Brassica rapa</i> |
| aa. Upper leaves petiolate, not clasping.                          | B                    |
| B. Mature fruits and pedicels ascending; fruit round.              | <i>B. juncea</i>     |
| bb. Mature fruits and pedicels erect or appressed; fruit 4-angled. | <i>B. nigra</i>      |

### ***Brassica juncea* (L.) Czernj.**

#### **Chinese Mustard; moutarde d'Indie**



*Photo by Martin Thomas*

With oblanceolate or elliptic leaves on stems 1.5m tall or more, this mustard is distinctive. Lower leaves are petiolate; cauline leaves are sessile. Conspicuous when it is in flower.

Flowers throughout the summer.

Disturbed ground and compacted soils. Probably introduced in dirty grains.

Scattered throughout.

Across Canada and south to CA, and FL.



*Photo by Martin Thomas*

***Brassica nigra* L.**

**Black Mustard; moutarde noire**



*Photo by Martin Thomas*

Leaves are variable but usually elliptic in outline. Lower leaves may be lobed; cauline leaves are merely toothed, or entire. All are petiolate. Fruit erect; 4-angled and 1–2cm long.

Flowers through until October.

Fields, waste places, disturbed soils as in dooryards.

Throughout Nova Scotia.

Introduced to most of Canada and US.



*Photo by Martin Thomas*



***Brassica rapa* L.**

**Moutarde des oiseaux**



*Photo by Martin Thomas*

An annual species, it ranges to 80cm in height. Lower leaves are petiolate; cauline leaves are sessile, cordate at the base. Margins are coarsely villous. Flowers usually spread to 1cm across.

Probably a parent species of rapeseed and rutabaga, both crop plants widely introduced.

Grows on loose disturbed soils.

Throughout NS and the North American continent.



*Photo by Martin Thomas*



***Cakile* Miller**  
**sea-rocket**

Only a single sea-rocket species reaches Nova Scotia. There are seven worldwide. An annual plant, it is succulent, prostrate or weakly ascending from coastal sands. Flowers have pink or purple petals, obovate. Fruit is divided transversely into two unequal valves. Lower one is persistent, with one or no seeds. The upper, deciduous portion contains a seed with 2–8 angles.

***Cakile edentula* (Bigelow) Hook.**  
**Sea-rocket; caquillier édentulé**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



*Photo by David Mazerolle*

Freely branching and sprawling, this plant bears succulent leaves, with irregular lobes on the edges, tapering to the stem. Flowers are purple, borne in dense racemes.

Flowers July to September.

Dunes, cliffs, sandy or shingly beaches along the coast.

Common around the coast. Grows luxuriantly on seaweed wrack piles.

From Greenland to FL; AK to CA.

## ***Camelina* Crantz**

### **false flax**

Two of these European species have been introduced into Nova Scotia. Both are coarsely branched annuals with small yellow flowers. Ovoid fruits are smooth. Leaves are narrowly spatulate at the base of the plant; cauline leaves are clasping and linear or lanceolate in outline and auriculate.

#### Key to species

Plant hirsute; pubescence of simple hairs and shorter stellate ones.

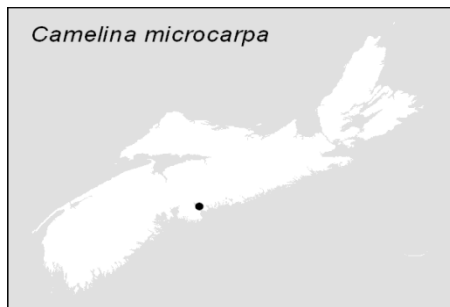
*Camelina microcarpa*

Plant sparsely pubescent; with only simple hairs.

*C. sativa*

## ***Camelina microcarpa* Andr.**

### **caméline à petits fruits**



A roughly hairy annual, it produces tiny seeds about 1mm in length.

May flower from April until September.

Casual weed in disturbed soils of yards and grain fields.

Scattered collections. Probably introduced here from the west.

Across the continent from NF to YT, south to CA, TX and GA.

## ***Camelina sativa* (L.) Crantz**

### **False Flax; caméline cultivée**

A mostly smooth plant, it produces larger seeds, at 2mm in length.

Flowers to August.

A weed of disturbed soils.

A short-lived introduction and possibly not thriving here. Our collections should be examined to see if in fact both species are present.

Across Canada and variously south to AZ, LA and SC.

## ***Capsella* Medikus**

### **Shepherd's Purse**

A monotypic genus, owing its descriptive English vernacular name to the shape of the seeds. White flowers are subtended by short, erect sepals borne in a terminal raceme. Lightly pubescent, the hairs are bifurcate. Leaves are generally basal, resembling those of dandelion. Some plants have alternate cauline leaves, reducing in size up the stem.

### ***Capsella bursa-pastoris* (L.) Medikus**

#### **Shepherd's Purse; bourse-à-pasteur**



*Photo by Martin Thomas*

As above. The leaves are pinnately cleft. Seeds are cordate, much like a purse.

Flowers from April to early November, even as a winter annual.

Gardens, fields, compact disturbed soils.



Photo by Martin Thomas

Common.

Found throughout North America, after introduction from Europe.

## ***Cardamine* L.**

Annuals or perennials, their leaves may be lobed or compound. Flowers are usually white and sometimes with purple or pink highlights. Fruits are long and slender, with the seeds in a single row.

Worldwide there are nearly 200 species.

### Key to species

- |  |                           |
|--|---------------------------|
| A. Basal leaves palmately lobed or compound.                               | B                         |
| B. Cauline leaves 2; leaves with appressed hairs along the margins.        | <i>Cardamine diphylla</i> |
| bb. Cauline leaves 3 (2–3); leaves with spreading hairs along the margins. | <i>C. maxima</i>          |
| aa. Basal leaves simple or pinnately compound.                             | C                         |
| C. Perennial; flowers to 16mm wide; petals 8–13mm.                         | <i>C. pratensis</i>       |
| cc. Annual or biennial; flowers only to 4mm wide; petals to 3mm.           | D                         |
| D. Cauline leaves 4–8cm long.  | <i>C. pennsylvanica</i>   |
| dd. Cauline leaves 2–4cm long.   | <i>C. parviflora</i>      |

***Cardamine diphylla* (Michx.) A. Wood**

**Toothwort; dentaire à deux feuilles**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

A smooth plant with slender stems which may reach 20–40cm tall. The pair of opposite cauline leaves, is further divided into three toothed leaflets each. Petals are purple or white, 1–2cm long. Rhizomes have no annual constrictions. This mustard is one of our few native Brassicaceae species.

Flowers April to June.

Moist fertile mucky soils in low ground in mixed forests.

Never common nor abundant, but found from Annapolis to northern Cape Breton.

Ranges from NS to ON, south to AR, MS and GA.

***Cardamine maxima* A. Wood**  
**dentaire géante**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



*Photo by Martin Thomas*

Differing from the previous species by having 2–3 alternate stem leaves and a rhizome marked by annual constrictions.

Flowers in May.

Along woodland streams, even in calcareous sols.

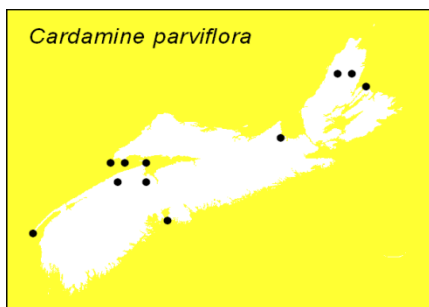
Known from Isle Haute, Cumberland Co. and Cape Split, Kings Co.; Margaretsville, Annapolis Co.

Found in NS to ON south to KY.





***Cardamine parviflora* L.**  
**cardamine à petites fleurs**



Stem stands 10–30cm, the lower leaves divided into 10 tiny obovate leaflets. Terminal leaflet of the cauline leaves is of similar size to the lateral ones. Leaflets of the cauline leaves are sessile and nearly linear. Fruits are slender, barely wider than the pedicels. Our material belongs to var. *arenicola* (Britt.) OE Schulz.

Flowers early, from April to August.

Dry, shady ledges, exposed soils; sandy substrates.

Bay of Fundy counties, from Brier Island to Cape d'Or.  
 Central and northern Cape Breton.

NS to BC, south to OR, TX and FL

STATUS: YELLOW-listed

***Cardamine pensylvanica* Muhl.**

**Bitter Cress; cardamine de Pennsylvanie**



*Photo by Martin Thomas*

Tiny flowers and larger terminal leaflets relative to the size of the lateral leaflets separate this species from the preceding one.

Flowers from May until July.

Grows on mucky, wet soils as in swamps, streamsides and may even be emergent.

Common throughout.

Continental North America, absent only from AZ and the high arctic.

***Cardamine pratensis* L.**

**Cuckoo Flower; cardamine des prés**



*Photo by Martin Thomas*

Leaves are pinnately divided, the terminal leaflet larger than the lateral ones. Basal leaves are long-petiolate, the divisions nearly round. Cauline leaves are nearly sessile, the lobes linear. Flowers pinkish or violet, forming erect fruits, a few cm long.

Two varieties are mentioned, the typical variety, and var. *angustifolia* Hook. which would be rare in Nova Scotia. Its distribution here is unknown.

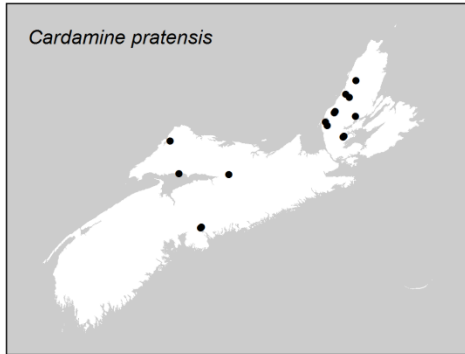
Flowers late May and early June.

Moist soil as in meadows, damp fields and other low ground.

Scattered in the province, frequent along the Annapolis River and even spreading into roadsides ditches, north to



Photo by Andy Dean



Cape Breton.

NF to AK, south to BC, MN and VA. Introduced.

## ***Cardaria* Desv.**

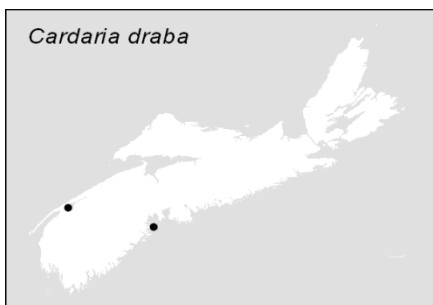
### **Hoary cress**

A small genus of three weedy perennials, they are native to Eurasia. A single species is found in Nova Scotia. It is typified by white petals, twice as long as blunt outer sepals. The fruit is almost round and inflated, although flattened against the septum. Leaves are entire or lobed; plants may be pubescent.

### ***Cardaria draba* (L.) Desv.**

#### **Hoary Cress; White-top; cranson dravier**

A perennial, plants may reach 60cm, arising from creeping rhizomes. They are densely pubescent towards the base, becoming smoother towards the top. Cauline leaves are clasping, auriculate at the base. Basal leaves are densely pubescent, toothed or entire, narrowing to the petiole.



Racemes comprise densely packed white flowers, each tiny flower with petals 3–4mm long. Sepals are shorter, their margins white. The indehiscent capsules are cordate, smooth and inflated, constricting at the valve. The reddish brown ovoid seeds are flattened; there are two per capsule.

Flowers late June until August.

Frequents roadsides, ditches and former ballast piles.

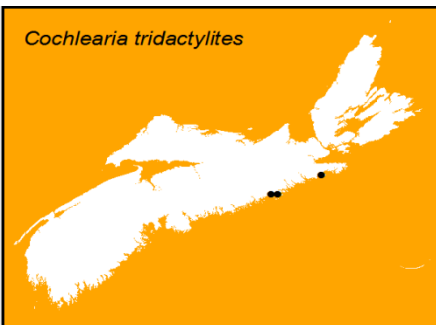
From Yarmouth to Lunenburg and Annapolis.

Ranges from NS to BC, south CA, TX and VA; considered a problematic weed in the west.

## ***Cochlearia* L**

It is a small genus of only three species; two of them are Canadian arctic endemics. Succulent plants, they are biennial in habit, having white or pink flowers. Fruits are rounded capsules bearing two series of seeds. Leaves are variable in shape, and toothed or entire.

### ***Cochlearia tridactylites* Banks cranson tridactyle**



Our single species has deltate leaves, their margins toothed and with 3–5 teeth distally. Flowers are arranged in umbels of pale pink or white flowers.

Summer-flowering.

Brackish or calcareous soils.

Little White Island and Big White Island, Halifax County represent the only confirmed localities yet.

Reported from NL, NS, QC and Saint Pierre et Miquelon.

STATUS: ORANGE-listed for NS.

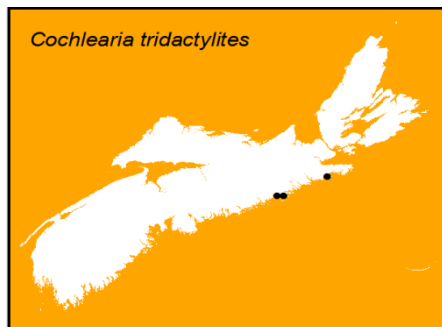
## ***Conringia* Heister**

### **hare's-ear mustards**

The genus is a small one, of six Eurasian species. The flowers have four white or bright yellow, clawed petals. Seeds are arranged in a single row within each locule of the slender angular fruit. Plants are smooth and glaucous.

### ***Conringia orientalis* (L.) Andrz.**

#### **Hare's-ear Mustard; vélar d'Orient**



The leaves are entire, the upper ones cordate at the base and clasping the stem. Pedicels and fruit are widely spreading, with the fruit barely wider than the pedicel, 8–12cm in length.

Flowers June to August.

Weed of railroads and dooryards, not often reported and perhaps not persisting.

Scattered localities from Colchester and Cumberland counties westward.

Ranges from NS to AK and southward. To CA, TX and FL.

## ***Descurainia* Webb. And Berth.**

Annuals or biennials, only two reach Nova Scotia. They have yellow flowers subtended by ovate sepals. Fruits have persistent styles; their valves marked by a prominent rib.

Key to species

Fruit clavate; seeds in two rows; inflorescence glandular pubescent.  
Fruit linear; seeds in a single row; inflorescence not glandular.

*Descurainia sophia*  
*D. pinnata*

***Descurainia pinnata* (Walt.) Britt.**

Little is known of the species in Nova Scotia, with only a single report. Mainly differs in the linear shape of the fruit, carrying seeds in a single row. The inflorescence is smooth. Our plants belong to ssp. *brachycarpa* (Richardson) Dettling.

Flowers elsewhere from May to August.

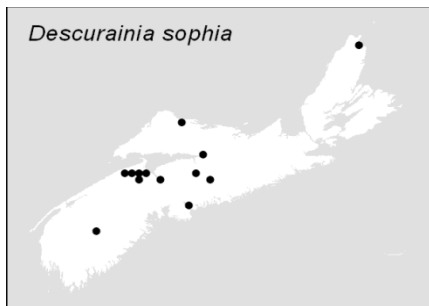
Limited to sandy or stony soils.

Known from Halifax.

Elsewhere from NS; QC to YT south to CA, TX and FL.

***Descurainia sophia* (L.) Webb.**

**Tansy Mustard; sagesse-des-chirurgiens**



Generally these plants are strongly fragrant annual or winter annuals which may reach 1m in height. They are freely branching at the summit. They may be minutely pubescent with greyish green bifurcate hairs. Leaves are alternate and finely divided into linear segments. Flowers are clustered at the top, with yellow petals 2–2.5mm long, exceeded by the sepals. Siliques are erect, carried on short pedicels, sharply angled to the peduncle. Seeds are bright orange, 10–20 per locule. Plants resemble *Sisymbrium* but for the pubescence and larger flowers.

Flowers late May until August.

Dryish soils in waste places, compact and disturbed.

Uncommon and only occasionally seen as a single plant, from Queens Co. to Cape Breton.

Found throughout the continent, from NF to AK, south to CA, TX and GA. Introduced in unclean grain.



## ***Diplotaxis* DC**

European natives, the genus includes 25 species, Nova Scotia has received two adventives. Flowers are white or yellow, petals reduced to a claw. Fruits are slender, long and flattened with a single midvein in the valves. Two rows of seeds occupy each locule. Leaves are smooth or pubescent, toothed or lobed.

Key to species

Leaves basal or mostly so.

*Diplotaxis muralis*

Leaves cauline, or mostly so.

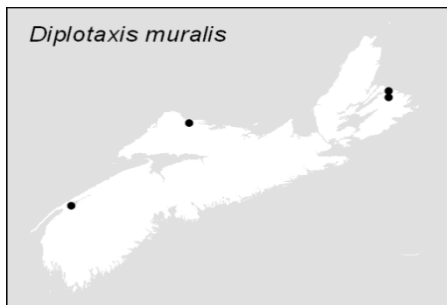
*D. tenuifolia*

### ***Diplotaxis muralis* (L.) DC**

**Sand Rocket; diplotaxe des murs**



Photo by Sean Blaney



An annual species, the leaves are basal, oblanceolate, irregularly lobed and tapering to the petiole. Flowers are yellow, 5–15mm long. Fruits are smooth, 2–3cm long, erect.

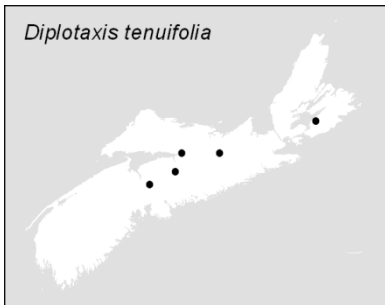
Summer flowering, June to August.

Dry soils about wharves and in ports on waste ground and in old ballast.

Infrequently seen now, Digby to Cape Breton.

Naturalized from Europe in North America, across Canada to AB, variously south to CA and FL.

***Diploaxis tenuifolia* (L.) DC**  
**diplotaxe à feuilles ténues**



This species is perennial from a taproot, reaching 80cm in height. Leaves are somewhat succulent, bluish green and of foul scent when crushed.

Also found in waste ground.

Central Nova Scotia.

Introduced from Eurasia to west coast and east coast of North America. Not found in the interior.

***Draba* L.**

A larger genus than other mustards, it includes about 350 species, mostly of the northern hemisphere. Five reach Nova Scotia. All are herbaceous, producing a basal rosette of leaves and white flowers.

Key to species

- |   |                       |
|---|-----------------------|
| A. Dwarf annual; leaves in a tight basal rosette; flowers on scapes; petals deeply cleft.             | <i>Draba verna</i>    |
| aa. Perennial; peduncles with at least one cauline leaf; petals round, or notched only at the summit. | B                     |
| B. Basal rosettes pubescent; each hair forked but irregularly.  | <i>D. norvegica</i>   |
| bb. Basal rosettes with stellate hairs, regular and even.   | C                     |
| C. Fruit plump and smooth; sepals <2mm long; seeds imbricate  | <i>D. pycnosperma</i> |
| cc. Fruit compressed; sepals >2mm long; seeds not imbricate.  | D                     |
| D. Cauline leaves round at the base; fruit with distinct veins, straight.                             | <i>D. glabella</i>    |
| dd. Cauline leaves tapered at the base, fruit faintly veined, twisted.                                | <i>D. arabisans</i>   |

***Draba arabisans* Michx.**

**drave arabette**



Photo by Sean Blaney

Stems are simple or loosely branching, 10–40cm tall. Profuse basal leaves are oblanceolate, narrowing to a long petiole. Cauline leaves are several, ovate to oblong and often prominently toothed. Flowers are arranged in narrow racemes, to 10cm long. Oblong fruits may be 1cm in length.

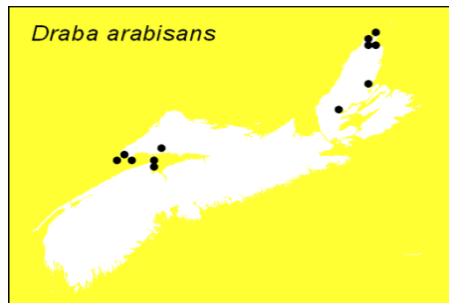
Flowers early, May to July.

In muddy soils, often in calcareous rock crevices or ledges.

Localized in Cumberland County and Kings Co. and in northern Cape Breton.

NF to ON, south to MN and NY.

STATUS: YELLOW-listed.



***Draba glabella* Pursh**

**Smooth Draba; drave glabre**



Somewhat resembling the previous species, it is best separated in fruit. This species has its fruit straight rather than twisted, and clearly marked with prominent veins. The cauline leaves are rounded at the base.

Limited to rock ledges and crevices, talus slopes.

Rare; known from Cape Blomidon and several Cumberland County sites across the Bay. Also in Cape Breton.

Found from NF to AK, south to BC and NY;WY; Eurasia.

STATUS: ORANGE-listed.

***Draba norvegica* Gunnerus**  
**drave de Norvège**



This small species may reach 20cm in height. Cauline leaves present, 1–5 in number. Basal leaves are variably and irregularly pubescent.

Var. *clivicola* (Fern.) Boivin has been reported from Big Southwest Brook based on Smith and Schofield collections in 1952. Var. *norvegica* was collected at Corney Brook first by the Gray Herbarium expedition of the 1920s.

They may be distinguished on the basis of “predominantly branched, appressed trichomes on stems proximally, lanceolate, glabrous fruits, and slender, erect-appressed pedicels. By contrast, var. *norvegica* is said to have predominantly simple, spreading trichomes on stems proximally, narrowly ovate to elliptical, glabrous or pubescent fruits, and stout, divaricately ascending pedicels.” (Flora of North America Ed. Committee, 2010.)

Flowers June to early August.

Calcareous gravels, ledges and turf.

Locally abundant at Big Southwest Brook and on Big Intervale, both in Inverness Co.

Eastern, NF to NT, south to MN, ON and NS.

STATUS: ORANGE-listed.

***Draba pycnosperma* Fern. & CH Knowlt.**

**drave à graines imbriquées**



A sprawling plant, it sometimes forms mats to 25cm wide. Basal rosettes are persistent on the plant. Young leaves may be shallowly toothed towards the tip.

Flowers June and July.

Dry limestone ledges.

In NS only known from Lockhart Brook, Salmon River.

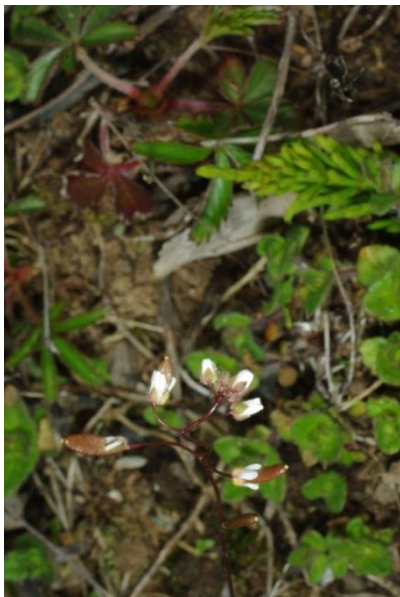
Limited to QC, NF and NS

STATUS: ORANGE-listed.

***Draba verna* L.**

**(=*Erophilla verna* (L.) Chevall)**

**Whitlow-grass; drave printanière**



*Photo by Martin Thomas*

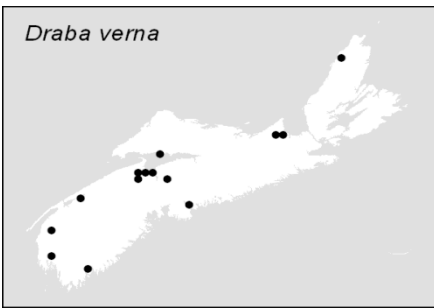
An annual herb, it arises from a compact basal rosette of leaves. Softly pubescent, the hairs are with simple or bifurcate. Petals are cleft to the base. The fruit are small and ovate.

Flowers very early, from March to early June.

Compacted soils as in campgrounds, roadsides, parking lots.

Becoming more common as soils are moved about the province by vehicles.

Distinctly eastern and western: NS to ON, south to GA and AR. Also AB and BC south to CA and UT. Introduced.



### ***Eruscastrum* C. Presl.**

#### **Dog mustard**

Native to the Mediterranean region, the dog mustards number 17 species. Only one is found in Nova Scotia. With but a single vein on the fruit valves, this is its distinguishing character from other mustards.

### ***Erucastrum gallicum* (Willd.) OE Schulz**

#### **Common Dog-mustard; moutarde des chiens**



*Photo by Sean Blaney*

Leaves are ovate, deeply divided into many lobes. Stems are freely-branching. The cauline leaves reduce in size towards the top of the plant on progressively shorter petioles.

Flowers from June until frost.

Roadsides, fields, and railroad beds.

Scattered in the Annapolis Valley to Colchester Co.

NF to AK south to FL and CA; sparingly introduced.

### ***Erysimum* L.**

Another north-temperate genus of herbs with only three known in Nova Scotia. Our plants tend to have densely pubescent leaves, stems and fruits. Petals range in colour from cream to bright yellow. The angular fruits are long and narrow, each valve prominently marked with a midrib. Seeds are borne in a single row. Conspicuous in fruit as the pedicels are at right angles to the peduncle and the erect fruit.



## Key to species

- A. Annual, common; sepals 2–3.5mm; petals 2.5–5.5mm. *Erysimum cheiranthoides*
- aa. Perennial, uncommon; sepals and petals exceeding 5.5mm. B
- B. With stellate hairs on upper leaf surfaces. *E. hieraciifolium*
- bb. Stellate hairs absent; pubescence of 2–3 pronged hairs. *E. inconspicuum*

### ***Erysimum cheiranthoides* L.**

#### **Wormseed Mustard; vélar fausse-girolée**



*Photo by Martin Thomas*

Softly pubescent on stems that may be branched towards the top of the plant. Lanceolate or elliptic leaves bear shallow teeth along the wavy margins. Flowers are small and bright yellow, arranged in one or more racemes. Erect fruits are 1–2cm long, on slender divergent pedicels.

Flowers from June to September.

Disturbed soils, especially in farmyards and in garden soil.

Very common throughout.

Common throughout the continent after its introduction from Europe.



*Photo by Martin Thomas*

***Erysimum hieraciifolium* L.**  
**vélar à feuilles d'épervière**

This species is similar to the next but for copious amounts of four-pronged hairs on the leaf surfaces.

Little-known in NS.

Calcareous soil.

A single known locality, at Heatherdale, Victoria Co.

NF to SK, south to KY and IA. European native.

***Erysimum inconspicuum* (S. Wats.) MacM.**  
**vélar à petites fleurs**

An erect, simple-stemmed perennial, it has appressed leaves, with 2–3 pronged hairs on their upper surfaces. Flowers have pale yellow petals.

Summer-flowering.

Dry localities on open soils.

The only collection is at the Gray Herbarium (GH), from Springhill, Cumberland Co.

BC to NS, south to AZ and MD.

***Hesperis* L.**  
**dame's rocket**

There are around 25 species of these Eurasian natives. One commonly planted ornamental has escaped and is thriving as an introduction in Nova Scotia. Robust plants, they are nearly 1m tall, with sweetly fragrant flowers, ranging in colour from white to purple. Sepals are arranged in two whorls. The inner whorl has individuals broad and pouchlike at the base; those of the outer whorl are narrow and crested distally. Fruits are marked faintly; seeds aligned in a single row.

***Hesperis matronalis* L.**

**Dame's Rocket; "phlox" — a misnomer; julienne des dames**



*Photo by David Mazerolle*



*Photo by Martin Thomas*

Coarsely pubescent, the stems are simple, bearing broadly lanceolate leaves on short petioles. Their margins are toothed, the teeth scattered along the edges. Plants rarely found singly, as small colonies form readily. Fruits 5–10cm long, with distinct constrictions between the seeds.

Flowers June and July.

Roadside, waste soils, and invasive in riparian zones. Persistent.

Throughout.

NF to AK, south to CA and GA; European.

***Lepidium* L.**

**peppergrasses, pepperweeds**

A worldwide genus, it comprises 175 species of annuals or biennials. The minute flowers are crowded in densely packed racemes, erect and often numerous. The flat and round fruits are often winged and bear a narrow septum between the seeds. Leaves are various, linear to elliptic and may be entire or lobed.

Key to species

- A. Racemes carried laterally from the leaf axils; silicles reticulated. *Lepidium didymium*
- aa. Racemes terminal, arising from the tips of the branches; silicles smooth. B
- B. Cauline leaves sessile, clasping at the base; plant pubescent, with short stiff hairs. *L. campestre*
- bb. Cauline leaves tapering to the base and not clasping; plant only sparsely pubescent or smooth. C
- C. Stamens 6; fruits exceeding 5mm in length, on thick erect pedicels; widely winged. *L. sativum*

- cc. Stamens 2, rarely 4; fruits to 3.5mm long on divergent pedicels. D
- D. Petals present, to 2mm long, at least as long as the sepals; radicle in seed reflexed along the edges of cotyledons. *L. virginicum*
  - dd. Petals absent or shorter than the sepals; radicle in seed reflexed along flat side of 1 cotyledon. E
    - E. Lower leaves divided with 2 leaflets; upper cauline leaves blunt; fruits without wings, narrowed at the tip. *L. ruderale*
    - ee. Lower leaves coarsely toothed or lobed; upper cauline leaves pointed; fruits round at the tip and winged only slightly, above. *L. densiflorum*

***Lepidium campestre* (L.) R. Br.**

**Field Pepperweed; lépidie des champs**

Basal leaves are entire, oblanceolate, and carried on long petioles. Cauline leaves are deltate, sagittate at the base. Racemes are several; fruit are borne on stiffly perpendicular pedicels, oblong to ovate. The entire plant is densely pubescent.

Flowers from May to September.

Disturbed and compacted soils.

Scattered throughout the province.

NF to BC, south to CA, NM and FL.

***Lepidium densiflorum* Schrader**  
**lépidie densiflore**



Photo by David Mazerolle

Easily confused with *L. virginicum* and the only certain difference is in the position of the radicle in relation to the cotyledons in the seed. In this species, it lies along the flat surface of a single seedleaf. Stem is 20–50cm in height, branching only at the top. Oblanceolate leaves bear small teeth on the margins; the leaves sharply reduce in size towards the crowded racemes. Fruit is slightly notched at the tip.

Fruiting from June through September throughout its range.

Disturbed areas.

A common weed in the Annapolis Valley, scattered elsewhere in the province.

Introduced to North America, occurring from NS to BC and further south .

***Lepidium didymum***  
**(=*Coronopus didymus* (L.) JE Smith)**

**Swine-cress; Carpet-cress; corne-de-cerf didyue**



Photo by Alain Belliveau

Freely branching from the base, this tangled plant may be prostrate or erect. Leaves are finely pinnate, cleft nearly to the midvein. Flowers are borne in racemes. Fruit bears a notch at the summit, separating the pairs. Flowers and fruits profusely.

Flowers in August.

Disturbed or compacted soils, often near the coast.



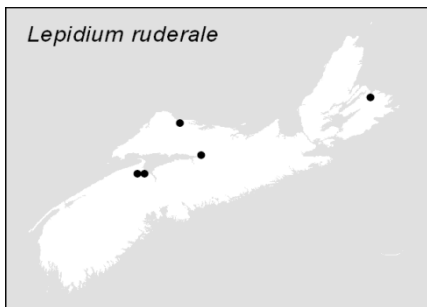
Photo by David Mazerolle

Especially frequent in Yarmouth and Digby counties, to Halifax and northeastern Cape Breton.

Ranges from NF to ON, south to FL and TX; BC south to NM. Eurasian origin.

### ***Lepidium ruderale* L.**

#### **Narrow-leaved Pepperweed; lépidie rudérale**



Easily separated from other *Lepidium* on the basis of wingless fruit. Lower leaves have two leaflets; upper leaves are linear but rounded at the tip.

Flowers from May to September.

Like others, found in dryish infertile soils as along roads and railbeds.

Long known from Windsor, Pictou and Sydney.

Uncommonly introduced from Europe and thriving from NF to SK, south to LA.

### ***Lepidium sativum* L.**

#### **Garden Cress; cresson alénois**

Leaf segments are very narrow and smooth on the margins. Plant branches only at the top, the branches bearing numerous racemes. Fruits are ovate or elliptic, borne on erect pedicels.

Flowers from July until September.

A cultivated species that may persist in gardens and adjacent disturbed soils, although not spreading to native habitats. Our collections are from cultivated plants.

Casual escape throughout the continent.



***Lepidium virginicum* L.**

**Virginia Pepperweed; lépidie de Virginie**



*Photo by Martin Thomas*

Resembles *L. densiflorum*, but for the radicle's position in relation to the seed leaves. Cross section is required of the seed to confirm the bend in the radicle and its position.

Flowers from May to September.

Light soils where it may become troublesome.

Scattered throughout NS and across Canada. Introduced from Europe.



*Photo by Sean Blaney*

***Nasturtium* R. Br.**  
**watercress**

A small genus, it has been included with *Rorippa* by various authors. Molecular evidence supports retention of this earlier separation. White obovate petals are subtended by erect sepals, with one pair swollen at the base. Stamens are flanked by glands. Linear fruits are nearly terete. Seeds number several, arranged in two rows. An obligate aquatic genus, it has been introduced for culinary uses.

***Nasturtium officinale* R. Br.**  
**Watercress; cresson de fontaine**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

A submersed or partially floating succulent plant, it grows in flowing streams, arising from copious roots. Leaves are pinnate with 3–9 divisions. Slender fruit may be up to 2.5cm long.

Clear flowing streams.

Scattered from Kings Co. to Truro and northern Inverness Co.

Native to Eurasia and widely established in North America.

***Neslia* Desv.**  
**ball mustard**

A small genus with only two species, they are native to the Mediterranean and Middle Eastern region. A single annual species has been introduced to Nova Scotia. Typically *Neslia* species have tiny yellow flowers, subtended by oblong sepals. Fruit is rounded, and the surfaces are pitted. Leaves are sessile and halberd-shaped at the base, clasping the stem.

***Neslia paniculata* (L.) Desv.**

**Ball Mustard; neslie paniculée**

Erect plants, arising on puberulent stems bearing lanceolate leaves. Leaves have basal pointed lobes and are rugose. Fruits resemble peppercorns, only smaller, with persistent styles.

Flowers June to September.

Grain fields, about railyards and other disturbed sites.

Annapolis Valley, southeastward. Also collected from Truro and in Cape Breton.

Ranges across Canada to AK and south to OR, MO and NJ. May have been introduced here in western grain. Native to Europe.

***Raphanus* L.**

A Mediterranean genus totalling a mere three species. Flowers have large yellow petals, fading to white with age, subtended by blunt, erect sepals. Fruit are elongated, divided horizontally into an upper fertile segment and a lower seedless, abortive segment. As many as 10 large seeds are produced, separated by septa.

***Raphanus raphanistrum* L.**

**Wild Radish; radis sauvage**



Photo by Alain Belliveau

Plants may be hirsute or smooth, branched or unbranched and with variably shaped leaves. Commonly the leaf outline is obovate, with several lobes at the base, cleft nearly to the midvein. Flowers borne in small corymbs. Similar to *Sinapsis*, but that species has darker yellow flowers, unmarked by purple nectar guides found on *Raphanus* flowers. Sepals are erect. The fruit of *Raphanus* are transversely divided, with constrictions between the seeds.

Flowers June to October.

Weedy in disturbed soils and on shorelines and beaches.

Common throughout, although sometimes controlled in agricultural areas as it becomes troublesome on croplands.



Photo by Martin Thomas

Across the continent; Greenland. Introduction.

## ***Rorippa* Scop. yellowcresses**

Cresses number about 80 species of cosmopolitan herbs. They may be annual or perennial in growth form. Some species are pubescent, many are not. Flowers have the petals white or yellow, barely exceeding the sepals in length. Fruit are slender or globose, with short persistent styles. Valves are thin, marked by a faint midrib. Seeds may be arranged in one or two rows within the locules.

### Key to species

Perennial; petals exceeding sepals in length.

*Rorippa sylvestris*

Annual, sometimes biennial, with taproots; petals of equal length to sepals.

*R. palustris*

## ***Rorippa palustris* (L.) Besser Rorippe des marais**



Petiolate leaves, the petioles are winged. Leaves are irregularly toothed and lobed, the larger upper ones ovate or oblong, rounded at the tip. Stems are sparsely hispid towards the base of the plant. Fruits globose, 3–8mm long. Three subspecies are present in Nova Scotia.

Typical ssp. *palustris* has all leaves pinnate or pinnatifid, while ssp. *hispida* (Desv.) Jonsell has the upper leaves simply toothed. It differs from the next subspecies by having hirsute leaves and the stem hispid. Ssp. *fernaldiana* (Butters & Abbe) Jonsell is similar but with the leaves smooth on the lower surfaces and the stems smooth below or just hispid.



Photo by Sean Blaney

Flowers from July until September.

Wet ditches, streamsides, fields and disturbed soils elsewhere.

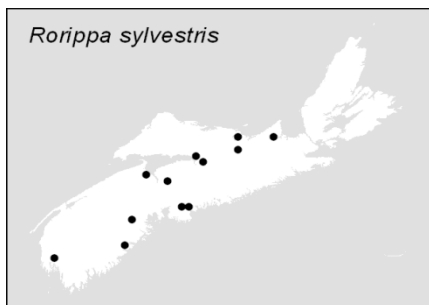
Uncommon or local from Kings and Cumberland Cos. to Cape Breton.

Partly naturalized or adventive from Europe.

***Rorippa sylvestris* (L.) Besser**  
**Creeping Yellowcress ; rorippe sylvestre**



Photo by Sean Blaney



*Rorippa sylvestris*

Freely branching from the base, this species, may reach 50cm in height. Leaves are pinnate, with many divisions, cleft nearly to the middle, toothed on the margins. Flowers are borne in short racemes. Fruits are less than 1cm long, carried perpendicular to the stems.

Flowers in July and August.

Frequents meadows, streamsides, roadsides, often a nuisance weed.

Queens County to Truro, Colchester Co.  
NF, NS, south to NC, LA and CA. Introduced.

***Sinapis* L.**

Numbering seven Mediterranean species, two have inadvertently reached Nova Scotia. Both have stems marked with stiff retrorsely pointing hairs. While ***Sinapis arvensis*** (Charlock) is commonly found on disturbed soil about fields, orchards and ports throughout the province, ***Sinapis alba*** (White Mustard) is only reported from Morristown. Sinapsis may be distinguished from other mustards by the presence of a single seed in the angular beak of the silique.

## ***Sisymbrium* L.**

Freely branching annual weeds, they produce small yellow flowers and long, slender fruit. Worldwide, there are about 90 species.

### Key to species

Leaves coarsely pinnatifid, lobes wide; fruits 1–2cm on pedicels 1–3mm long, closely appressed.

*Sisymbrium officinale*

Leaves finely divided into linear lobes; fruits 5-10cm on ascending pedicels.

*S. altissimum*

## ***Sisymbrium altissimum* L.**

### **Tumble Mustard; sisymbre élevé**



*Photo by Martin Thomas*

A much taller plant, it may reach 1 m, taller than the next and more diffuse. Leaves are pinnatifid, the leaflets strictly linear. Fruit is very long and slender, barely exceeding width of pedicels, to 10cm long.

Flowers during July and August.

Frequents fields, roadsides and ditches on light soils.

Common around settlements throughout, especially so in the Annapolis Valley.

One of our most common weeds and brought eastward with western grains. Throughout the continent.





*Photo by Martin Thomas*

***Sisymbrium officinale* (L.) Scop.**  
**Hedge Mustard; sisymbre officinal**



*Photo by Martin Thomas*

Leaves are deeply cleft, the lobes broader than linear. Lower leaves are long-petiolate. Leaf divisions are deeply toothed. Plants may be puberulent or smooth.

Flowers from early summer through October.

Light, disturbed soils.

Common throughout.

Widespread and native to Eurasia.



*Photo by Martin Thomas*

***Subularia* L.**

**Awlwort**

Only two species comprise the genus, one native to Africa and one native to North America. Small plants, they have a basal rosette of spatulate or linear leaves. Racemes with few flowers, petals white. Within the calyx is a row of glands, circling the ovary.

***Subularia aquatica* L.**

**Awlwort**



Photo by Sean Blaney

Leaves are stiffly erect, arising from the base. They are awlshaped and circular in cross-section. Several racemes bear a few minute white flowers.

Flowers from July until October.

Submerged aquatic, on gravelly substrates of slow-moving streams or lakes. Mat-forming.

Most common in southern NS, scattered elsewhere. Found from Greenland to AK, south to northern NY and CA; Eurasia.

***Thlaspi* L.**

**Pennycress**

Eurasian in origin, of the 75 species only one is found in NS to date. Ours has flowers with white ovate petals, tapering towards attachment. Sepals are erect. Fruit is globose and compressed to the septum, seemingly swollen over the seeds. They are strongly keeled or winged on the margins. Each locule produces at least four seeds. Plant is smooth.

***Thlaspi arvense* L.**

**Stinkweed; Pennycress; tabouret des champs**



Photo by Sean Blaney

Noticeable strong odour exudes from the entire plant. An annual, the stems arise from a tight rosette at flowering, reaching a height of 80cm. Leaves are glabrous, mostly entire or slightly toothed. Lowermost leaves are quickly deciduous. Cauline leaves auriculate, clasping the stem. Raceme is terminal, bearing white flowers. Capsules are orange or yellow at maturity, borne on slender arcuate pedicels. Capsules are deeply notched distally. Two locules, each produce 5–8 seeds.



Photo by Martin Thomas

Flowers July to September.

Frequently seen as individual plants in disturbed soils as on roadsides, ditches and fallow fields.

Scattered throughout the arable land base of the province. Introduced with western grain. Widely distributed throughout the province and the continent. Eurasian.

## ***Turritis* L.**

### **tower-mustards**

Historically included in the genus *Arabis*, this genus of two species is segregated on the basis of base chromosome numbers and fruit or trichome morphology, rather than the leaf and flower characters. Nova Scotia hosts a single species.

### ***Turritis glabra* (L.) Bernh.**

#### **(=*Arabis glabra* (L.) Bernh.)**

#### **Tower-mustard; arabette glabre**

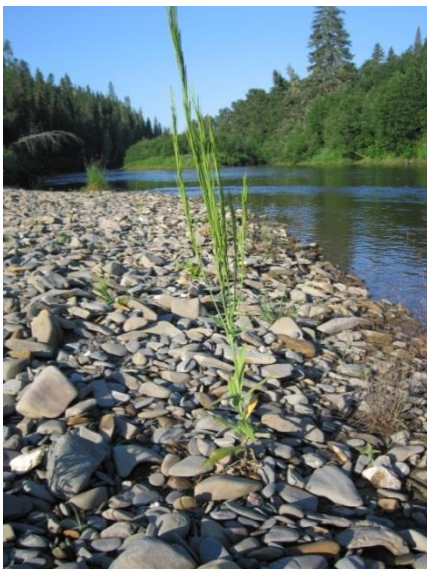


Photo by Sean Blaney

A tall species, its height stretches to 1.5m. It is often pubescent at the base of the stem, which is smooth and glaucous above. Lower leaves may also be hirsute. They overlap at the base along the stem, becoming more distant towards the top.

Flowers in May and June.

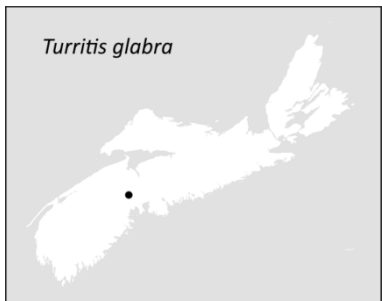
Usually on drier sites.

Located in Lunenburg Co., the Forties.; very recently found on gravel of Tupper Brook Trail, a former railroad bed, Coldbrook, Kings Co.



*Photo by David Mazerolle*

Circumboreal, south to NJ, NM and CA.



## **Cabombaceae**

### **Water-shield**

#### **Family**

Worldwide, only 2 genera comprise this aquatic family, with a single species found in Nova Scotia.

### ***Brasenia* Schreb.**

#### **Water Shield**

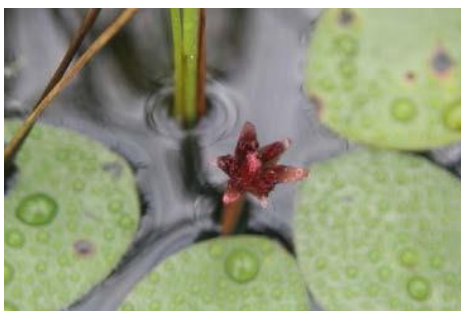
It is monotypic but the single species is widespread worldwide. Elliptical peltate leaves are entirely floating, alternately arranged along the stem. Plants are gelatinous distally.

***Brasenia schreberi* Gmel.**

**Water Shield; brasénie de Schreber**



*Photo by Sean Blaney*



*Photo by Ross Hall*

Peltate leaves do not have a sinus. Flowers are small and reddish; peduncles stem from the terminal node. Petals and sepals are arranged in threes, often submerged.

Appears throughout the summer.

Usually grows in still waters of lakes and often the leaves cover the surface of small pools.

Scattered throughout the southwestern counties, especially so in the lakes of Shelburne and Yarmouth counties. Infrequent to Cumberland and Pictou counties. Our only Cape Breton locality is in the Aspy Bay region.

FL to TX, north to NS and across Canada; worldwide.

## **Callitrichaceae**

### **water-starwort family**

Another monogeneric aquatic family, these plants are all annual herbs. Leaves are typically opposite and sessile, the stems lax or tenuous, slender and with few branches. Flowers are axillary, sessile or arising on short pedicels. The perianth is absent. Staminate flowers have 1–3 erect stamens; pistillate flowers produce ovaries cleft in four locules and bearing a pair of persistent styles. Fruits are dehiscent in four nutlets, each with a single seed.

***Callitriche* L.**

**Water-starworts**

Mature fruits are required to identify these species and magnification to examine details.

Key to species

A. Plants wholly submerged; leaves linear with a single vein; fruits deeply furrowed midway.

*Callitriche hermaphrodita*

aa. Plants with broad floating leaves and submerged linear ones;

B



floating leaves with 3 veins; fruit merely shallowly furrowed at suture.

B. Fruits wingless; commissural groove absent.

*C. heterophylla*

bb. Fruits winged; commissural groove present, between the wings.

*C. palustris*

***Callitriche hermaphroditica* L.**

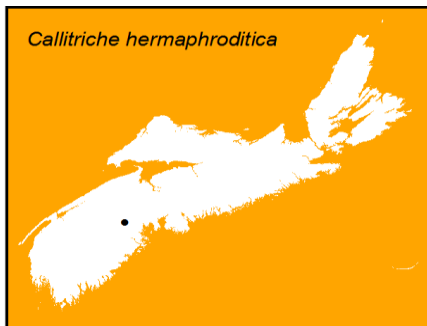
**callitriche hermaphrodite**



Photo by Sean Blaney



Photo by Sean Blaney



Plants are totally submerged, bearing linear or narrowly lanceolate leaves. Fruits are deeply cleft, 2mm tall.

Flowers from August through December throughout its range.

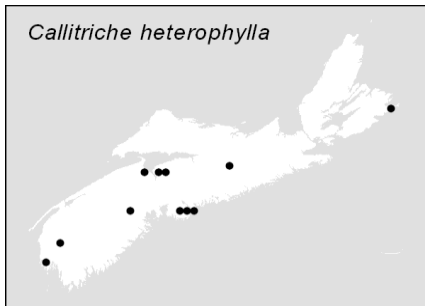
Grows in quiet alkaline or brackish waters.

Collected only once from Lunenburg Co.

Ranges from Greenland to AK, south to CA and NM; NY; AL.



### ***Callitriche heterophylla* Pursh**



Fruits are smaller on this species, about 1mm tall. The commissural groove is very shallow. Sometimes there are pits and other markings on the fruit's surface, only visible with a lens.

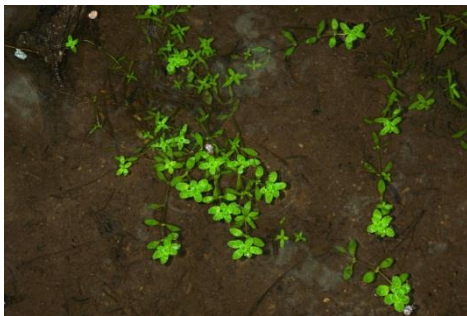
Flowers from April to December, throughout its range. No data available on NS material.

Limited to muddy substrate in quiet waters.

Collected from Yarmouth Co. to eastern Cape Breton. Absent along the Northumberland Strait.

Ranges from Greenland throughout North America but for SK and ND; Greenland.

### ***Callitriche palustris* L. callitriche des marais**



*Photo by Martin Thomas*

Another small species, with very slender stems, this one has few branches. Floating leaves may be present. If so, they are obovate with up to three veins and tapering at the base to a short petiole. The fruits are dimpled rather than grooved and ovoid, widest at the apex.

April to November flowers.

Often stranded on the mud or silt of ephemeral pools.

Scattered throughout the province but more frequent northward.

Ranges from Greenland to AK, south to CA, TX and VA.



## Campanulaceae bellflower family

A larger family, with 2000 species worldwide. They may be woody or herbaceous, but all have simple, opposite leaves. The flowers are generally sympetalous and perfect. Corollas are regular or irregular, bearing the stamens at the base that may be attached to a nectary disk. Stamen number is equal to the corolla lobes and they alternate with the lobes and sometimes form a tube around the style. Fruit a capsule, contains many seeds.

Corolla regular; carpels 3–5.

*Campanula*

Corolla bilabiate; carpels 2.

*Lobelia*

### ***Campanula* L.** bellflowers

Mostly arctic and north-temperate, there are 300 species of bellflowers. Flowers have five sepals subtending a regular five lobed corolla. Most are in racemes or clusters, ranging from palest blue to nearly purple. The fruit is strongly nerved and opens via three or five lateral pores.

#### Key to species

A. Stems slender, tenuous and lax, angled.

*Campanula aparinoides*

aa. Stems erect and ascending.

B

B. Flowers solitary, or in loose open clusters; pedicels long and slender; leaves dimorphic.

*C. rotundifolia*

bb. Flowers in a raceme; cauline leaves differing only in size.

C

C. Flowers on short pedicels; raceme secund.

*C. rapunculoides*

cc. Flowers sessile in a terminal head.

*C. glomerata*

***Campanula aparinoides* Pursh**

**Marsh Harebell; campanule faux-gaillet**



Photo by Sean Blaney

A weakly erect species with linear to narrowly elliptic leaves, marked only by shallow irregular teeth. Flowers are small, only 6–10mm long, borne on long slender pedicels.

Flowers in August.

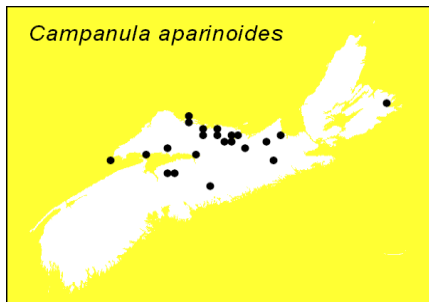
Rare, known from river banks, meadows and ditches.



Photo by Sean Blaney

Northern, from Hants and Cumberland counties to Antigonish, with a single Cape Breton station.

Ranges from NS to SK, south to CO and GA; WA.



***Campanula glomerata* L.**

**Clustered Bellflower; campanule agglomérée**



Borne on a simple, erect stem, this plant may reach 70cm tall. It is puberulent throughout. Leaves are ovate to lanceolate, their margins serrate. Inflorescence is a terminal cluster of violet flowers, subtended by leafy bracts.

Flowers during June and July.

Photo by Martin Thomas



Photo by Martin Thomas

Found roadside, in old fields and fallow pastures. Garden plant.

Infrequently encountered in Hants and Kings counties.

Ranges from NS to MB and southward. Eurasian origin.

### ***Campanula rapunculoides* L.**

**Bellflower; campanule fausse-raiponce**



Photo by Marian Munro

A perennial, it spreads from creeping rootstocks, creating weedy patches that are difficult to remove once established. The unbranched stems reach 1m, and may be smooth or finely hairy. Leaves are lanceolate or cordate, puberulent and serrate. The purple flowers are borne in an elongated raceme, the lowermost subtended by a large leafy bract.

Flowers mid-July through August.

Once planted as an ornamental, it is persistent, occasionally escaping to nearby fields, but not invasive nor spreading.

Throughout the province.

Ranges from NF to BC, south to MD and OH. Eurasian origin.



Photo by Martin Thomas

***Campanula rotundifolia* L.**

**Hare-bell; campanule à feuilles rondes**



Photo by Sean Blaney



Photo by Jamie Ellison

A variable species, it has brilliant blue or purple campanulate flowers, the corollas to 3.5cm long. Branching, leaf width and pubescence, and size are all fluid characters. Generally the cauline leaves are linear and entire, whilst the basal leaves are ovate to cordate and toothed-crenate. White-flowered forms are known from Cape Breton.

Flowers mid-June through the summer.

Abundant on coastal headlands, in turf or rock crevices; sometimes riparian inland.

Common in sea meadows and cliffs along cool coasts; in Cape Breton also inland on cliffs.

A boreal species, south to PA, IN and in Eurasia.

*Campanula trachelium* (campanule gantelée) occurs as a garden escape in the Wolfville area. It differs from *C. rapunculoides* in having its flowers in axillary clusters of two or three, in contrast to the elongated raceme of *C. rapunculoides* and the calyx and young corolla are bristly ciliate. (These are smooth or minutely pubescent in *C. rapunculoides*.)



## ***Lobelia* L.**

### **lobelias**

A widespread genus, about 300 species are known. Typically plants are rhizomatous or annual, with simple stems and leafy racemes. Corollas are irregular and resupinate. The bilabiate corolla's tube is divided nearly to the base. Anthers and filaments are connate, the lower pair shorter and bearded, surrounding the style, which extends upward through the anther tube, forcing the pollen out.

#### Key to species

- |   |                          |
|---|--------------------------|
| A. Leaves succulent, hollow, straplike.                                     | <i>Lobelia dortmanna</i> |
| aa. Leaves not succulent, flat or filiform.                                 | B                        |
| B. Leaves linear, filiform; of calcareous soils.                            | <i>L. kalmii</i>         |
| bb. Leaves lanceolate to obovate, not in specialized habitat.               | C                        |
| C. Hypanthium obovate; nearly equal to the corolla, inflated in fruit.      | <i>L. inflata</i>        |
| cc. Hypanthium conical, shorter than the corolla and not inflated in fruit. | <i>L. spicata</i>        |

### ***Lobelia dortmanna* L.**

#### **Water Lobelia; lobélie de Dortmann**



*Photo by Sean Blaney*

The dark green rosettes of the Water Lobelia are indicators of healthy, nutrient poor lakes. These are found furthest out on the lakeshore with other “isoetid” species such as the pipeworts and quillworts. Basal rosettes form hollow flowering stems that bear lilac flowers above the water. Cauline leaves are few and scalelike. Raceme is sparsely flowered with nodding lavender to white flowers.

August flowering.

Common along the edges of ponds, lakes and pools in the acidic regions. Often in sand.

Found throughout, but more common in the southwest of





*Photo by Sean Blaney*

the province.

Ranges from NF to AK, south to OR and MD and northern Europe.

### ***Lobelia inflata* L.**

**Indian Tobacco; lobélie gonflée**



*Photo by Martin Thomas*

These small annual or biennial plants produce a flowering stem from a basal rosette of leaves. The pubescent stems bear sessile ovate to oblong leaves which are shallowly toothed. The inflorescence is branched; the flowers are plentiful, bracts reducing in size upwards.

Flowers July and August.

Found generally in poor soils, fallow fields, logging roads, barrens, etc.

Common throughout, but for northern Cape Breton.

NS to ON and OK, south to LA and GA; BC.



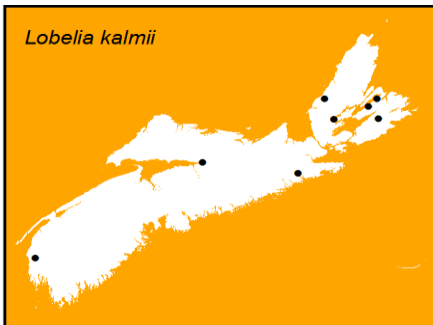
Photo by Martin Thomas

***Lobelia kalmii* L.**

**lobélie de Kalm**



Photo by Sean Blaney



Plant arises on a slender stem bearing entire, linear or narrowly elliptic leaves. The basal rosette comprises small spatulate leaves. A few flowers are borne in a slender loose raceme, violet-blue and subtended by a linear bract.

Flowers from July through September.

Limited to dripping cliffs, meadows and bogs in calcareous soils.

Rare and local. Limited to Cape Breton.

Ranges from NF to BC; NT, south to ID, IL and NJ.

***Lobelia spicata* Lam.**

**Blue Lobelia; lobélie à épi**



*Photo by Ruth Newell*

Height ranges from 0.3m to 1m, with simple stems bearing obovate sessile leaves. The basal leaves are oblanceolate. Leaves just beneath the raceme are reduced to bracts. Flowers are violet, crowded into a raceme. Each flower is subtended by a linear bract.

Found in dry fallow soils.

Very rare and at risk. Scattered locations: Cape Blomidon, Kings Co.; Linden, Cumberland Co. and reported from Yarmouth Co. Local but may be abundant where found.

Ranges from NS to ON and ND, south to OK, LA and GA.



*Photo by R. Newell*

## Cannabaceae

### hemp family

Both genera comprising this north-temperate family, are found in Nova Scotia as intentional introductions. Pungently aromatic, they are dioecious, their leaves palmately lobed or compound, and toothed. Stipules are present and persistent. Flowers are 5-merous; petals are absent. Staminate flowers are arranged loosely in racemes or panicles; pistillate flowers are densely packed, the calyx tightly clasping the ovary. The styles are divided in two to the base. Fruit is a glandular achene.

The family is a source of fibre, oils, edible seeds, hops and a psychoactive drug, THC.

Key to genera

Leaves palmately compound; stems erect, not spiny.

*Cannabis*

Leaves with 3–5 lobes; stems spiny, vining.

*Humulus*

### ***Cannabis* L.**

#### **Hemp**

Monotypic, hemp is native to Eurasia. Pistillate flowers are axillary at the top of the plants. Individual flowers are tightly enclosed by the calyces which are barely lobed. Leaves are opposite, serrate and palmately compound on long petioles, although the upper leaves may be smaller and simple. Generally plants are annual in Nova Scotia.

### ***Cannabis sativa* L.**

#### **Marijuana, Mary Jane; chanvre cultivé**



*Photo by David Mazerolle*

As above and may reach 2 m in height, appearing shrublike.

Flowers June to October.

Not persistent, escaping from cultivation periodically.

Sporadic collections have been made from Lunenburg, Digby, Kings and Pictou counties.

Scattered from NS west to BC and southward. Adventive

from Asia. With the renewed interest in hemp products, perhaps may become more common.

## ***Humulus* L.**

### **Hops**

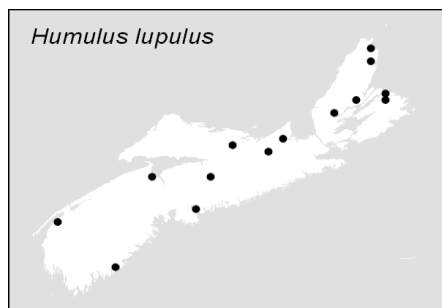
Three species comprise this genus, all are north-temperate in distribution. Perennials, they are vines with unisexual flowers. The staminate flowers are carried in a diffuse inflorescence 15cm long, on separate plants. Pistillate flowers are tiny, within a cluster of papery bracts and bracteoles, to 6cm in length.

## ***Humulus lupulus* L.**

### **Hops; houblon commun**



Photo by David Mazerolle



Clambering on adjacent trees and shrubs, these vines may reach 10m in length. The opposite leaves are usually 3-lobed occasionally 5-lobed, their margins serrate. Distal leaves may be merely ovate and serrated. The fruit (hops) are stramineous at maturity and cylindrical. The plants are aromatic from the resin.

Two varieties are recognized, the typical variety which is introduced and var. *lupuloides* E. Small, a native form. Our material should be examined to determine varietal distribution. The native variety is probably rare.

Flowers during the summer months.

Sometimes persisting around old house sites and in hedges in agricultural land.

Formerly much planted, still found occasionally.

Reported from most of the continent, wherever hops were planted. It is of Eurasian origin and partly native.

## Caprifoliaceae

### honeysuckle family

Honeysuckles and related genera total about 400 species, and are woody vines, trees or shrubs. Most are boreal or north-temperate plants with simple, opposite leaves although some have pinnately compound leaves. Inflorescence is a cyme or cymose and the flowers are 3–5-merous. The calyx is constricted beneath the limb. Corolla is regular or irregular, sympetalous with stamens attached to its tube. Ovary is wholly or partly inferior, carpels 3–5 with more than one locule. Styles may be sessile on the ovary. If style is absent, then the stigma is sessile. Ornamentals in this family include snowberry, honeysuckle and highbush-cranberry.

#### Key to genera

- |   |                       |
|---|-----------------------|
| A. Style absent or very short; corolla small, rotate or campanulate, usually white and regular.                 | B                     |
| B. Leaves simple; fruit a drupe, with one seed.   | <i>Viburnum</i>       |
| bb. Leaves pinnate; fruit a berry, 3–5 seeds.   | <i>Sambucus</i>       |
| aa. Style elongated; corolla various.   | C                     |
| C. Plant a vine; flowers in pairs; corolla lobes 5, stamens 4.  | <i>Linnaea</i>        |
| cc. Plant erect or a vine; flowers cymose or in pairs; corolla lobes and stamens equal in number, most often 5. | D                     |
| D. Erect, herbaceous.   | <i>Triosteum</i>      |
| dd. An erect shrub, or climbing vine.   | E                     |
| E. Leaves serrated; fruit a capsule.  | <i>Diervilla</i>      |
| ee. Leaves entire; fruit fleshy.  | F                     |
| F. Corolla 1cm or more in length; locules 2–3.  | <i>Lonicera</i>       |
| ff. Corolla <8mm long; locules 4.   | <i>Symphoricarpos</i> |

### *Diervilla* P. Miller

#### Bush Honeysuckle

Limited to North America, there are only three species included. All are low-growing shrubs, bearing serrated opposite leaves and yellow flowers in cymes. The corolla is funnelform, the lobes and stamens in fives. Stamens are barely exerted. Hypanthium extends beyond the ovary, persisting as a beak.



***Diervilla lonicera* P. Mill**

**Bush Honeysuckle; dièreville chèvrefeuille**



*Photo by Sean Blaney*

The leaves are often bronze or purplish and large. The yellow flowers have the upper two corolla lobes longer than the lower three. The capsules are dehiscent.

Flowers late June through July.

Grows in dry habitat where the soil is sandy and stony as along railbeds, roadsides and fields.

Common throughout Nova Scotia.

Ranges from NF to SK, south to AL and GA.



*Photo by Sean Blaney*



*Photo by Martin Thomas*

***Linnaea* L.**

**Twinflower**

Circumboreal in distribution, Twinflower is monotypic. Barely woody, it is an evergreen vine with sessile ovate leaves. Inflorescence is terminal and limited to a pair of campanulate flowers on a scape. Five-merous, with only four inserted stamens. Ovary has three locules producing single seeded capsules.

***Linnaea borealis* L.**

**Twinflower; linnée boréale**



Photo by Mark Elderkin



Photo by Sean Blaney

A shallow-rooted trailing plant, it bears tiny rounded leaves, crenately toothed. Campanulate flowers are erect on slender scapes.

Flowers in June.

Frequents moist, mossy acidic soils as in wooded swamps, spruce bogs and coniferous forests.

Common throughout.

Ranges from NL to AK, south to CA, NM and TN; Eurasia.

***Lonicera* L.**

**honeysuckles**

Plants of the northern hemisphere, there are about 180 species worldwide. Shrubs or woody vines, they bear simple leaves with mostly entire margins. Inflorescence is terminal, with one or more whorls of six flowers. A few species have axillary pairs of sessile flowers, united at the base of the ovaries. Corollas are tubular, with five lobes, while sometimes appearing bilabiate with two pairs opposing a single limb. Fruit is fleshy and usually berrylike.

**Key to species**

A. Flowers in opposite, sessile cymes of three flowers; woody vine.

*Lonicera periclymenum*

aa. Flowers paired; plants erect, not climbing.

B

B. Corolla weakly bilabiate; style hirsute; garden species.

*L. tatarica*

bb. Corolla not bilabiate; styles smooth; native species.

C

C. Ovaries separate, divergent; fruit red.

*L. canadensis*

cc. Ovaries conjoined; fruit blue.

*L. villosa*

***Lonicera canadensis* Bartr.**

**Fly Honeysuckle; chèvrefeuille du Canada**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

A shrub, it bears particularly slender twigs. The leaves are ovate and thin in texture, sometimes glaucous below. Flowers are greenish or yellowish, carried in pairs on drooping peduncles. Fruits are red and nearly distinct.

Flowers in early May.

Found in light soils of rocky woods and ravines, often below deciduous canopy.

Common throughout NS, especially along the northern half.

Ranges from NS to ON, south to GA and IA.

***Lonicera periclymenum* L.**

**Woodbine; chèvrefeuille des bois**



*Photo by Marian Munro*

A woody ornamental vine, it has pairs of sessile ovate leaves; their veins are prominently white. The flowers are borne in a tight terminal cluster, initially purplish fading to yellow.

Flowers July and August.

Found roadside and along edges of thickets, hedges and forests.

A common escape from Yarmouth Co., east to the Musquodoboit River.

Native to Eurasia, NS; ON; ME; WA and OR.

***Lonicera tatarica* L.**

**Tatarian Honeysuckle; chèvrefeuille de Tartarie**



*Photo by Sean Blaney*

A smooth shrub, it has hollow shoots and thin ovate to lanceolate leaves. Flowers are axillary and pedunculate, pink to white.

Flowers May and June.

A garden escape, to edges of fields, forests and shady streams.

Primarily limited to the Annapolis Valley as an introduction.

Ranges from NS to AB and AK, south to CA, NM and VA.  
Introduced from Eurasia.

***Lonicera villosa* (Michx.) R&S.**

**Mountain Fly Honeysuckle; chèvrefeuille velu**



*Photo by David Mazerolle*

A low-growing shrub, rarely taller than a meter, it bears strongly ascending branches and appressed or ascending winter buds. The leaves are nearly sessile, oblong to oblanceolate and blunt, generally pubescent and leathery. The pedunculate flowers are yellowish and the corolla lobes are subequal. We have four varieties:

A. Leaves densely villous or almost tomentose on      var. *villosa*  
upper and lower surfaces; limb of calyx ciliate;



Photo by David Mazerolle

- corolla villous; short shrub.
- aa. Leaves pilose to merely hirsute, even smooth beneath; strigose to glabrous above; calyx limb and corolla mostly glabrous; taller shrub. B
- B. Young branchlets puberulent. C
- C. Young branchlets puberulent and pilose-hirsute. var. *solonis*
- cc. Young branchlets merely puberulent. var. *tonsa*
- bb. Young branchlets glabrous var. *tonsa*

Flowers in May.

Peaty soils in bogs, on barrens in cooler regions.

Scattered throughout the province.

Ranges from NF to NU and AB, south to MN, OH and PA.

## ***Sambucus* L. elderberries**

Elderberries are a widespread genus, including 20 species. Flowers are white and numerous, borne in large terminal cymes. Corollas are regular and five-merous. Styles are very short atop an ovary divided into 3–5 locules. Fruit is a succulent berry. Unlike others in this family in NS, the leaves are pinnately compound.

### Key to species

- |   |                       |
|---|-----------------------|
| Inflorescence with 5 palmate rays, lacking a central axis, flat-topped.             | <i>Sambucus nigra</i> |
| Inflorescence paniculate, central axis extending up through the flowers; pyramidal. | <i>S. racemosus</i>   |

***Sambucus nigra* L.  
(=*S. canadensis* L.)  
Common Elder; sureau noir**





Photo by Martin Thomas



Photo by David Mazerolle

Distinct with the next species, in being our only genus of shrubs with opposite, pinnate leaves. Leaflets are serrate and elliptical, cuneate at the base and often glaucous below. Inflorescence is a cyme, the central axis absent. Fruit is purplish black and edible. Young twigs have white pith. Ours is ssp. *canadensis* (L.) R. Bolli

Flowers 15 July to August.

Fertile soils along streams, at the edges of fields and forests.

Scattered throughout, most prevalent in the central counties.

Ranges from NS to MB, south to MT, CA and FL.

### ***Sambucus racemosa* L.**

#### **Red-berried Elder; sureau à grappes**



Photo by Ross Hall



It is primarily separated on the fruit colour and the shape of the inflorescence. This species has a pyramidal flower and fruit cluster, rather than the flat-topped cyme of Common Elder. Its fruit are red. The pith of the young twigs is brown. Leaves are similar to the previous species.

Flowers in June.

Shady sites in wet soils in fertile areas, forests and streamsides.

Common throughout mainland NS, less frequent in northern Cape Breton.

Ranges from NF to AK, south to CA, TN and GA. Absent from the arid plains.



Photo by Ross Hall

CAUTION: BERRIES ARE POISONOUS.



### ***Symphoricarpos* Duhamel**

A North American genus, it includes nine species, including one in China and a single species introduced to NS. All are low-growing shrubs producing white or red drupes. The leaves are ovate to round, sometimes lobed or toothed and petiolate. Flowers are pink or white, in small terminal or axillary clusters. Flowers are five-merous and mostly regular. Ovaries have four locules, with several ovules, which are aborted. Drupes contain two stones.

### ***Symphoricarpos alba* (L.) Blake**

#### **Snowberry; Waxberry; symphorine blanche**



Photo by Ross Hall

A small puberulent shrub, it has ovate entire leaves. The pairs of campanulate flowers arise in the axils. Fruit clusters are of white waxy berries.

An ornamental from further west, it is to be expected around gardens and old dwellings.

Scattered throughout the province.

Native to CA and MT, cultivated eastward.

CAUTION: BERRIES ARE TOXIC.



***Triosteum* L.**  
**horse-gentian**

North American and Asian in distribution, only one of 10 species reaches NS. Tall coarse herbs, they have large sessile leaves. Flowers are borne in small clusters or singly in the leaf axils. Corolla is campanulate or tubular and maybe gibbous at the base. Flowers are five-merous, the ovary has only four locules, of which three are functional. Fruit is a dry drupe with three seeds.

***Triosteum aurantiacum* Nickn.**

**Feverwort; Horse-gentian; trioste orangé**



*Photo by David Mazerolle*

A coarse plant, it is hirsute on the stem and upper surfaces of the leaves. Sessile, the leaves are clasping at the base and downy below. Fruits are also villous. The sessile flowers are reddish-purple, producing bright orange fruits.

Flowers in July.

Fertile soils along intervalles, riparian zones and limestone slopes.



*Photo by David Mazerolle*

Local in NS. Rare. Kemptown intervalle along the Salmon River and near New Glasgow. Occasional in Hants Co and in northern Cape Breton.

Ranges from NS to ON, south to WI, GA and IA.

STATUS: YELLOW-listed.

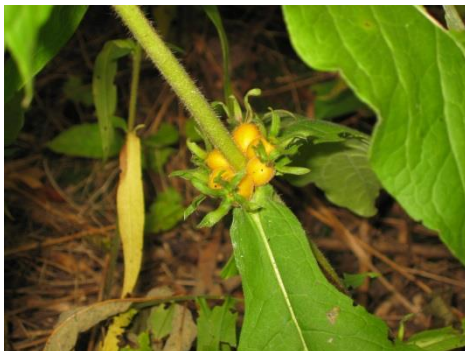
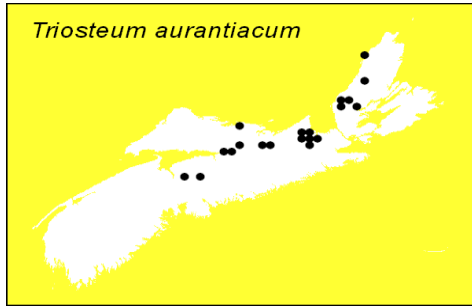


Photo by Sean Blaney



## ***Viburnum* L.**

Widespread in distribution, *Viburnum* includes about 250 species of shrubs and trees. All produce simple leaves and cymose inflorescences of small white flowers. Corollas are regular, or sometimes irregular along the edge of the inflorescence. Flowers are five-merous. Style is absent, the stigmata sessile on the ovaries. Fruits are drupes, with single seeds.

Key to species

- |  |                             |
|--|-----------------------------|
| A. Marginal flowers much larger than central ones, corollas irregular. | B                           |
| B. Leaves pinnately veined, not lobed.                                 | <i>Viburnum lantanoides</i> |
| bb. Leaves palmately veined, lobed.                                    | <i>V. opulus</i>            |
| aa. Flowers all the same.  | C                           |
| C. Leaves lobed.   | <i>V. edule</i>             |
| cc. Leaves not lobed.  | <i>V. nudum</i>             |

***Viburnum dentatum* L.** Southern Arrow-wood has been collected from Annapolis Royal but once. This plant probably hasn't established yet.

### ***Viburnum edule***

**Squashberry; Mooseberry; viorne comestible**



Photo by Sean Blaney

Leaves are distinctive, serrate and trilobed, glaucous below. Venation is palmately arranged, the veins puberulent below. Cymes are pedunculate, the flowers similar in size. Fruit is red. Two pairs of bud scales are present.

Flowers from May through August.

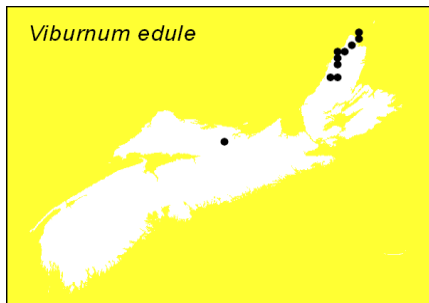
Usually in colder forests and streamsides. Characteristic of mature conifer forests.

Limited to northern Cape Breton.

Ranges from NL to AK, south to PA, CO and OR.



Photo by Sean Blaney



***Viburnum lantanoides* Michx.**

**(=*Viburnum alnifolium* Marsh.)**

**Hobble-bush; viorne bois-d'original**



A low shrub, hobblebush is distinctive. The cordate leaves are acute and serrate. A secondary venation marks the leaves in parallel lines across the pinnate veins. The petioles and peduncles are densely brown tomentose, in addition to the lower leaf surfaces. There is a ring of sterile flowers at the margin of the inflorescence. These are much larger than the reduced fertile flowers within. Winter bud scales in two pairs.



Photo by Sean Blaney



Photo by Ross Hall



Photo by Sean Blaney

Flowers from mid-May through to mid-June.

Fertile soils in mixed forests and along shady ravines.  
Especially prevalent in deciduous woods.

Infrequent in the southwest, common from Digby to Cape Breton.

Ranges from NS to ON, south to GA and TN.

### ***Viburnum nudum* L.**

**Witherod; Wild Raisin; viorne à cymes pédonculées; sginaqanmusi**



Photo by Marian Munro



A familiar shrub, it produces lanceolate leaves which are shallowly toothed and marked by a pinnate venation. The central rib is prominent and often whitish. The leaves, twigs and flower stalks are minutely spotted with brown dots. Flowers are all similar, on ascending pedicels in pedunculate cymes. Witherod has a distinctive odour in fall, and the pairs of winter buds are long and rusty in colour. The blue berries are abundant but not flavourful raw. Ours is var. *cassinoides* (L.) Torr. & Gray.

Flowers late June to July 15.

Wet soils as in swamps, lowlands, on barrens and fallow fields. Widely tolerant.

Common throughout.

NF to ON, south to TX and FL..

Photo by Sean Blaney

### ***Viburnum opulus* L.**

#### **Cranberrybush**



Photo by Martin Thomas

Leaves are trilobed and serrate, distinctive with the presence of glands at the top of the petioles. Outer flowers of the cymes are sterile, exceeding the inner fertile ones in size. Clusters of drooping scarlet red berries are produced, persisting into the winter. The lower surface of the leaves are glabrous but for the veins and grooved petioles.

We have two varieties: the native var. *americanum* Aiton has the glands on the petioles stalked. And the European species, var. *opulus*, an introduction in the northeast has sessile petiolar glands.

Flowers during June and into July.

Understory shrub, along streams and in thickets.

Scattered from Annapolis and Cumberland counties to northern Cape Breton. Common in central Nova Scotia.

From NL to BC south to WY and IL; NM.

## **Caryophyllaceae**

### **pink family**

A wide-ranging family, there are nearly 2000 herbaceous annuals or perennials included within. They are typified by the opposite or whorled leaves and swollen leaf nodes. Generally the flowers are perfect and often the corolla has five petals which may be cleft. The calyx has five sepals; there are 10 stamens. Fruit is a dry capsule.



Numerous ornamentals are derived from the family; many have been planted in Nova Scotia. Some thrive without cultivation becoming weedy in disturbed soils and others naturalize, but only for a short while.

#### Key to genera

- A. Stipules present, dry, scarious, not green. B
  - B. Leaves linear; styles and valves of the capsule 3; flowers white or pink. *Spergularia*
  - bb. Leaves filiform, whorled; styles and valves 5; flowers white. *Spergula*
- aa. Stipules absent. C
  - C. Petals absent; fruit with a single seed. *Scleranthus*
  - cc. Petals usually present; capsules with few to many seeds. D
    - D. Plants small and often prostrate; flowers <1cm wide; sepals separate. E
      - E. Capsule cylindrical, slightly curved, opening by a row of small teeth at the summit; plants pubescent. *Cerastium*
      - ee. Capsule oval or oblong; splitting into valves; plants smooth, or with merely a row of hairs down the stem. F
        - F. Leaves filiform; plant tufted; petals shorter than the sepals; styles 4–5. *Sagina*
        - ff. Leaves not filiform; plant erect; petals exceeding sepals; styles 3. G
          - G. Petals cleft or absent; stems soft, quadrangled, diffusely spreading. *Stellaria*
          - gg. Petals not cleft; stems round, wiry and usually erect. H
            - H. Plant fleshy, maritime. *Honckenya*
            - hh. Plant not fleshy nor restricted to saline habitats. I
              - I. Leaves linear to setaceous; capsule with 3 teeth. *Minuartia*
              - ii. Leaves ovate, elliptical or lanceolate; capsule with >3 teeth. J
                - J. Leaves <8mm long; annual. *Arenaria*
                - jj. Leaves >8mm long; perennial. *Moehringia*
        - dd. Plants large, erect; sepals united, forming tubular calyx; flowers >1cm wide. K
          - K. Calyx subtended by an involucre. *Dianthus*
          - kk. Calyx without an involucre. L
            - L. Styles 3 or 5. M
              - M. Calyx lobes exceeding the tube; petals without appendages. *Agrostemma*

mm. Calyx lobes much shorter than the tube; petals with appendages.	N
N. Capsule with 5 teeth; styles 5; flowers perfect.	<i>Lychnis</i>
nn. Capsule with twice the number of teeth as styles; both staminate and pistillate flowers present.	<i>Silene</i>
II. Styles 2.	O
O. Petals with claw and blade, appendages conspicuous; calyx with 20 veins.	<i>Saponaria</i>
oo. Petals without appendages; calyx with 5 veins.	<i>Vaccaria</i>

## ***Agrostemma* L.**

### **Corn-cockle**

Comprised of only two Eurasian annuals, one has been introduced into Nova Scotia. Formerly a contaminant in crop now seen in wildflower seed mixtures, although not persisting in native habitats. The calyx-lobes greatly exceed the length of the calyx-tube, which is also coarsely ribbed. Corollas are five-merous; stamens 10. Capsule is dehiscent and contains five valves.

## ***Agrostemma githago* L.**

### **Corn-cockle, nielle des blés**

Reaching upwards of 1m, plant has few branches. Leaves are narrowly lanceolate. Flowers are solitary and showy, ranging from magenta to purple. Calyx-lobes are longer than the petals and sepals are covered in white tomentum.

Flowers from June to September.

Habitat seems to be grain fields, roadsides and meadows planted with flower seed mixtures. Becoming infrequent over time as seed used is cleaner.

Sporadically reported and seen on Brier Island. Collected from Kings and Cumberland counties.

Widely established on the continent. Introduced from Europe.

## ***Arenaria* L.**

### **Sandworts**

Diffuse, herbaceous plants, the sandworts have weak stems and opposite sessile leaves. Plants are often puberulent. Small white flowers are pedicellate, arranged in small bracteate panicles. Sepals are separate and acuminate, five, subtending five shorter, entire petals. Stamens 10, styles half as many. Fruit is a capsule containing many seeds, exceeding the length of the sepals and dehiscent by six teeth.

## ***Arenaria serpyllifolia* L.**

### **Thyme-leaved Sandwort; sabline à feuilles de serpolet**



*Photo by Sean Blaney*

A delicate plant with acute, ovate leaves. The inflorescence is widely diffuse; the flowers arise halfway along the height of the plant.

May flower as early as April, until August.

Frequently found in compact sterile soils, as along roadsides and oldfields.

Kings and Hants counties, especially along the railways. Also reported from Summerville, Queens Co.

Introduced to most of the continent; a native of Eurasia.

## ***Cerastium* L**

### **chickweeds**

Annual or perennial, all 100 species of this genus are herbaceous. They are typified by their opposite pairs of small leaves. Stipules are absent. Flowers have bilobed petals. Ours are generally of disturbed soils, such as lawns, roadsides, meadows. All are introduced or adventive from Eurasia.

Key to species

A. Plants perennial.

B

B. Plants densely white-tomentose.

*Cerastium tomentosum*

- bb. Plants green, smooth or pubescent. C
  - C. Petals equal to or shorter than the sepals. *C. fontanum*
  - cc. Petals 10mm long, much-exceeding the sepals and showy; mat forming. *C. arvense*
- aa. Plants annual.
  - D. Petals equal to or longer than the sepals; cleft 1–1.5mm. *C. pumilum*
  - dd. Petals shorter than the sepals, divided less than 1mm. *C. semidecandrum*

***Cerastium arvense* L.**

**Field Chickweed; céraiste des champs**



*Photo by Ross Hall*

A more compact plant than the next species, it rarely reaches 40cm. Its leaves are lanceolate with small leafy branches arising from the axils. Petals greatly exceed the length of the sepals. Smooth to pubescent eglandular plants belong to ssp. *arvense* while ssp. *trictum* (L) Ugborogho includes small plants covered with glandular pubescence. This western variety has been collected from Blomidon and St. Paul Island. Not reported since the 1950s.

Early-flowering, in June.

Fields and roadsides.

Scattered and locally abundant, Port Williams and Canard, Kings Co. and Truro. Uncommon from Lunenburg to Cumberland, Pictou and Antigonish counties.

Widespread throughout the northern hemisphere.

***Cerastium fontanum* Baumg.**

**(*C. vulgatum* L.)**

**Mouse-ear Chickweed; céraiste des fontaines**



Photo by Martin Thomas



Photo by Martin Thomas

Robust and sprawling the plant may reach 60cm in height, or length. Plants are covered with coarse pubescence and may be freely branched from the base. Leaves are oblong or ovate, pubescent on both surfaces. Our material is included as ssp. *vulgare* (Hartm.) Greuter & Burdet. Flowers are not showy; the sepals and petals are of equal lengths.

May until frost.

Compacted soils, especially on moist lawns and other arable land.

Common through NS and temperate North America.

***Cerastium pumilum* W. Curtis**  
céraiste nain



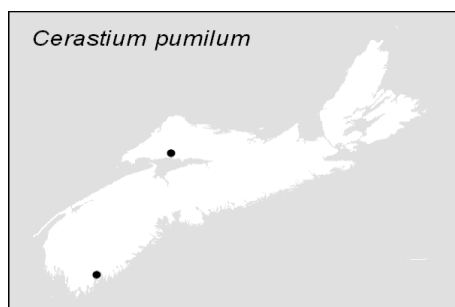
Photo by Sean Blaney

This is a compact plant with small leaves similar to the next species, but without the stickiness. The bracts subtending the inflorescence have inconspicuous scarious margins. Petals may slightly exceed the sepals. Seeds are papillose.

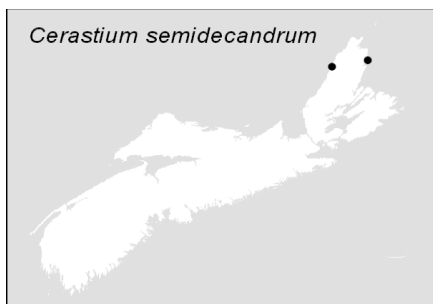
Early-flowering.



Photo by Martin Thomas



***Cerastium semidecandrum* L.**  
**céraiste à cinq étamines**



Disturbed and compacted soils.

Known from several parks and campgrounds of Shelburne, Annapolis and Yarmouth counties.

Ranges from NS to ON, variously south to TX; BC. Probably overlooked.

An annual species, it is viscid in texture and pubescent. Plants are compact and less than 20cm in height. Small leaves are oblanceolate at the base of the plant, while the cauline leaves are ovate. Pedicels are longer than the sepals, nodding in fruit. The acuminate bracts have conspicuous, scarious margins. Seeds are not papillose.

Disturbed and compacted soil, as at campgrounds.



Cape Breton Highlands National Park, at Corney Brook and Broad Cove; Islands Provincial Park, Shelburne Co. and at Ellenwood Provincial Park, Yarmouth Co.

NS and NB; ON south to NE, LA and FL; west coast.

***Cerastium tomentosum* L.**

**Snow-in-Summer; céraiste tomenteux**



*Photos by Martin Thomas*



A distinctive persistent annual, it is distinguished by the presence of large showy white flowers and the copious covering of twisted white tomentum. The petals are cleft at least a third of their length.

Flowers June to August.

Frequently persisting after cultivation as a rock garden plant.

To be expected throughout the province. Collections exist from most mainland counties.

Ranges from NF to MB; BC, variously south to UT and NC. Introduced as a garden perennial.

***Dianthus* L.**

**Pinks**

A genus of Eurasia, there are about 300 species in total. Typically, they bear solitary red, pink or white flowers, or crownlike cymes. Calyx is veined with at least 20 markings, subtended by 1–3 bracts. Petals

may be notched, but have no appendages. Fruit is a capsule, dehiscing by three valves. Many are ornamentals and several are established as escapes.

#### Key to species

Plants perennial; flowers solitary on long pedicels, subtended by 2 ovate bracts, < half as long as the calyx.

*Dianthus deltoides*

Plants annual; flowers tightly clustered in terminal cymes, subtended by numerous pubescent bracts, equal in length to the calyx.

*D. armeria*

#### ***Dianthus armeria* L.**

##### **Deptford Pink; oeillet arméria**



*Photo by David Mazerolle*

A lightly pubescent plant this species may reach 60cm in height. Leaves are linear or lanceolate. Flowers are tightly clustered, 3–9 in the inflorescence, subtended by long stiff bracts which may extend beyond the calyx. Petals range from pink to purple.

May to July.

Dry fields, roadsides as an escape.

Scattered from Sandy Cove, Digby Co. and throughout the Annapolis Valley. Infrequent elsewhere.

NS to BC, south to CA and FL. Absent from the prairie provinces.



*Photo by Martin Thomas*

#### ***Dianthus deltoides* L.**

##### **Maiden Pink; oeillet à delta**



Photo by Martin Thomas

Solitary flowers are borne on slender pedicels, 1–4cm long. Involucral bracts are acuminate and ovate, shorter than the calyx.

Flowers from May to August.

Roadsides, meadows, fields and edges where soil is dry or stony.



Photo by Sean Blaney

Uncommon and often overlooked. Meteghan, Digby County, through the Annapolis Valley and along the North Mountain. Elsewhere collected from Mill Village, Queens Co., Halifax and Truro.

Ranging from NS to BC, south to CA, AR and NC.

## ***Honckenya* Ehrh.**

A genus of only two species, both are succulent halophytes. Flowers are solitary and axillary, unisexual. Staminate flowers have the petals and sepals equal in length, while the pistillate flowers have much smaller petals. Few seeds are produced, which are quite large at 3–5mm.

### ***Honckenya peploides* (L.) Ehrh.**

#### **Seabeach Sandwort; honckénye robuste**



Photo by David Mazerolle

Colonial, plants form large patches of erect flesh stems. Freely branching, the fleshy leaves are sessile and broadly lanceolate. Flowers in the leaf axils are on very short pedicels, more inconspicuous than showy. Pistillate flowers have petals less than 2mm long.

Flowers from May to September.



Photo by Alain Belliveau

Sandy beaches.

Around the coast throughout the province.

From NF to AK, south to OR and VA on either coast, absent from the prairies.

## ***Lychnis* L.**

A genus of Eurasia, there are three adventive or established species in Nova Scotia. Generally they are tall perennials bearing pink to dark red flowers, with the occasional white cultivar. Styles usually number five although 4–6 are not unheard of, with the capsule bearing equal number of dehiscent valves.

Key to species

- |  |                          |
|--|--------------------------|
| A. Plant densely tomentose, with grayish tomentum; flowers shallowly notched.  | <i>Lychnis coronaria</i> |
| aa. Plant hirsute or smooth, but not tomentose; flowers deeply cleft.  | B                        |
| B. Flowers carried in loose cymes; petals 2–4-cleft; plant smooth; sepals bell-shaped and marked by dark purple lines.             | <i>L. flos-cuculi</i>    |
| bb. Flowers borne in single dense head, petals evenly cleft into two lobes; calyx very long and tubular; plant coarsely pubescent. | <i>L. chalconica</i>     |

## ***Lychnis chalconica* L.**

### **Scarlet Lychnis; Maltese Cross; lychnide de Chalcédoine**

Maltese Cross is a tall coarse plant, with a sparsely branched stem and pairs of ovate leaves. Plants are hirsute. Flowers are borne in a single dense cluster; the scarlet petals are evenly cleft into two lobes.

Flowers June to August.

Occasionally in waste ground and disturbed soils, from Kings County to Colchester County and in Cape Breton.

NS west to AB; AK, south to ID, IL and PA. Garden escape.

***Lychnis coronaria* (L.) Desr.**

**Mullein Pink; lychnide coronaire**

Distinctively cloaked in grey wool, the flowers arise on long pedicels. Their petals are notched only slightly at the distal end.

Summer-flowering.

Rocky woods, roadsides.

Reported and collected only from Lunenburg Co. Garden escape.

Elsewhere known from NS to ON south to GA and LA; BC to CA and MT.

***Lychnis flos-cuculi* L.**

**Ragged Robin; lychnide fleur-de-coucou**



*Photo by Martin Thomas*

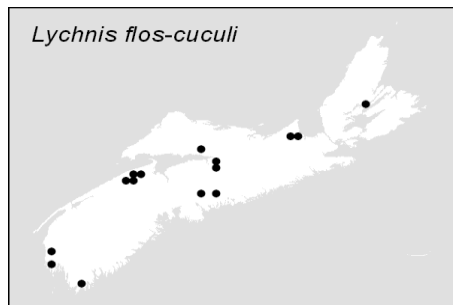
The basal leaves are petiolate while the cauline leaves are sessile. All are obovate, except below the inflorescence where they are lanceolate. Corollas are ragged in appearance and rose or purple. The petals are lobed, with each lobe being further cleft or toothed. Sepals are campanulate and 8–10mm long, with distinct purple lines.

Flowers from May through July.

Limited to wet ditches, meadows, where it is long-persistent.

Local but abundant where found, from Yarmouth to Colchester and Victoria counties.

Ranges from NF to ON, south to WI and VA; western.





## ***Minuartia* L**

### **Sandwort; Stitchwort**

Typified by their presence in inhospitable habitats, this genus of small tufted herbs has a single species in Nova Scotia. They are defined by having decussate leaves and usually white flowers.

#### ***Minuartia groenlandica* (Retz.) Ostenf.**

##### **Greenland Sandwort; minuartie du Groenland**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

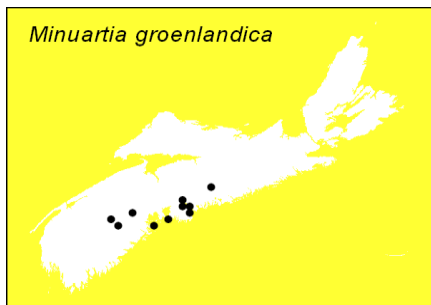
Freely-branching, they bear long-narrow leaves, crowded at the base,. Cauline leaves are smaller and fewer along the wiry stems. Flowers are showy white.

Appearing from June to October.

Granite ledges, crevices and gravels, coastal headlands..

Halifax and Lunenburg counties; French Mountain, Inverness County. Recently collected from White's Cove, Digby Co.

Ranges from Greenland to NU, south to NY; disjunct in VA, NC and TN.





***Moerhingia* L.**  
**sandworts**

Three North American species have been ascribed to this genus; two were once included in *Arenaria*. All are small herbs with sparingly branched downy stems. Leaves are ovate to elliptic. Flowers are borne axillary, solitary or few per axil. Petals are white.

***Moehringia lateriflora* (L.) Fenzl**  
**sabline latériflore**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



*Photo by Sean Blaney*

No more than 20cm in height, this species has downy stems and puberulent leaves. The white petals are 4–6mm long.

June to September.

Frequents damp thickets, meadows and coastal headlands.

Very common throughout.

Ranges from NF to AK, south to NV, NM and VA; Eurasia.

## ***Sagina* L.**

### **Pearlworts**

Cool-temperate herbs total 15 mat-forming species. Flowers are terminal and solitary, or clustered in the leaf axils. Flowers are 4–5-merous. Petals are white. Stipules are absent. Some have been used as forage in Europe, especially in early spring.

#### Key to species

Flower parts in 4s; petals shorter than the sepals; upper leaves without clusters of smaller leaves in the axils.

*Sagina procumbens*

Flower parts in 5s; petals much longer than the sepals and showy; upper leaves having tight clusters of smaller leaves in the axils.

*S. nodosa*

### ***Sagina nodosa* (L.) Frenzl**

#### **Knotted Pearlwort; sagine noueuse**



*Photo by Sean Blaney*

Resembling the next species, it is differentiated by the darker appearance, and presence of reduced leaves in the axils. Stems may be dark green or purplish. Flowers are white, the petals exceeding the length of the sepals. Two subspecies are recognized: ssp. *nodosa* is a smooth plant, introduced to Atlantic Canada, QC, ME and MA. Ssp. *borealis* Crow has glandular pubescence on the petals and lower



Photo by Sean Blaney

stems, and is believed to be native.

Flowers from July to September.

Coastal cliffs, sand flats and dune slopes.

Scattered from Annapolis to Guysborough counties.

Native subspecies ranges from Greenland to NT, south to MA and MI.

***Sagina procumbens* L**  
**Pearlwort; sagine couchée**



Photo by Sean Blaney

It is a delicate species with slender stems. Its whorled leaves are filiform. Plant has a yellowish-green hue, in contrast with the darker species above. Flowers are white but inconspicuous, the petals exceeded by the sepals. It may be profusely branched and matted.

Flowers May to October.

Coastal rock crevices, dripping cliffs and damp grassy areas.

Abundant throughout the province, including Sable Island.

In coastal areas around the continent and in the Mississippian states. Great Lakes region; Eurasia.

## ***Saponaria* L.**

### **Soapwort**

A genus of 30 temperate species, distributed throughout Eurasia. Inflorescence is crowded with single or double flowers, also bearing a clawlike appendage in addition to the blade. These may be pink or white and have a pleasant fragrance. The cylindrical calyx is thin.

### ***Saponaria officinalis* L.**

#### **Bouncing-Bet; Soapwort; saponaire officinale**



*Photo by Sean Blaney*

A coarse-stemmed plant, stems may reach 1m. They are simple or loosely branched and bearing lanceolate or ovate leaves. Additional leafy shoots may arise in the leaf axils. Showy flowers are crowded in the inflorescence. Recently escaped plants may have double flowers. Calyx is tubular, long and papery thin. The plants are nearly smooth.

Look for flowers in July to early August.

Roadsides, abandoned properties and old gardens. Escaped from cultivation and very persistent, but not aggressively spreading.

Generally frequent from Digby to Pictou counties.

Throughout North America; from Europe.





Photo by Martin Thomas

## ***Scleranthus* L.**

### **Knawel**

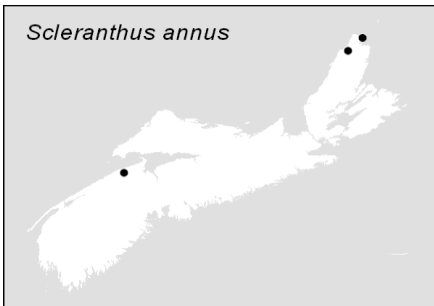
A European genus of 10 species, one was introduced to Nova Scotia in decades past. Flowers are perfect and carried in terminal cymes. Calyx is five-merous, sepals are fused to form an hypanthium (calyx tube). Petals are absent.

## ***Scleranthus annuus* L.**

### **Knawel; scléranthe annuel**



Photo by David Mazerolle



Freely-branching and matted, it rarely exceeds 15cm in height. Tiny greenish flowers are crowded in the inflorescence, each no longer than 6mm and sessile. Narrow sessile leaves clasp the stem. They are usually less than 1cm long.

Flowering from March to October throughout its range. NS phenology unknown.

Inhabits roadsides and waste ground.

Collected from Waterville, Kings Co. (1945) and known from other Annapolis Valley stations. Also collected at Grand Etang and Cheticamp, Inverness Co. Recently collected on Brier Island (Blaney, 2012).

Known from NF to ON, south to the Gulf of Mexico; BC east to SK, south to CA.

## ***Silene* L.**

### **campions**

A genus of 400 annual or perennial herbs, mostly they are limited to the north-temperate areas. Only one of our species is native. Flowers may be perfect, or unisexual, stamens fused to the calyx. Tube may

be inflated and variously smooth, glandular or merely pubescent. Stamens number 10; styles range from 0–5 (absent in the staminate flowers). The plants have an equal number of valves on the dehiscent capsule. Leaves are entire; stipules are absent.

#### Key to species

- |  |                       |
|--|-----------------------|
| A. Dwarf, compact mounds; flowers solitary; arctic-alpine.   | <i>Silene acaulis</i> |
| aa. Large, erect plants; flowers not solitary; widespread.   | B                     |
| A. Plant including calyx smooth, or nearly so.   | C                     |
| C. Calyx usually 9mm long or less; stem may have glutinous internodes  | <i>S. antirrhina</i>  |
| cc. Calyx usually >9mm long; stem without glutinous internodes.  | D                     |
| D. Petals showy, pink to purple; calyx not saccate, veins simple; <30cm tall.  | <i>S. armeria</i>     |
| dd. Petals white, with 2 lobes; calyx much inflated and saccate in fruit, network of delicate veins; plant robust to 80cm. | <i>S. vulgaris</i>    |
| bb. Calyx and usually stems, densely pubescent to barely hirsute.  | E                     |
| E. Inflorescence a raceme; flowers solitary at the nodes, on very short pedicels.  | F                     |
| F. Petals <9mm long, lobed at least half their length; plant to 1m; spikelike racemes.                                     | <i>S. dichotoma</i>   |
| ff. Petals <5mm long, entire or merely notched; plant slender, <45cm tall; raceme secund.                                  | <i>S. gallica</i>     |
| ee. Inflorescence a cyme, flowers >1 per node; pedicels elongate.  | G                     |
| G. Flowers red, morning-opening; upper part of stem and calyx not glandular; capsules round.                               | <i>S. dioica</i>      |
| gg. Flowers white or pink, evening opening; calyx and distal stem glandular pubescent; capsule oval.                       | H                     |
| H. Plants covered with sticky pubescence; flowers perfect, styles 3; valves 6.   | <i>S. noctiflora</i>  |
| hh. Plants glandular above but not sticky; flowers unisexual; styles 5, valves 10.   | <i>S. latifolia</i>   |



***Silene acaulis* L.**

**Moss Champion; silène acaule**



Photo by Jamie Ellison

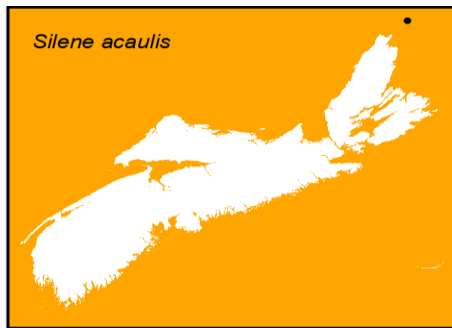
Small, mosslike plants, it produces a basal rosette of very crowded overlapping leaves, less than 1cm long. Violet or purple terminal flowers are carried on short pedicels. Ours is var. *exscapa* (All.) DC.

Flowers June to August.

Gravelly, rocky, turfy barren and coastal cliffs. Windswept alpine habitats.

St. Paul Island.

NF to NU, south to ON, and NH; AK southward to NM and AZ; Greenland.



***Silene antirrhina* L.**

**Sleepy Catchfly; silène mufler**



Photo by Sean Blaney

An annual species, it arises from a slender taproot. Lower portions of the stems may be puberulent and the distal internodal regions are often glutinous or sticky. The leaves may be ciliate at their bases. The prominently ridged calyx lobes are often purplish. The petals are white suffused with red or magenta.

A plant of disturbed soils and sand barrens.

Recently found at CFB Greenwood. Unclear whether it is native or introduced.

Elsewhere found across Canada to BC and south to CA and

FL.



***Silene armeria* L.**

**Sweet William Catchfly; silène arméria**



*Photo by Martin Thomas*

Commonly planted as an annual ornamental, it has showy pink or lavender flowers. Reaching 70cm in height, the erect stem has glutinous zones beneath the inflorescence. Sessile leaves clasp the stem.

Flowers throughout the summer, from June to October.

Escaped from cultivation to roadsides and disturbed sites; grassy fields. Not long-persisting.

No collections to date, but frequently seen.

NF to ON, southward; BC. European.



*Photo by Martin Thomas*

***Silene dichotoma* Ehrh.**

**Forking Catchfly; silène fourchu**

A hirsute plant, it has lanceolate leaves on pubescent petioles, at least at the base of the plant. Petals are variously coloured, from white to red. Calyx is hirsute.

Flowers June to September.

Fields and waste ground.

Long-ago collected from Wolfville but not recorded since.

NS to BC and variously southward. Eurasian.

***Silene dioica* (L.) Clairv.**

**Red Cockle; Red Campion; silène dioïque**

Resembles *S. latifolia* but having perennial habit. Its red flowers open early in the day, rather than in the evening. Hybrids form with *S. latifolia* and intermediates are known where parent species are sympatric.

Flowering until frost.

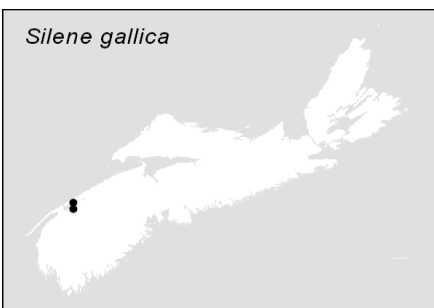
Frequents roadsides and disturbed soils.

Uncommon. Collected from Argyle, Yarmouth County, to Truro and near Amherst in Cumberland Co.

Ranges from NF to BC and south to MO and VA; wesr coast. Originating in Eurasia.

***Silene gallica* L.**

**silène de France**



Very limited in its distribution in Nova Scotia, this hirsute herb has linear to oblanceolate leaves. The inflorescence is a simple raceme with a single flower at each bracteate node.

Flowers from late June until September, in waste ground and roadsides.

Locally established at Digby and Deep Brook, Digby Co.

(reported here as early as 1902). Karsdale,  
Annapolis Co.

Ranges from NF to ON and south along the coast. Western  
North America south along the coast and inland to the Gulf  
of Mexico.

***Silene latifolia* Poiret**

**White Champion; White Cockle; silène blanc**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

A tall annual, this plant may reach 1m. Sparsely branching, the opposite pairs of leaves are ovate to lanceolate, on long petioles below and becoming sessile above. It is densely pubescent and also glandular below the inflorescence.

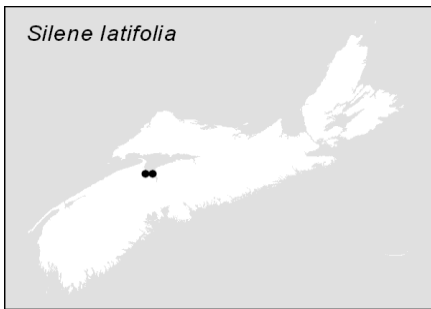
Flowers large 2.5–3.0cm wide. Calyx is fused, with five deltate teeth, green or purple and glandular-pubescent. Staminate flowers have a cylindrical calyx with 10 veins, 15–22mm long. Pistillate flowers are fragrant, their calyx tube is longer, to 30mm, marked by 20 veins, becoming inflated in fruit. Capsules ovate, each containing grey seeds, 1.3–1.5mm in diameter.

Flowers late May to early September.

Waste ground in urban settings, along railways. Usually grows in loose, dry soils.

Digby County to Inverness County, limited to northern side of the province.

NS to AK, south to CA, NM and GA. Eurasian.



***Silene noctiflora* L.**

**Night-flowering Catchfly; silène noctiflore**



Photo by Andy Dean

An annual species, it resembles the previous plant, but with a sticky pubescence.

Lower leaves are long-petiolate and oblong, while the upper ones are sessile and ovate.

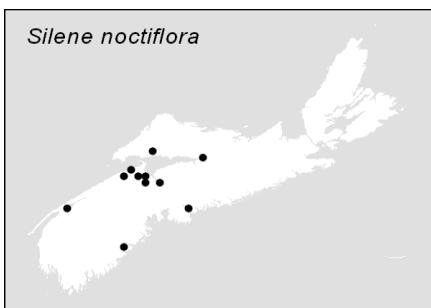
Flowers are clustered, their petals are pink above and yellowish below, deeply lobed. The calyx is bulbous, especially in fruit.

Flowers from late May until September.

Frequents urban waste areas, old gardens and roadsides.

Collected from Digby and queens counties north to Truro.

Ranges from NS to AK, southward. Naturalised from Europe.





***Silene vulgaris* L.**

**Bladder-campion; silène enflé**



*Photo by Sean Blaney*

A smooth glaucous herb, it produces sparse branching and lanceolate or oblanceolate leaves, often clasping at the bases. Calyx is campanulate, pale in colour and marked by purple veins. Petals are white and bilobed. It is often found rooting at the crown.

Flowers from April to August throughout; Nova Scotian phenology not determined.

Scattered about old gardens, roadsides, fields and disturbed soils.

A common species throughout the province.

NS to BC, south to CA, NM and GA.

***Spergula* L.**

**Spurrey**

Five Eurasian species comprise this genus of annual plants. Typically they have a terminal inflorescence, the pedicels drooping. Flowers have five petals and 10 stamens. Seeds bear wings or are sharply edged. Succulent plants, they have whorled leaves and stipules.

***Spergula arvensis* L.**

**Spurrey, Pineweed, Thousand-joint; Corn Spurrey; spargoute des champs**



*Photo by Martin Thomas*

Much-branched these common weeds have sessile linear leaves in whorls. Stipules are small and inconspicuous. Stems are smooth although somewhat sticky and with swollen nodes. Flowers are white.

Flowering from June to October.

Characteristic of grain fields and moist churned soils





Photo by Martin Thomas

elsewhere. One of our most common weeds of croplands.

Found throughout the mainland of NS.

Widespread across the continent.

## ***Spergularia* (Pers.) J & C Presl.**

### **Sand-spurry**

Numbering about 40 species, this worldwide genus comprises low, matted and succulent herbs. Flowers are pink or white in the three Nova Scotian species. The inflorescence is branched; leaves are subtended by stipules.

#### Key to species

- |   |                          |
|---|--------------------------|
| A. Flowers pink; stamens 6; leaves barely succulent, mucronate;<br>not limited to saline soils. | <i>Spergularia rubra</i> |
| aa. Flowers white or sometimes pink; stamens <6; plants of seashores<br>or saline habitats.     | B                        |
| B. Capsule length equal to the calyx; sepals 2.4–5mm long at maturity;<br>seeds 0.6–0.8mm long. | <i>S. salina</i>         |
| bb. Capsule length greatly exceeding that of the calyx; sepals<br>2.2–3.2mm long; seeds 0.8mm.  | <i>S. canadensis</i>     |

***Spergularia canadensis* (Pers.) D. Don**

**Seaside Sand Spurrey; spergulaire du Canada**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Fruit are required to distinguish the two halophytic species. The fruit, a capsule greatly exceeds the calyx in length.

Flowers from July to September.

Frequents the upper tidal reaches on muddy shores, in brackish marshes and sand flats.

Common along the Atlantic coast.

Found from NF to NU, south to NY; AK to CA and SK.

***Spergularia rubra* (L.) J & C Presl.**

**Sand Spurrey; spergulaire rouge**



*Photo by Sean Blaney*

Flowers are pink on this species. The stipules are also papery in texture making them conspicuous, a character not shared by others. Leaves are linear but not as succulent as other species.

Flowers during a longer season, from May to October.

Sandy, gravelly soils, roadsides, about urban areas and even in sidewalk cracks.

Scattered throughout the province.

Ranges from NF to ON, south to VA; AK to CA and NM. Adventive from Europe.

***Spergularia salina* J. Presl. & C. Presl.**

**(=*S. marina* (L.) Griseb.)**

**spergulaire des marais salés**



Photo by Martin Thomas

Flowers may vary from white to red, but its strict coherence with saline soils should separate it from the previous species. The leaves are obviously fleshy and more numerous. Seeds may be papillose or smooth. Commonly found with *S. canadensis* and similar in abundance.

Flowers from June until October.

Typical of seashores, open salt marshes and upper tidal reaches.

Around the entire coast.

Ranges from NS to NT, south to CA; and FL, Mexico and South America; Eurasia.

## ***Stellaria* L.**

About 100 species make up this genus of chickweeds and stitchworts. Typically the flowers are borne singly in the axils of branching stems or in terminal cymes. Petals and sepals are five-merous, the former deeply incised or absent. Stipules are absent.

Key to species

- |   |                             |
|---|-----------------------------|
| A. Leaves ovate or elliptical >1cm wide.  | B                           |
| B. Plants erect, smooth; leaves sessile; maritime.  | <i>Stellaria humifusa</i> , |
|   | in part                     |
| bb. Plants sprawling or decumbent, more or less pubescent; middle and lower leaves petiolate; habitat not necessarily maritime. | <i>S. media</i>             |
| aa. Leaves narrowly lanceolate, or if ovate, less than 1cm wide.  | C                           |
| B. Flowers in cymes.  | D                           |
| D. Cymes with many flowers on spreading branches; petals conspicuous, equal to sepals in length or longer.                      | E                           |

E. Leaves lanceolate; stems smooth; seeds coarse, papillose; inflorescence large, terminal; petals large, showy.	<i>S. graminea</i>
ee. Leaves narrowly oblanceolate; stems with rough angles; seeds smooth; inflorescence soon lateral; petals small and barely exceeding the sepals.	<i>S. longifolia</i>
dd. Cymes few-flowered; petals very small, shorter than the sepals.	F
F. Cymes lateral, with few flowers; seeds tuberculate; stems decumbent, rooting at the nodes.	<i>S. alsine</i>
ff. Cymes terminal; some flowers in axils of the upper leaves; seeds smooth; stems decumbent but not rooting at the nodes.	<i>S. borealis</i>
cc. Flowers solitary or in axillary pairs.	G
G. Leaves very succulent, oval to elliptic, to 1cm; seeds smooth.	<i>S. humifusa</i> , in part
gg. Leaves only slightly succulent, linear to lanceolate, to 1.5cm long; seeds rugose.	<i>S. crassifolia</i>

### ***Stellaria alsine* Grimm**

#### **Marsh Chickweed; Bog Chickweed; stellaire fausse-alsine**

Generally leafier than others, with the elliptic leaves paired along smooth stems.

Flowers May to October.

Limited to wet sand or waterlogged soils as along ponds and ditches.

Common from Digby and Lunenburg counties northward. Infrequent along the Atlantic shores or on acidic soils.

NF to QC and variously west and south.

***Stellaria borealis* Bigelow**  
**(*Stellaria calycantha* (Ledeb.) Bong)**  
**Northern Stitchwort; stellaire boréale**



Photo by Sean Blaney

Leaves are ovate to lanceolate. The flowers are borne single or with a few in the branch forks.

Flowers from May to September.

Frequents moist thickets, ravines and forests.

Minas Basin scattered westward to Digby and Yarmouth counties; Cape Breton.

NF to AK, south to WVA, CO and CA; Eurasia.

***Stellaria crassifolia* Ehrh.**  
**stellaire à feuilles charnues**



Photo by David Mazerolle

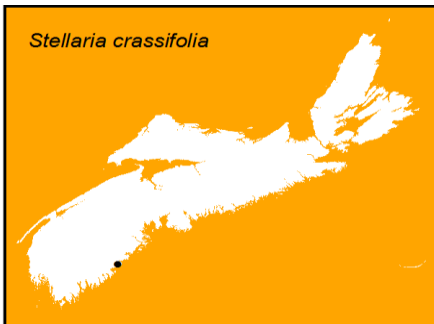
Decumbent and matted, the stems bear short narrow leaves. Seeds are distinctive, they are reticulated and rugose.

Flowers during July and August.

Frequents pond edges and wet seepy slopes.

The plant has not been studied in Nova Scotia. Known from Liverpool, Queens Co. where it was found in 1936. May be overlooked or misidentified.

NF to AK, south to NV, NM and IL; NS in the east. Eurasia.





***Stellaria graminea* L.**

**Grass-leaved Stitchwort; stellaire à feuilles de graminée**



*Photo by Martin Thomas*



*Photo by Alain Belliveau*

This species is a fragile plant with long narrow leaves, linear or lanceolate in outline. Inflorescence is sparse, but sprawling, with only a few nodding flowers. It may form most of the height of the plant. Roots form at the nodes. Spring growth tends to more matted than the vigorous, robust summer flush.

Flowers from May to October.

Frequents fields, lawns and gardens. One of our most common weeds, found throughout.

NF to BC, south to CA and GA. Introduced from Eurasia.

***Stellaria humifusa* Rottb.**

**stellaire déprimée**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

The elliptic leaves of this species are usually less than 1cm in length. Seeds are smooth, not wrinkled or papillose.

Flowers from June to August.

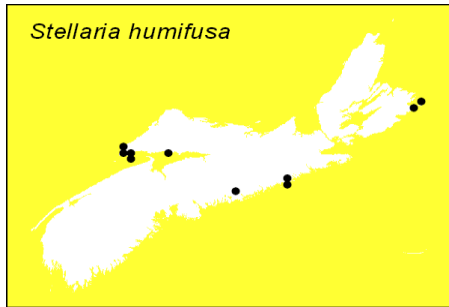
Limited to saltmarshes.

Cumberland, Colchester and along the Atlantic coast from Halifax to Cape Breton County. It is possibly more common than the collections indicate.

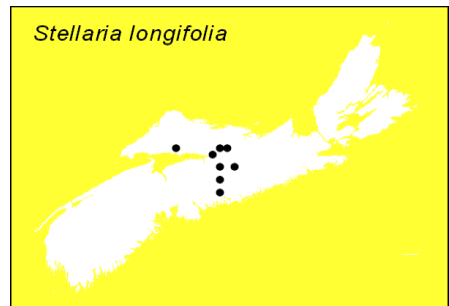
Greenland to AK, south to OR, ON and ME.

STATUS: YELLOW-listed.





***Stellaria longifolia* Muhl.**  
**Long-leaved Chickweed; stellaire à longues feuilles**



Resembles *S. graminea*, but for the oblanceolate leaves of this species. The inflorescence is more often lateral than terminal. Formerly thought to be common, but probably confused with *S. graminea*.

Flowers appear from May until July.

Damp grassy habitats, in sandy or mucky soils.

Locally abundant along the Salmon River at Truro and Kemptown, Colchester Co.; along the Musquodoboit and Stewiacke rivers; Isle Haute.

NF to BC, south to CA, NM and TN; Eurasia.

***Stellaria media* (L.) Cyrillo**  
**stellaire moyenne**



Highly variable, but generally this species is decumbent and matted, although its stems may reach 80cm in length. Lower leaves are petiolate; upper leaves sessile, but all are smooth and ovate. Mature petioles have a single row of pubescence. Flowers are sparse and insignificant.

Flowers from April until November.

Photo by Martin Thomas

Moist and shady sites near buildings, gardens, along paths and near the coast.

Common throughout, becoming weedy.

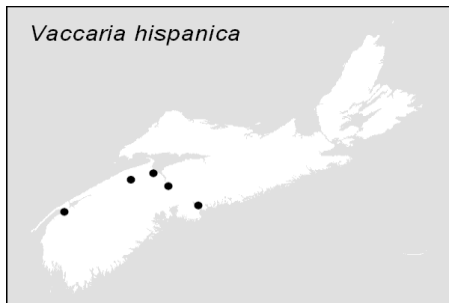
Wide-ranging in North America after its introduction from Europe.

### ***Vaccaria* Wolf.**

Formerly part of *Saponaria*, it is now separated on calyx and petal characters. Four species are included here, with a single annual introduction found in Nova Scotia. Petals are free from auricles. The calyx is marked by only five veins.

#### ***Vaccaria hispanica* (Miller) Rauschert**

**Soapwort; Cow-cockle; saponaire des vaches**



A smaller species than Bouncing-bet. Leaves are clasping at the base. The flowers are less tightly clustered. Calyx is more bulbous than tubular.

Flowers from June to September.

Waste places after cultivation.

Occasionally reported from Halifax, Berwick and Windsor; also collected from Italy Cross, Lunenburg Co.

Widely distributed on this continent. European introduction.

## Celastraceae

### staff-tree family

Nova Scotia has 2 species of the approximately 800 occurring worldwide in 50 genera. Woody plants with simple leaves; flowers perfect although occasionally unisexual, small with alternating petals and stamens, 4-5-merous. Ovary hypogynous. Fruit a capsule.

Key to genera

Stems not twining, leaves opposite.

*Euonymus*

Stems twining, leaves alternate.

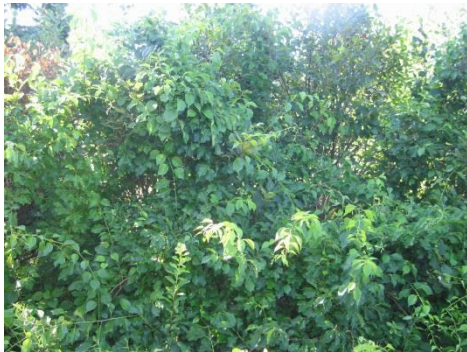
*Celastrus*

### ***Celastrus* L.**

We have one species out of three reported for North America. Plants are dioecious , woody, twining; flowers small and white-green, 5-parted. The male flowers have a poorly developed pistil, and female flowers havenon-functional, reduced stamens. Seeds are enclosed in a red aril.

#### ***Celastrus orbiculata* Thunb.**

#### **Oriental Bittersweet; célastre asiatique**



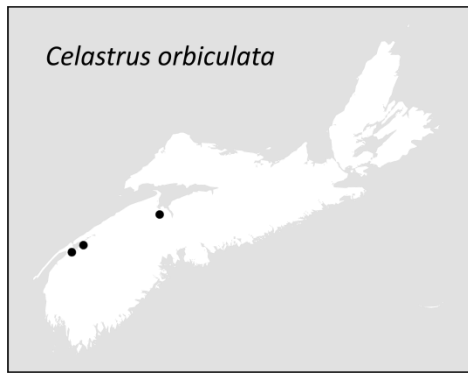
*Photo by Sean Blaney*

Leaves are nearly round, deciduous; the flowers are borne in axillary cymes. This species is considered a serious invasive in some parts of its range.

Flowers in June.

Known from thickets, cutover areas; a garden escape

Currently records exist for Upper Clements, Annapolis Co. ;



*Celastrus orbiculata*

Wolfville, Kings Co. and Digby.

Occurring throughout eastern North America from ON, QC, NB and NS south to AR, TN and GA. Introduced from Asia.

## ***Euonymus L.***



Fifteen species out of approximately 200 worldwide, occur in North America. Small trees or shrubs with twigs sometimes angled and/or winged. Leaves are opposite. Flowers are small, axillary with spreading petals. When ripe the, the fuschia-coloured fruit capsules plit and reveal arillate orange seeds, each borne at the end of a funicular attachment The fruits and seeds are attractive but highly poisonous.

## ***Euonymus europaeus L.***

### **European Spindle-tree; fusain d'Europe**

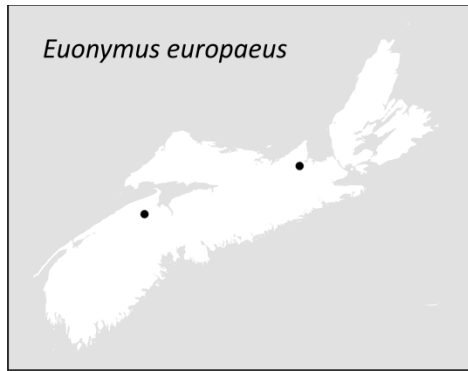


Photo by Sean Blaney

Shrub is generally less than 6 m with angled twigs, which are not winged. Leaves are glabrous below. Flowers are green and fruit has an orange aril. Potentially invasive.

Flowers in June.

Recently reported from old fields and shrub thickets in



Antigonish and from the edge of the Tupper Brook Trail in Coldbrook, Kings Co.

Ranges from ON, QC and NS south to KY and VA. A European introduction.

## Ceratophyllaceae

### Hornwort Family

A monogeneric family with only six species, the hornworts are represented in NS by two species. They are our only aquatic plants with whorled compound leaves; palmately arranged. Rootless, they drift in the water on long tenuous stems. Sessile flowers are minute and carried in the leaf axils. Petals are absent; sepals a whorl of 8–15. Staminate flowers are positioned above the pistillate flowers on a single plant.

Plants often not flowering and tentative identification may be made based on leaf forking. This is the only genus of wetland plants with whorled leaves that are dichotomously forked (Voss and Reznicek, 2012). The key below can distinguish species based on the number of times leaves are sequentially so forked.

### *Ceratophyllum* L.

#### Hornworts

Submerged plants, they are difficult to find.

#### Key to species

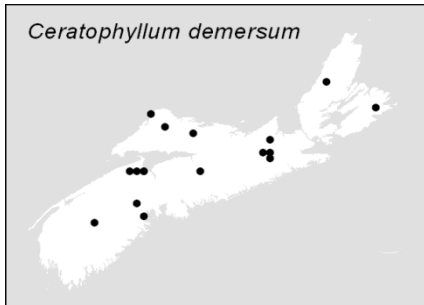
Leaflets toothed, at least on one side; achene with 2 basal spines.  
Leaves not limp and no leaf forked more than twice.

*Ceratophyllum demersum*

Leaflets entire and very narrow; achene with both basal and lateral spines. Leaves limp with some main axis leaves forked at least three times

*C. echinatum*

***Ceratophyllum demersum* L.**  
**Hornwort; cornifle nageante**



Leaves are whorled, toothed on either side. Internodes are shorter distally, becoming dense, obscuring the stem. Achenes 4–6mm long.

Flowers from July to September.

Lacustrine or paludal, marshes, headwaters of streams with mucky substrate.

Common in rivers flowing into the Minas Basin, Kings County. Scattered from Cumberland to Antigonish and Guysborough counties. Infrequent along the Atlantic coast. Collected from Hibernia, Queens Co. and Oakland Lake, Lunenburg Co. Sherbrooke Lake, Halifax. Its distribution in NS may be more to do with the difficulty in collecting and identifying it, than its actual scope.

Across North America.

***Ceratophyllum echinatum* Gray**  
**cornifle échinée**



Leaves are filiform, their margins smooth. Achenes have spines. Rather similar to the previous species.

Only recently distinguished in Nova Scotia *from C. demersum*; few collections to date in NS, however, it is reported from marshes from Yarmouth to Cumberland Counties.

A plant more typical of the shallows of acidic water bodies than its congener.

Eastern North America with disjunct occurrence in the Pacific Northwest.



## Chenopodiaceae

### Goosefoot Family

A family of mostly shrubs and herbaceous species, there are 1500 in total. Most are annuals, weedy and ruderal with small inconspicuous flowers. Corolla is absent; calyx is five-merous, with 1–5 stamens opposing the lobes. Fruit is an achene, usually shiny. Leaves are mostly alternate, simple or lobed. A few species have the leaves reduced to minute bracts. Several vegetable crops belong to this family, including beets, spinach and chard.

There are historical records for *Axyris amaranthoides* and *Polycnemon verrucosum*, collected from NS >50 years ago. *Axyris amaranthoides* L. or Russian Pigweed was collected and identified by Fernald in 1921, based on a collection at GH as reported by Scoggan (1978). The reliability of the collection of *Polycnemon verrucosum* must be questioned as the specimen cannot be found and the authenticity of the label needs to be confirmed. Neither has been found for more than 50 years.

#### Key to genera

- A. Leaves absent, or if present, much reduced in size. B
  - B. Leaves absent, replaced by opposite pair of tiny scales. *Salicornia*
  - bb. Leaves much-reduced, distally a spine. *Salsola*
- aa. Leaves present, not drastically reduced in size, usually alternate and sometimes deciduous. C
  - C. Flowers and fruit enclosed by a pair of bracts; calyx absent in pistillate flowers. *Atriplex*
  - cc. Calyx 3–5 parted, visible. D
    - D. Leaves nonsucculent; flowers in a terminal panicle. *Chenopodium*
    - dd. Leaves, stem, calyx fleshy or succulent; flowers axillary. *Suaeda*

### ***Atriplex* L.**

#### **Orach**

Generally it is associated with coastal habitats, although occasionally found inland at least in Nova Scotia. Their highly variable morphology dictates the need for mature fruit. Flowers from July to September with seeds maturing later in autumn.

Individual flowers are subtended by a pair of bracteoles, which may be spongy in some species, developing large air-filled sacs on the inner surfaces. Seeds dimorphic, brown or black, the latter generally smaller, on the same plant.

#### Key to species

- A. Leaves with veins dark green and netlike when surface is removed. B
  - B. Seeds 3.5–4.0mm wide; plant decumbent; northern distribution. *A. laciniata*
  - bb. Seeds 2.0–2.5mm wide; plant erect, branches profuse; rare introduction. *A. rosea*
- aa. Leaves without dark veins. C
  - C. Bracteoles green or membranous, not succulent. *A. patula*
  - cc. Bracteoles swollen, especially towards the base where it is succulent. D
    - D. Lower leaves deltate. E
      - E. Inflorescence with leafy bracts throughout; flower clusters loose and irregularly spaced; brown seeds 2.5–4mm wide; black fruits rarely present. *A. glabriuscula*
      - ee. Inflorescence with basal leafy bracts; flowers tightly clustered; brown seeds mostly 1.5–2.5mm wide; black fruits may be more common than the brown fruits. *A. prostrata*
    - dd. Lower leaves linear to ovate or lanceolate. *A. littoralis*

#### ***Atriplex glabriuscula* Edmonston**

#### **Glabrous Orach; arroche glabriuscula**



*Photo by Martin Thomas*

A highly variable sprawling herb, limited to saline soils. Stems are branching freely, the branches nearly oppositely arranged. They are somewhat ridged and bluish-green. Leaves are petiolate and of various shapes and margins. The flowers are loosely aggregated in leafy interrupted inflorescence. Bracteoles are green darkening with age, the spongy layer well-developed at least at the base. Three



Photo by Martin Thomas



Photo by Sean Blaney  
Var. *acadiensis*

varieties have been reported from NS.

#### Key to varieties

- A. Bracteoles green or membranous throughout; no spongy tissue present. var. *acadiensis*
- aa. Bracteoles more or less thickened, spongy tissue present especially at the base. B
- B. Some axillary bracteoles stalked; bracteoles toothed or torn on the margins, angles with 1-3 teeth. var. *franktonii*
- bb. Bracteoles sessile, margins entire or slightly toothed; angles pointed, but smooth. var. *glabriuscula*

Var. *acadiensis* (Taschereau) SL Welsh may have red stripes on its stems. Flowering during summer to early fall. Found in the *Spartina alterniflora* zone of saltmarshes. So far collected from northern coastal regions, Cumberland, Pictou and Cape Breton Counties. (*A. acadiensis* Taschereau).

Var. *franktonii* (Taschereau) SL Welsh is a sparsely branched form, having mainly triangular leaves. The glomerules of flowers are subtended by leafy bracts only at the base of the inflorescence. It is very common in northern areas, such as the Northumberland Strait region and along Cape Breton's northern coasts. Occasionally seen elsewhere as near Truro and Halifax. (*A. hastata* L.; *A. franktonii* Taschereau).

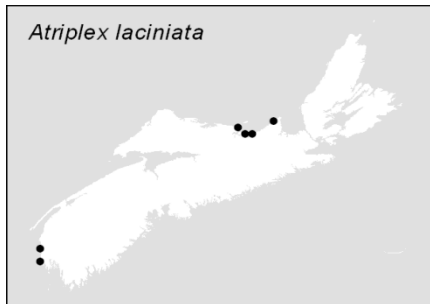
Var. *glabriuscula* has its stems slightly ridged but without red stripes. Spikes may be axillary or terminal, and leafy. Bracteoles soon become reddish or black. Usually on sandy or cobbly exposed beaches, near the upper tidal reaches. Not seen along the Northumberland coast, but common elsewhere.

The species ranges from NF to lower St. Lawrence River; MB; AB. In the east, south to PA; KY. Also found in IL and MN. Greenland.

***Atriplex laciniata* L.**  
**arroche laciniée**



Photo by Sean Blaney



Decumbent at the base and often nearly covered in sand, this small species is silvery with scales on the surface. The dark venation is a sure character, although its smaller stature differs from other *Atriplex*.

Flowers June and July; sand and cobble coastal beaches.

Uncommon in NS. Collected from the Northumberland shore of Cumberland County and Yarmouth Co.

Ranges from western and northwestern Europe; NS, NB, PE, QC and NY. Introduced to North America.

***Atriplex littoralis* L.**  
**Arroche littorale**

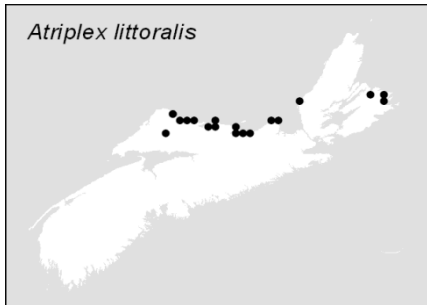


Photo by David Mazerolle

Linear leaves will easily separate this species. Flowers are tightly clustered in compact spikes. Seeds are brown, oval, 2.1–2.8mm wide.

A salt marsh species also found in wrack along the strand line.

Only along the Northumberland shore, east to Cape Breton



County.

Known from all provinces except SK and AB, south through New England, to PA and west to IL. Introduced from Europe.

### ***Atriplex patula* L.**

**Spreading Orach; arroche étalée**



*Photo by Martin Thomas*

A variable species, it was once separated into several varieties. Its habit may be erect or decumbent, reaching 1m in height or length. Stems are angular and striate, somewhat woody at the base. Lanceolate leaves bright-green, lobed at the base, are borne on short petioles. Young leaves may be pruinose. Inflorescence is an interrupted spike, which in fruit, has the bracteoles triangular. Seeds are brown to black, shiny, measuring 1–2mm in diameter.

Long flowering season, July to November.

Frequents beaches, saltmarshes and headlands or even on salted roadsides in disturbed soils.

Yarmouth and Cumberland counties to Cape Breton.

An introduction to most of US and Canada. Eurasian.



*Photo by Martin Thomas*



***Atriplex prostrata* Boucher**  
**arroche hastée**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



*Photo by Martin Thomas*

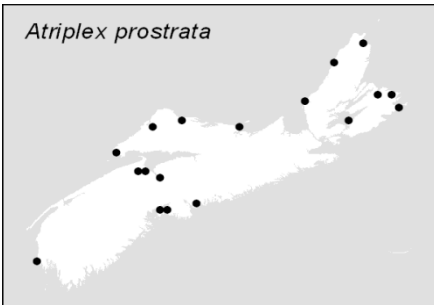
Resembles *A. glabriuscula* but for the absence of leafy bracts in the distant portions of the inflorescence. Stems are red or green; leaves are variable. The inflorescence is up to 9cm long, comprised of compact flower clusters. Seeds are brown, 1.5–2.5mm across.

Flowers June to November. With *A. patula* our only species found in inland, nonsaline soils. Saltmarshes.

Common around the entire coast.

Most of North America, with the exception of a couple of the Gulf Coast states.





### ***Atriplex rosea* L.**

#### **Red Scale; arroche rosée**

These are annual, erect herbs from 1–2m in height. The branches may be straight or arcuate, smooth or mealy. Leaves are alternate, 6cm long, ovate to lanceolate and toothed. They are gray to white but rarely green. Inflorescence comprises axillary clusters and interrupted spikes.

A weedy ruderal of roadsides and other disturbed soils.

So far known only from Queens Co. and may be an historic occurrence only, although it is spreading in western Canada.

Ranges from all western states and provinces eastward to TX and FL. North to NS and ON. Eurasian.

### ***Chenopodium* L.**

A cosmopolitan genus, it includes 200 or more species. All are herbaceous and many are common weedy species to be expected at any time. They are described as having small greenish flowers with no petals. Fruit is a lenticular achene. Most of ours have the leaves pruinose at least beneath.

#### Key to species

- |   |                           |
|---|---------------------------|
| A. Leaves and stems with sessile glands or glandular hairs; aromatic. | <i>Chenopodium botrys</i> |
| aa. Leaves and stems not glandular; not aromatic.                     | B                         |
| B. Seeds all or mostly horizontal.                                    | <i>C. album</i>           |
| bb. Seeds vertical.   | C                         |
| C. Leaves green on both sides; plant of saline soils.                 | <i>C. rubrum</i>          |
| cc. Leaves densely pruinose; plant not restricted                     | <i>C. glaucum</i>         |

to saline soils.

***Chenopodium album* L.**

**Lamb's quarters; chénopode blanc**



Photo by Martin Thomas

A common annual, it grows to 1m on stout angular stems, branching freely. Stems may be brownish yellow but with greenish or red striations. Leaves vary from ovate or lanceolate to hastate. Usually mealy or pruinose beneath; they may sometimes remain green. Margins are lobed or merely toothed. Flowers are perfect, green; petals are absent.

Young leaves are delicious in small quantities, raw or cooked.

Flowers throughout the summer.

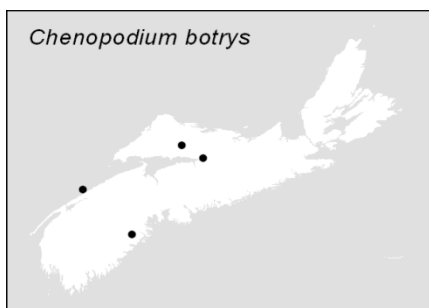
Wasteland, disturbed soil, weedy tendencies.

Very common throughout.

Ranges throughout North America.

***Chenopodium botrys* L.**

**Jerusalem Oak; chénopode botrys**



*Chenopodium botrys*

Another annual growing up to 1m in height and bearing glandular pubescence. It gives off a strong odour.

Flowers in August.

Roadsides and in disturbed soils. Casually adventive but not seen in many years until recently.

Historically found as a railroad weed in Lunenburg Co., at Fancy Lake., Young's Cove in Annapolis Co. Recently collected from Sutherland Lake, Bible Hill and other Colchester Co. stations.

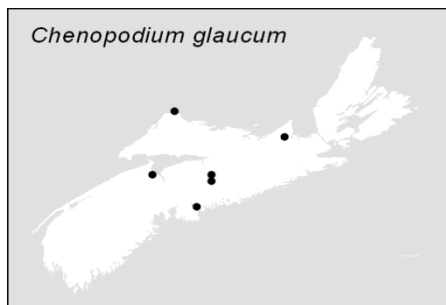
Widely introduced from Eurasia.

***Chenopodium glaucum* L.**

**Oak-leaved Goosefoot; ch  nopode glauque**



Photo by Sean Blaney



*Chenopodium glaucum*

A conspicuous species with dense mealy white coating on the undersides of the leaves. Decumbent stems may reach 40cm in length. Leaves are lanceolate, lobed around the margins, resembling oak leaves. Flowers are loosely arranged in a panicle, usually shorter than the leaves. Seeds erect.

Flowers July to October.

Frequents waste ground, roadsides and occasionally on cultivated land. Can be an aggressive invader.

Known historically from Mira, Shearwater and Truro. Recently located at Millbrook (Colchester Co.), Halifax and Gays River, Halifax Co. and at Island Point, Victoria Co.

Scattered across the continent; from Eurasia.

***Chenopodium rubrum* L.**

**Coast Blight; ch  nopode rouge**



Photo by David Mazerolle

Resembling *C. album*, but for the position of the seeds. Leaves green, not pruinose beneath. Seeds vertical.

Flowers in August to November.

Coastal only: saltmarshes, beaches in saline soils.

Can form extensive colonies on newly-reclaimed dykelands. Common on Sable Island and collected from



Photo by Sean Blaney

Northumberland region and Cape Breton.

NF to BC, south to NJ and CA.

STATUS: ORANGE-listed in NS.



Historical reports of western species of *Chenopodium* such as *C. dessicatum* and *C. murale* are questionable as no information nor specimens are extant.

## ***Salicornia* L.**

### **Glassworts**

Also known as samphire (a corruption of sand-fire) these fleshy halophytes are restricted to saline situations in North America. We have three of 25 species in Nova Scotia. Limited here to tidal flats and saltmarshes, ours are annual species, intolerant of competition.

Succulent green plants, they turn crimson in the fall. The leaves are reduced to minute scales, opposite on the stems. Each stem ends in an inflorescence, of three tiny perfect or pistillate flowers in pits along a succulent cyme.

## Key to species

- A. Leaves and bracts acute; cymes obscured by bracts, their segments twice as long as wide. *Salicornia bigelovii*
- aa. Leaves and bracts not acute; central flower not obscured; cyme segments < twice as long as wide. B
- B. Terminal axis cylindrical to sharply acute; cyme segments tubular; stamens mostly exerted. *S. depressa*
- bb. Terminal axis and branches swollen, round at tip, cyme segments clavate; stamens rarely exerted. *S. maritima*

### ***Salicornia bigelovii* Torr.**

#### **Dwarf Glasswort, Samphire**

Annual and erect, reaching no more than 40cm. Cymes may be up to 10cm in length subtended by acutely pointed bracts.

Summer flowering and only found in saltmarshes.

Distribution remains unknown without a re-examination of all of our material.

NS to TX, CA, Mexico and the West Indies.

### ***Salicornia depressa* Standl.**

#### **Glasswort, Samphire; salicorne de Virginie**



*Photo by Sean Blaney*

Profusely branched, the branches tapering at the distal end. Fleshy cyme axis is 1.5–4.5mm thick. Stamens are noticeably exerted.

Flowers later, from August to November.

Coastal in saltmarshes and on tidal flats, where it is an early colonizer. Also found on newly-reclaimed dykelands and saltsprings.

Common around the entire coast where habitat is suitable.

NF and lower St. Lawrence River, south to GA; Pacific coast and on saline continental soils; Europe and Africa.

### ***Salicornia maritima* Wolff. & Jefferies**



*Photo by Sean Blaney*

Less common than the previous species and distinguished by its thicker branches 4.5–6mm. Stamens barely exerted, or not at all.

Also flowers late summer.

Found above the mean high water level, in open areas or shallow depressions and at the edges of saltmarshes.

So far known only from Conrad's Beach, Halifax County and Cheverie, Hants Co.

NF to James Bay, south to the Bay of Fundy.

### ***Salsola* L. Saltwort**

Worldwide, there about 50 species of saltworts, with only two reaching Nova Scotia. Flowers are axillary and inconspicuous. The succulent leaves end in spines, especially towards the top of the plant.

Key to species

Leaves slender, but not threadlike; stems without red striations;  
limited to seashores.

*Salsola kali*

Leaves filiform; stems with reddish striations; waste places,  
rarely natural habitats.

*S. tragus*



***Salsola kali* L.**

**Common Saltwort; saule des vanniers**



*Photo by Sean Blaney*



*Photo by Ross Hall*

Sprawling plant with many spreading branches. Sessile leaves are recurved, ending in a spine. Flowers are solitary in the leaf axils, subtended by spiny bractlets. Inconspicuous.

Flowers from July to October.

Sandy seashores.

Scattered around the coast in southwestern NS and common along the Northumberland Strait to Cape Breton.

Ranges elsewhere from NF to LA; eastern Europe.

***Salsola tragus* L.**

**Russian Thistle; soude roulante**

Once included in the above species. Noticeable in our region by its presence about settlements and not on beaches. The reddish colour on the stems is also pronounced.

Summer-flowering.

Grows in light, sandy soils.

May have been introduced in feed or along railways. Reported from Halifax and Port Williams, Kings Co.

Throughout temperate and boreal North America. Absent in FL. Introduced.

## ***Suaeda* Forssk.**

### **Sea-blite, Seepweed**

A widely distributed genus, it includes approximately 50 species, Nova Scotia claims only three. All are succulent halophytes. Freely branched, their leaves are linear. Numerous flowers carried in clusters from 1–3 in the axils of reduced leaves. It is necessary to collect plants in fruit to identify to species.

#### Key to species

- A. Calyx lobes equal in size, rounded distally, keeled but not forming a hood; leaves not wider at the base. *Suaeda maritima*
- aa. Calyx lobes unequal, with at least one beaked and forming a hood; leaves variable. B
  - B. Leaves lanceolate; stem may branch from the base, prostrate; biconvex seeds of one type, black, <1.5mm wide. *S. calceoliformis*
  - bb. Leaves linear; stem branching midway, erect; seeds may be biconvex, reddish brown or black, >1.5mm wide - or- flattened, dull brown and 2.0mm wide. *S. rolandii*

## ***Suaeda calceoliformis* (Hook.) Moq.**

### **suéda couché**



*Photo by David Mazerolle*

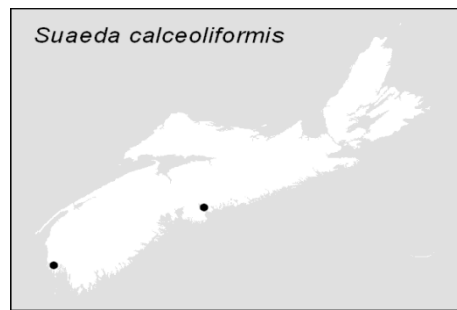
Mature plants have reddish-purple colour. These sprawling plants are usually prostrate on the soil.

Late flowering, from August to October.

Frequents seashores and saltmarshes, in sand.



Photo by Sean Blaney



*Suaeda calceoliformis*

Near Pictou and along the Northumberland Strait where large colonies are found. Scattered elsewhere but uncommon on the Fundy shores. Our collections do not reflect the known distribution at this time.

Ranges from Maritime Canada, lower St. Lawrence River to southern ME; James Bay; west coast; inland western continental.

### ***Suaeda maritima* (L.) Dumort**

**Sea-blite; suéda maritime**



Photo by David Mazerolle

A prostrate or erect plant, it reaches to 50cm. Leaves are numerous, long and slender, decreasing in size towards the top of the plant. Seeds are variable.

Seeds <1.5mm wide.

ssp. *richii*



Photo by Martin Thomas

Seeds 1.5–2.0mm wide.

ssp. *maritima*

Flowers during August and early September.

Saltmarshes, running dykes, often with *Salicornia*, another species intolerant of competition. Saltsprings.

Common around the coast, although ssp. *richii* (Fern.) Basset & CW Crompton is less common. It has been reported from Antigonish and Shelburne counties, Boylston, Guysbough Co. and Port Williams, Kings Co.

Its range is restricted to NF, NS to southern ME and MA.

As ssp. *maritima*, it ranges from Maritime Canada, St. Lawrence River, south to FL and LA; Hudson Bay, west coast.



***Suaeda rolandii* Bassett and Crompton**  
**Roland's Sea-blite; suéda de Roland**



Little is known of this species in Nova Scotia to date. Its flowers are large and succulent, with the fruit maturing later than those of the species above.

Limited to saltmarshes and saline soil.

Collected from the head of the Bay of Fundy: Avonport, Kings Co.; Sweets Corner, Hants Co; Economy, Colchester Co.; as well as the Amherst marsh in Cumberland Co.

NS and the Petitcodiac River, NB.

STATUS: ORANGE-listed for Nova Scotia.

## **Cistaceae**

### **rock-rose family**

A family of low shrubs or wiry herbs, there are only 200 or so species worldwide in eight genera. Leaves are entire and simple, and usually alternately arranged. Perfect flowers are hypogynous and regular, but for the calyx, which has two reduced sepals. Stamens vary in number. The fruit is a capsule, dehiscent to its base.

Key to genera

- A. Plants low shrubs, freely branching; leaves 1–6mm long, imbricate. *Hudsonia*
- aa. Plants herbs, wiry; leaves 10–30mm long, not imbricate. B
  - B. Petals 5, showy, yellow; capsules of 2 sizes; with stellate pubescence. *Helianthemum*
  - bb. Petals 3, minute, purplish, capsules small of equal size; simple pubescence. *Lechea*

### ***Helianthemum* Mill.**

#### **rock-rose**

There are nearly 100 species of rock-roses and they may be perennial herbs or small shrubs. One reaches Nova Scotia, but is of a very limited distribution. Flowers are five-merous. The outer sepals are much narrower and shorter than the inner three. Cleistogamous flowers may develop later in the season; these are without petals and have 4–6 stamens. Regular flowers produce up to 50 stamens.



***Helianthemum canadense* (L.) Michx.**

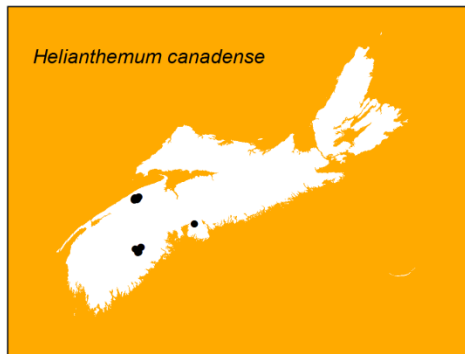
**Canadian Rock-rose; hélianthème du Canada**



*Photo by Martin Thomas*



*Photo by Ruth Newell*



Puberulent like the next species, but the hairs are star-shaped. Leaves are more pronounced, lanceolate to narrowly elliptic, arising from reddish stems. Flowers are terminal, single or in pairs, showy with yellow petals, 2–4cm wide.

Flowers from June into July.

Sand barrens and open dry areas of lacustrine shorelines.

Very rare and local and only in small numbers. Around Kingston, Green Acres and Greenwood, Kings Co. and Greenfield, Queens County. Also most recently near Maplesue Point, Ponhook Lake in the same county. Historically known from Five Island Lake, Halifax Co.

Ranges from NS: QC to ON, south to MO, AL and GA.

***Hudsonia* L.**

**hudsonia**

Small freely branching shrubs, they resemble heather and rarely exceed 30cm in height. Usually found in patches they are especially showy when in flower. Single yellow flowers are terminal on short branches.



Evergreen in habit, both of the two known species are present in Nova Scotia and both are of conservation concern.

#### Key to species

Flowers borne on naked, pedicels; leaves linear 3–6mm long;  
spreading or loosely appressed; plants greenish, sparingly villous.

*Hudsonia ericoides*

Flowers sessile or nearly so, leaves 1–3mm long, tightly appressed; plants densely  
white-tomentose.

*H. tomentosa*

#### ***Hudsonia ericoides* L.**

##### **Hudsonia**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

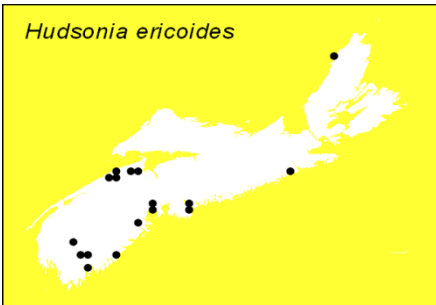
Compact and freely branching, this evergreen grows in colonial patches 20–60cm wide. The linear leaves overlap along the stem. Close to the ground they are blackened and persistent. Flowers are terminal.

Late May to early in July.

Sand barrens and other areas where the soil is dry and rocky, as at Jack Pine barrens at Williams Lake, Halifax Co.

Ranges from Shelburne to Halifax counties along the Atlantic shore and known from several localities through the centre of the Annapolis Valley. Only a single Cape Breton locality.

NF, PE, NS and southern ME along the coastal plain to DE; SC.

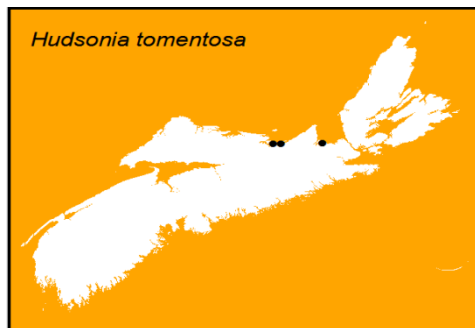


### ***Hudsonia tomentosa* Nutt.**

#### **Woolly Hudsonia**



*Photo by Sean Blaney*



Leaves are deltate, rather than linear and scale-like, tightly appressed along the stems. The white tomentum of this plant is most distinctive.

Flowers May to July.

Limited to sandy coasts and dune-slacks.

Rare in Nova Scotia, found only along the Northumberland shore between Pictou and Merigomish.

Elsewhere from NS to NT and variously south to IA, IL and NC.

STATUS: ORANGE-listed for NS.

### ***Lechea* L.**

#### **pinweed**

North American in distribution, there are about 20 species across the continent. Ours is a small herb, with minute flowers and nondescript leaves. It is more noticeable once the round capsules have matured.

***Lechea intermedia* Leggett**

**Pinweed**



*Photo by David Mazerolle*

A finely pubescent species, its leaves are alternate and linear to narrowly oblanceolate. Tiny flowers are numerous and arranged in a panicle, its length at least one-third that of the entire plant. Individual flowers are globose or cup-shaped.

Two varieties are present. In addition to the typical variety, var. *juniperina* (Bickn.) Robin. is found in NS. Differing from var. *intermedia* in that its inner sepals are narrowly ovate and pointed, exceeding the capsule in length. It has been found in the northern part of the province and along the Atlantic coast. Sepals of the typical variety are broadly ovate.

Flowers from July until November.

Dry open woods and in fallow fields, mostly where soils are sandy and rocky.

Scattered throughout.

Grows from Cape Breton, west to SK, south to WY and VA.

**Clethraceae**

**white alder family**

Shrubs and trees numbering 65 species comprise this monogeneric family. Typically bearing simple alternate leaves, these woody plants produce racemes or panicles of white flowers. Perfect flowers are usually regular and always hypogynous. Calyx is persistent. Nectar glands are present. Ovary is superior. Fruit is a capsule; seeds are winged.

***Clethra* L.**

**sweet pepperbush**

The ancient Greeks used *Clethra* as the genus of the alder, hence the association in names.

***Clethra alnifolia* L.**

**Sweet Pepperbush; White Alder; clèthre à feuilles d'aulne**



Photo by David Mazerolle

Shrubs may reach 2m in height. Leaves are oblong or obovate and serrate on the margins. Pubescent petioles may be 1–2cm long. Flowers are sweetly aromatic and borne on numerous racemes. Petals are distinct, 8mm in length. When not flowering these shrubs resemble *Ilex verticillata*, whose habitat it shares.

Flowers late, September and October.

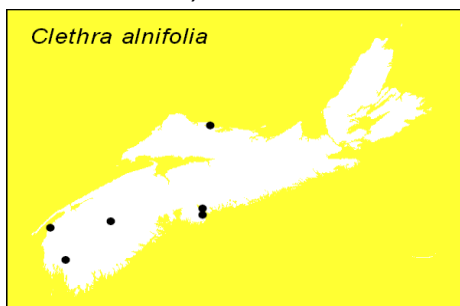
Lacustrine headwaters and shores, swamps, thickets and in nearby sandy forest.

Its distribution in Nova Scotia is limited to Belliveau's Lake, Digby Co., Canoe Lake and Louis Lake, Yarmouth Co. Mill Lake, Pretty Mary Lake and Mudflat Lake, Annapolis Co. The mapped sites in Halifax County are introductions.

In Canada known only from NS; FL and TX.



Photo by Martin Thomas



## Clusiaceae

### St. John's-wort family

Of both tropical and temperate regions, the family includes about 1200 species. Nova Scotia has only nine species, in two genera. Typically the flowers are arranged in a cyme or solitary, less frequently in a raceme. The corolla is regular and perfect, 4–5-merous. Pistil is solitary forming a many-seeded capsule. Leaves are simple and opposite on the stem.

#### Key to genera

Plants green; flowers yellow, hypogynous glands absent.

*Hypericum*

Plants reddish; flowers salmon-pink, hypogynous glands present.

*Triadenum*

### *Hypericum* L.

#### St. John's-worts

Numbering about 400 species in the northern-temperate latitudes, all have yellow or orange flowers, usually in cymes. The perianth is 4–5-merous. Sepals are persistent and unequal in size. Fruit produced is a capsule. Our native species tend to be of damp habitats and not weedy in nature.

#### Key to species

A. Stamens numerous, more than 20.

B

B. Plants stout, freely branching; >40cm tall; styles not joined to the base; locules 3.

*Hypericum perforatum*

bb. Plants slender, with few branches; <50cm tall; styles conjoined to form a slender beak on the capsule; capsule with 1 locule.

*H. ellipticum*

aa. Stamens few, less than 12.

C

C. Inflorescence a raceme; leaves with a single vein; annual of dry soils.

*H. gentianoides*

cc. Inflorescence a cyme; leaves with 3–7 veins from the base; annual or perennial of wet places.

D

D. Leaves twice as long as wide, clasping.

E

E. Upper flowers subtended by round leaves, reduced in size; sepals elliptic, much shorter than the capsule.

*H. boreale*

ee. Upper flowers subtended by narrow leaves or scale-like bracts; sepals linear or oblong, nearly equalling the capsule in length.

*H. mutilum*

dd. Leaves 3 or more times longer than wide; leaves not clasping.

F



F. Leaves with 5 or more veins; broad at the base.  
ff. Leaves with 5 or fewer veins, narrowing at the base.

*H. majus*

G

G. Leaves 1–3-veined, 1–4mm wide;  
mature capsules 5–6mm long; sepals 4–  
6mm long in fruit.

*H. canadense*

gg. Leaves 3–5-veined, 2–6mm wide;  
capsules 3–5mm long; sepals 2–4.5mm  
long in fruit.

*H. dissimulatum*

***Hypericum canadense* L.**  
**millepertuis du Canada**



*Photo by Sean Blaney*

Small in stature, this species rarely reaches 40cm. The stems are usually unbranched, bearing pairs of linear leaves. Flowers are 1–3, but fewer than in *H. mutilum*, a species it resembles. Sepals are lanceolate and not exceeding the capsule in length. Inflorescence is subtended by a pair of linear bracts.

Grows in poorly-drained soils.

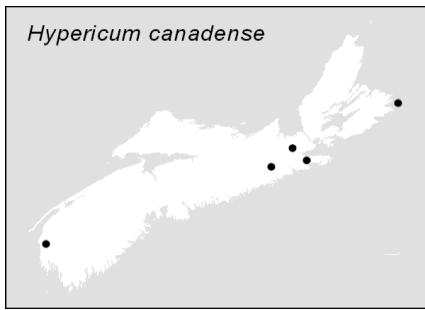
Common throughout.

Ranges from NL to ON, south to MS and FL; WA and OR.

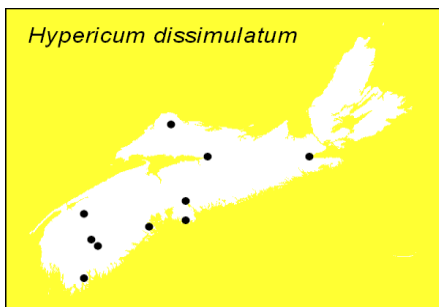




Photo by Martin Thomas



***Hypericum dissimulatum* Bickn.**



It is so similar to the previous species, that some authors combine them. Leaves are generally with more veins (3–5) and have greater variability in leaf width, in this species. Sepals are also shorter in fruit than in *H. canadense*.

Wet mucky soils in lacustrine habitats.

Historically collected from Digby to Halifax Co. with a single specimen from each of Pictou and Guysborough counties.

NS to ON, south to WI and along the coast to NC.

STATUS: YELLOW-listed. It is also rare in New Brunswick, where Hinds (1999) suggested this was a hybrid entity between *Hypericum canadense* and *H. mutilum* or *H. boreale*.

***Hypericum ellipticum* Hook.**  
**millepertuis elliptique**



*Photo by Sean Blaney*

Distinctive in its habit, with simple smooth stems. Sessile leaves are ovate or obovate, clasp the stem. Inflorescence is a few-flowered cyme of orange or yellow flowers. Sepals are elliptical and shorter than the petals.

Flowers only in July and August.

A common lakeshore species and often found in meadows, swamps and streamsides.

Common from southwestern NS to central counties; absent from eastern regions and northern Cape Breton.

NL to MB, south to TN and NC.



*Photo by Sean Blaney*

### ***Hypericum gentianoides* (L.) BSP**

**Orangegrass; Pineweed; millepertuis fausse-gentiane**



*Photo by Sean Blaney*

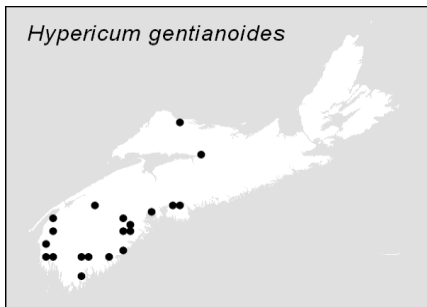
An annual species, the freely branching cyme extends most of the height of the plant. Flowers and leaves are minute, the latter reduced to scales. Capsule greatly exceeds the calyx.

Dry sterile and disturbed soils as along railroads.

Found first in Nova Scotia in 1991, on the Highway 103



Photo by Martin Thomas



***Hypericum majus* (A. Gray) Britton**  
**millepertuis majeur**



Photo by Sean Blaney

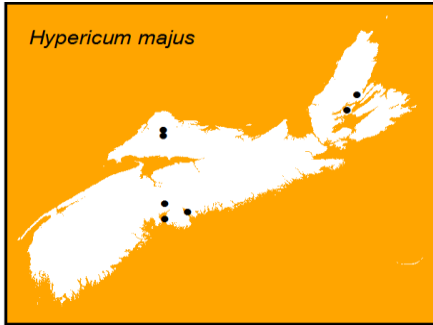
verge by Fancy Lake, Lunenburg Co. Now often encountered in southwestern counties from Halifax to Yarmouth.

NS; ME to ON, south to FL and TX.

A robust species, it has lanceolate or narrowly oblong leaves. The compact inflorescence comprises tightly clustered flowers. Resembles *H. canadense* but is generally larger.

Flowers July to September.

Wet or dry open soil.



Widely scattered locations. Until recently, only known from Halifax area and Big Baddeck, Victoria County, and thought to be historic.

NL to BC, south to OR, OK and DE.

STATUS: ORANGE-listed

***Hypericum mutilum* L.**  
**(includes *H. boreale* (Britton) E. Bickn.)**  
**millepertuis nain**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

Freely branching, it has ovate or oblong leaves. Numerous flowers are well-spaced, subtended by linear bracts, exceeding the capsule in length. This differs from the rounded, much shorter bracts of *H. mutilum*, var. *boreale* . which has the reduced bracts rounded at the apices. The sepals are much shorter than the capsules.

Frequents swamps and edges of ponds and streams.

Common in southwestern counties, rarer northward to Cape Breton.

NS to ON, south to TX and FL; SK;BC and WA; CA.

***Hypericum perforatum* L.**

**Common St. John's-wort; millepertuis commun**



*Photo by Sean Blaney*



*Photo by Martin Thomas*



A perennial weedy species, it is freely branching, reaching almost 1m in height. Stems may be reddish brown. Leaves are oblong, bearing numerous small fenestrae on their lower surfaces. Sepals lanceolate and only half the length of the petals., which are orange-yellow. Their margins are dotted black.

Flowers from 10 July to August.

Grows in light soils or sandy, gravelly edges of streams or roads.

Common throughout NS.

Widely naturalized from Europe.

CAUTION: Toxic, may cause photosensitivity if handled by both people and livestock.

***Triadenum* Raf**

**marsh St. John's-worts**

Two of 10 species in eastern North America grow in Nova Scotia. It is separated from *Hypericum* on the presence of three hypogynous glands, which position alternates with three stamen bundles. Salmon-pink flowers are arranged in small cymes.



Key to species

Sepals pointed, 5–7mm long; styles on mature fruits 2–3mm long.

*Triadenum virginicum*

Sepals blunt, 5mm or less long; styles on mature fruit < 1.3mm long.

*T. fraseri*

***Triadenum fraseri* (Spach) Gleason**

**Millepertuis de Fraser**

The styles and sepals in this species tend to be shorter than in the following plant. Sepals range in size from 2.5–5mm and are usually elliptical. The styles on the mature fruits are within 0.5–1.3mm in length.

Flowers in summer, July to August.

Found from Digby Neck to Sydney, but scattered on either coasts.

NL to SK, south to NE and NC; BC to WA.

***Triadenum virginicum* (L.) Raf.**

**Marsh St. John's-wort; millepertuis de Virginie**



Photo by Sean Blaney

This and the previous species bear sessile cordate leaves.. Sepals cover more than half the capsule length. The entire plant appears pinkish.

Salmon-pink flowers in July and August.

Riparian, lacustrine, beaches and anywhere the soil is mucky, peaty and damp.

Common in the southwest, northeast to Halifax and Cape Breton.

NS; QC to ON south to FL and TX.



Photo by Alain Belliveau



## Convolvulaceae

### morning-glory family

Nearly worldwide, this family includes about 1500 species. Ours are vining or twining herbaceous species with simple alternate leaves. Flowers are perfect, large and showy. The corollas are sympetalous and both calyx and corolla are five-merous. Stamens are equal in number to the corolla lobes and alternating with them. Sepals present and distinct, sometimes subtended by a pair of bracts, forming an involucre. Fruits are capsules. Several species are cultivated as ornamentals.

#### Key to genera

Involucral bracts small or vestigial, inserted well beneath the calyx; corolla <2.5cm long. *Convolvulus*

Involucral bracts leafy, inserted just beneath the calyx, sometimes concealing it; corolla >5cm long. *Calystegia*

### ***Calystegia* R. Br.**

Showy perennials, they spread by rhizomes. clinging and vining over adjacent plants. Large leafy bracts subtend the calyx. The flowers are solitary, ranging from white to pink.

### ***Calystegia sepium* (L.) R. Br.**

#### **Hedge Bindweed; Wild Morning-glory; liseron des haies d'Amérique**



Photo by David Mazerolle

Leaves are sagittate, separating it from most other vines. The large flared flowers are 5–8cm long and showy. Separated more readily from the following genus on leaf characters. The sinus is more widely pronounced and leaves more sharply acute at the distal tip. Ours is ssp. *americana* (Simms) Brummitt.

Flowers July and August.



Photo by Martin Thomas

Coastal; waste places, roadsides and neighbouring fields.

Common throughout.

Ranges from NF to BC, south to the Gulf of Mexico in the east.

## ***Convolvulus* L. field bindweed**

Including over 200 species, this genus is primarily Eurasian. Flowers are five-merous in the calyx and corolla, which is funnelform, with the stamens inserted. A pair of bracts is positioned distinctly below the calyx and nearly vestigial. Leaves are oblong to cordate with a deep narrow sinus. Flowers may be pink or white, solitary or in racemes.

### ***Convolvulus arvensis* L.**

#### **Creeping Jenny; Field Bindweed; liseron des champs**



Photo by Sean Blaney

A vine with sagittate leaves, more oblong than the previously described genus. Flowers are smaller and less flared.

Flowers from June to September.

Frequents roadsides and fields.

Infrequently found: Annapolis Valley, Lunenburg; Windsor, Truro and Sydney. Less aggressive here than elsewhere.

Found throughout North America after its introduction.

A recent report of *Calystegia spithamea* remains to be substantiated.

## Cornaceae

### dogwood family

North-temperate shrubs or trees, the dogwoods have few herbaceous perennials amongst them. Inflorescence is a cyme, often subtended by showy bracts. Four or five-merous, stamens oppose the petals, and are of equal number, or totalling 15 arranged in whorls. Calyx may be present or absent, and may be reduced to a rim around the inferior ovary. Fruit is a drupe, the stone grooved longitudinally. Leaves are typically opposite and seldom alternate.

### *Cornus*

#### dogwoods

About 50 species are included here; three shrubs and two herbs reach Nova Scotia. Flowers are four-merous, their sepals minutes and petals small. Leaves have distinctive venation.

#### Key to species

- A. Inflorescence an open cyme, bracts minute or absent; fruit maturing blue to white; shrubs. B
  - B. Leaves alternate, clustered distally. *Cornus alternifolia*
  - bb. Leaves opposite. C
    - C. Twigs red; fruit white, stone dark brown with yellow stripes. *C. sericea*
    - cc. Twigs not red; fruit blue to white, stone pale. *C. rugosa*
- aa. Inflorescence a dense head, subtended by 4 showy bracts; fruit maturing bright red; herbaceous. D
  - D. Lateral veins arising from the midrib along the leaf. *C. canadensis*
  - dd. Lateral veins arising only from the base of the leaf. *C. suecica*

#### *Cornus alternifolia* L.f.

#### Alternate-leaved Dogwood; cornouiller à feuilles alternes



A shrub with alternate leaves, their margins are smooth. Leaves are clustered at the apices of the branches. Veins strongly mark the leaves, curving to the acute apices. Stems are yellow. Inflorescence is a round cyme of many creamy flowers, producing blue drupes.

Flowers mid-June to mid-July.

Photo by Sean Blaney



Photo by Sean Blaney

Ravines and slopes, deciduous forests and intervalles, on fertile shaded soils.

Common from Digby Co. to northern Cape Breton. Scattered elsewhere.

Range is distinctly eastern North America, to the Gulf of Mexico.

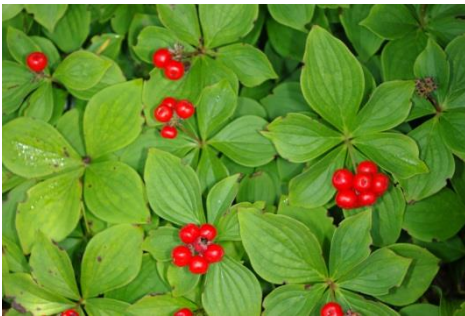
HYBRID: *Cornus X acadiensis* has its leaves distant, but opposite. Its cymes are small, producing fleshy blue fruit. Cross between this and *C. sericea*, is found only in Cape Breton, where it was mistakenly identified as *C. amomum*. So far only known from NS.

### ***Cornus canadensis* L.**

**Bunchberry; Pigeonberry; Dwarf Cornel; quatre-temps**



Photo by Martin Thomas



A small colonial sub-shrub it is often seen in masses. Leaves, usually six, are borne in whorls at the summit. Veins arise from the midrib and nearly parallel. Sometimes a small pair of leaves is carried below the whorls. All are sessile. Inflorescence is terminal, of crowded tiny greenish flowers, subtended by an involucre of four showy white bracts. Fruits are clustered together, bright-red in colour.

Flowers in June.

Usually growing in the acidic soil of barrens, conifer thickets and mature bogs. Often a pioneer species after disturbance.

Common throughout.

*Photo by Sean Blaney*

Ranges across the north and south to VA and OR, NM;  
eastern Asia.

***Cornus rugosa* Lam.**

**Round-leaved Dogwood; cornouillier rugueux**



*Photo by David Mazerolle*

Broadly ovate or lanceolate leaves mark this species. Opposite, they are usually coarsely pubescent. Flowers are borne in a loosely arranged globose cyme. Twigs are pale but streaked purple or brown. Fruits range from blue to white.

Flowers appear early in July.

Limited to neutral or alkaline soils, in rocky open forest, talus, ravines.

Common on Cape Blomidon. Scattered elsewhere to northern Cape Breton. Absent in the southwest and along the Atlantic coast.

Ranges from NS to MB, south to VA and IA.

***Cornus sericea* L.**

**Red Osier Dogwood; cornouiller stolonifère**



*Photo by David Mazerolle*

Opposite lanceolate leaves are borne on short petioles. Leaves are puberulent. White flowers are clustered in crowded cymes; their peduncles are lightly pubescent. Young twigs and stems are bright red in early spring — a conspicuous feature.





Photo by Martin Thomas

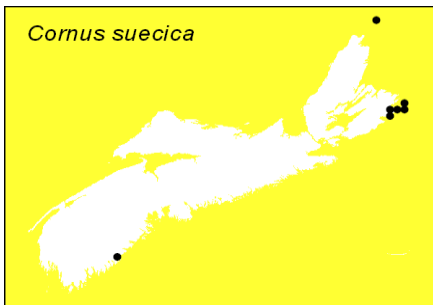
Flowers in June.

A shrub of edges, intervalles, fields, highways, especially in alkaline or neutral soils.

Lunenburg and Annapolis counties to Cape Breton, but absent in the more acidic soils as along the Atlantic.

Ranges across the north and south to CA, NM and VA.

***Cornus suecica* L.**  
**cornouiller de Suède**



It is herbaceous like Bunchberry, but it bears opposite leaves for much of the stem's height. Veins arise from the leaf bases. Flowers are terminal, purple and subtended by a white involucre of four bracts. Fruits are red.

Flowers appear in late June.

Sphagnous peats in barrens and on headlands along the coast.

Saint Paul Island and Scatarie Island in Cape Breton; Canso, Guysborough Co., and Port Mouton, Queens Co.

Elsewhere, northern and disjunct; Greenland and NF, south around the Gulf of St. Lawrence in NS and NB; NT, AK and BC; Eurasia.



## Crassulaceae

### stonecrop family

Mainly northern, this family is represented in Nova Scotia by only a few species out of a total of 300. They are succulent herbaceous plants, bearing small yellow, white or pink flowers. Sepals and petals are five-merous; stamens number twice as many as the petals. Pistils 3–5; fruit is a follicle. Best-known as rock garden ornamentals, we have a single native species. (Key adapted from Go Botany).

#### Key to genera

- |  |                      |
|--|----------------------|
| A. Plants annual; aquatic or amphibious; flowers solitary; leaves connate around the stem.             | <i>Crassula</i>      |
| aa. Plants perennial; terrestrial; flowers usually in cymes; leaves not as above.                      | B                    |
| B. Leaves entire; plants matted with creeping stems.   | <i>Sedum</i>         |
| bb. Leaves toothed; plants with upright stems, which may be decumbent at the base, or from stolons.    | C                    |
| C. Flowers unisexual, 4-merous; fertile stems from axils of brown scalelike leaves from fibrous roots. | <i>Rhodiola</i>      |
| cc. Flowers bisexual, 5-merous; fertile stems from roots or stolons.                                   | D                    |
| D. Plants mat-forming from creeping horizontal stems; leaves opposite.                                 | <i>Phedimus</i>      |
| dd. Plants not forming mats; leaves alternate, opposite or whorled.                                    | <i>Hylotelephium</i> |

### ***Crassula* L.**

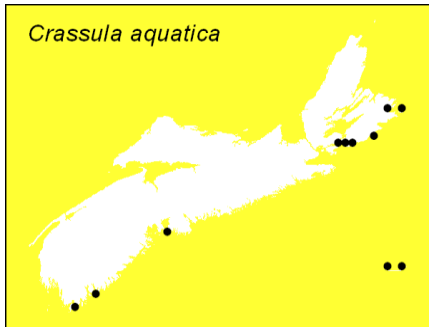
Cosmopolitan in distribution, of the 250 species only one reaches NS. Most are succulent, their leaves opposite. One species of Africa known in horticulture as the Jade Plant, is a *Crassula*.

#### ***Crassula aquatica* (L.) Schonl.**

**Pigmyweed; tillée aquatique**



Photo by Sean Blaney



A tiny tufted annual, it rarely exceeds 10cm in height. It is mat-forming with small sessile, linear and opposite leaves. Flowers are solitary and axillary, barely 1mm wide.

Flowers from July to September.

Habitat preferences are narrow: brackish muddy shores and sand flats or borders of muddy ponds along the coast.

Known from several Atlantic coastal localities, from Shelburne Co. to Cape Breton Co., including Sable Island.

Ranges from NL to ON and southward to MN and MD; southward; Pacific coast; Europe and North Africa.

### ***Hylotelephium* H. Ohba**

Includes about 30 species of North America, Africa and Asia. Formerly included in *Sedum*, these species have now been separated on the basis of monoecy and erect habit.

### ***Hylotelephium telephium* (L.) Ohba (=*Sedum telephium* L.)**

**Live-forever; orpine pourpre**



Photo by Sean Blaney

Coarse erect succulent plants, this species may reach 50cm in height. Branching from the base, the stems and alternate leaves are glaucous. Leaves may appear to spiral the stem. Fleshy, they are sparingly toothed along the margins. Flowers are numerous and densely packed, ranging from creamy white to magenta or deep purple. Plants are monoecious



*Photo by Andy Dean*

Flowers July and August.

Naturalized in shady areas in fertile soils.

Scattered from Yarmouth to Cape Breton.

NS to SK, south to MS; various other locations. A European introduction.

## ***Phedimus* Raf.**

Formerly included with *Sedum*, these species have now been segregated on the basis of creeping growth habit. A single introduction is found in NS, thriving after cultivation in coastal areas.

***Phedimus spurius* (M. Bieb.) 't Hart.**

**(=*Sedum spurium* M. Bieb.)**

**Caucasian Stonecrop; Garden Stonecrop; orpin bâtard**

A coarse perennial, it roots from the vegetative stems, forming large patches. Only the flowering stems are erect, to 20cm tall and bearing flat ovate leaves in whorls on the stem. Flowers are pink, about 1cm wide, crowded in a corymb 5–7cm wide.

Flowers throughout the summer.

Generally roadside or along stone walls, where soil is rocky.

Many coastal locations from Yarmouth east to Halifax and Pictou counties.

Elsewhere its distribution has not been recorded.

## ***Rhodiola* L.**

It is a genus of plants of the northern regions of North America, Asia and Europe and in southern areas at higher elevations. Our single species is a native perennial. Plants are unisexual, the only species in the family to exhibit dioecy.

### ***Rhodiola rosea* L.**

(=*Sedum rosea* L.)

**Roseroot; orpine rose**



*Photo by Martin Thomas*

A dioecious species, it branches from the base of the plant, arising from a scaly crown. Leaves are alternate or whorled and acutely pointed. Inflorescence is terminal and crowded, rarely more than 3cm wide. Staminate flowers are greenish yellow; pistillate ones are plump, erect and purplish.

Flowers June and July.

Coastal crevices, seashore cliffs, maritime.

Scattered along the Bay of Fundy from Brier Island inland. Not common on the Atlantic coast. Scattered through the Cobequids and common on northern Cape Breton. Essentially a maritime distribution.

Ranges from Greenland, NF to NU, south to PA; NC.



*Photo by Marian Munro*

## ***Sedum* L.**

**stonecrops**

Of 400 species, we have a single species, found here as a garden escape. All have succulent leaves and showy clusters of flowers. Stamens number twice as many as petals.

### ***Sedum acre* L.**

**Mossy Stonecrop; Yellow Orpine; orpin âcre**



Photo by Marian Munro



Photo by Martin Thomas

A low-growing mat-forming perennial, its tangled stems creep to 10cm. The round succulent leaves are tiny, 2–5mm long. Sulphur yellow flowers are terminal in small cymes. Currently used as a species of choice for green roofs.

Flowers June and July.

Escaped from cultivation and naturalized locally on cliff edges, walls, rocky outcrops, sometimes in dense patches but not spreading.

Becoming frequent along the Atlantic coast and scattered to Cape Breton.

Ranges from NF to SK, south to CO and NC; FL; west coast. From Eurasia.

## Cucurbitaceae pumpkin family

Represented in Nova Scotia only in gardens except for *Echinocystis*, this family of about 700 species includes our vegetable and fruit crops of pumpkins, squashes, cucumbers and melons. The 90 genera comprising it are mostly of subtropical or tropical regions.

Wild Cumber reaches NS, the only species to have ranged northward. It is a trailing herbaceous vine, clamouring by coiling tendrils. Simple leaves are lobed and coarsely pubescent. Flowers are unisexual, greenish yellow. The calyx is typically five-merous, the five stamens attached to a hypanthium. Fruit is a pepo or berry. The oily seeds are compressed.

### *Echinocystis* T&G wild cucumber

A monotypic genus, it is six-merous, rather than the typical five. An annual vine, it weakly attaches to shrubs or evergreens. Staminate and pistillate flowers are carried together in the leaf axils. Staminate flowers form large racemes, while the pistillate flowers are solitary or in small clusters. The spiny inflated fruit is often persistent over winter as a skeleton.

***Echinocystis lobata* (Michx.) T&G**

**Wild Cucumber; concombres grimpant**



*Photo by Marian Munro*



*Photo by Martin Thomas*

Described above. It is often cultivated as a vine over rocks, walls or fences. The stems and petioles are straw-coloured. Leaves have five acute lobes, their margins are serrate or smooth. Flowers are axillary, carried in racemes. Fruit to 5cm in length.

Escaping to edge habitats and roadsides, floodplains.

Central and southern parts of the province. Introduced.

Ranges from NS to BC, south to FL and TX.

## **Cuscutaceae**

### **dodder family**

Distributed throughout the world, the family includes 100 species. Typified by a parasitic lifestyle, they lack chlorophyll. Attaching to host plants they enter tissue of their hosts via haustoria, promoting degeneration of the weak roots. Stems are glabrous and variously pink, yellow, orange or white. Flowers are small and perfect. Corolla is sympetalous; the calyx is deeply incised or of distinct sepals. Plants 4–5-merous and fleshy. Stamens are subtended by a set of scales. The styles may have a disc-shaped base called a stylopodium. Fruits are in the form of globose or ovoid capsules or utricles, sometimes even concave.



***Cuscuta* L.**  
**dodders**

Parasitic, they are not host-specific attaching to a variety of available plant species. Flowering only late in summer. The dehiscent capsules of our species are circumscissile.

Key to species

- |  |                            |
|--|----------------------------|
| A. All or most flowers with a four-parted corolla.   | <i>Cuscuta cephalanthi</i> |
| aa. All flowers with corollas five-parted.   | B                          |
| B. Corolla lobes acute; calyx lobes reaching or exceeding the sinus in the corollas; stylopodium absent.                 | <i>C. campestris</i>       |
| bb. Corolla lobes obtuse at the tip; calyx lobes' tips not reaching the sinus in the corolla lobes; stylopodium present. | <i>C. gronovii</i>         |

***Cuscuta campestris***

Calyx is about equal in length to the corolla, its acute lobes about 1mm tall. Twigs are golden coloured. Costea reported that NS plants formerly labelled as *C. pentagona* probably belong here (2014, personal comm.). Our *Cuscuta* material should be re-examined with this in mind.

Flowers earlier from June until frost.

Generally in open habitats with dry soil; parasitizes many species.

Unknown without examining collections.

Known from most provinces and states.

STATUS: Undetermined.

***Cuscuta cephalanthi* Engelm.**

**Buttonbush Dodder; cuscute du céphalanthe**



Photo by Sean Blaney



Photo by Sean Blaney

Flowers are sessile, only 2–2.5mm long, clustered in compact round inflorescences. Calyx lobes are strongly overlapping and shorter than the corolla tube. Corolla is persistent on the fruit.

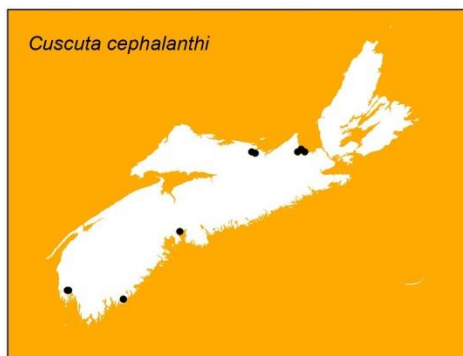
Flowers during August and September.

Low-lying coastal areas, often seen parasitizing *Symphotrichum novi-begii*.

Locally abundant at Loch Broom, Pictou Co. Known from Hubbards and Antigonish as well as Tusket River, Yarmouth Co. Louis Head Beach, Shelburne Co.

Ranges from NS to BC and lower 48 states except for SK, the American Great Plains and the extreme southeast.

STATUS: ORANGE-listed.



A record of *Cuscuta epithymum* has been unsubstantiated. This introduction is known from NB, ON and BC southward and is listed as a noxious weed/invasive species in many jurisdictions.

***Cuscuta gronovii* Willd.**

**Common Dodder; cuscute de Gronovius**



*Photo by David Mazerolle*



*Photo by Martin Thomas*

Stems are reddish brown, twisting and vining around its host plant. Flowers are white, tiny and barely more than 2.5mm long. Fruits are round capsules, the withered corolla subtending them.

Flowers during late July and August.

On a variety of species in damp locations, as lakeshores, brackish wetlands and thickets.

Scattered in the southwestern counties, eastward to Cape Breton. Locally abundant.

NS to AB south to OR, AZ and FL.

## **Diapensiaceae**

Mostly evergreens, this is a family of herbs or shrubs with basal leaves. Of 18 species, a single one reaches Nova Scotia, and only in northern Cape Breton. Typically flowers are white or pink, perfect and regular. Borne singly or in racemes, each is five-merous, but for the three-parted ovary. Fruits are capsules.

## ***Diapensia* L.**

A genus of four species, three are Asiatic. Bearing solitary white flowers, the corolla is bell-shaped. It has broadly spreading lobes equal in length to the corolla tube. Style is long and slender and exerted. Fruit is a round capsule.

### ***Diapensia lapponica* L. diapensie de Laponie**



Densely cespitose, this small plant bears linear leaves terminally on the branches. Leaves are persistent from year to year. White flowers are terminal on pedicels about 3cm long.

Flowers in June and July.

Crevice of cliff edges or north-facing slopes.

Only in northern Cape Breton, Lockhart Brook, Salmon River and the upper Cheticamp River.

Ranges from NL; NS; QC to NY; MB to NU and AK, south to BC. Eurasia.

STATUS: ORANGE-listed.

## **Dipsacaceae teasel family**

The teasel family consists of 11 genera of 350 herbs and shrubs found in temperate climates. Containing both perennials and biennials native to Europe, Asia and Africa, a single species has been introduced to Nova Scotia. Leaves are generally opposite or whorled. The flowers are borne in dense cymelike heads. Flowers are sympetalous and mostly perfect, the corolla 4–5-merous. It appears to be bilabiate. Stamens

number four. Calyx is deeply cleft into 4–5 lobes. Ovary is inferior in position and contains a single locule. Dry fruit is enclosed by the persistent involucrel.

## ***Succisa* Haller**

A mere three species comprise the genus, native to Africa and Europe. Capitate inflorescences extend above the basal leaves on long peduncles. Flowers in the centre of the head differ in size from the outer ones. The calyx is a shallow cup of 4–5 bristles surrounding the four-lobed corolla. The four-angled involucrel encloses the fruit.

### ***Succisa pratensis* Moench**

#### **Devil's-bit; succise des prés**

Peduncles and pairs of ovate leaves are densely pubescent. Leaves are smooth on the margins or coarsely and shallowly toothed and acute. Flowers are mauve to blue, borne in a capitate inflorescence.

Flowers in August and September.

Found along roadsides, in fields and about houses.

Common around Louisbourg and in nearby communities.

In North America, known only from NS; QC to ON; MA and RI where it has been introduced from Eurasia.

## **Droseraceae**

### **sundew family**

Like the pitcher-plants the 400 species comprising this family are carnivorous. The trapping mechanism is active, rather than the passive cups of *Sarracenia*. Reddish leaves are ornamented with glandular bristles topped by a drop of glistening glue. Unsuspecting invertebrates become ensnared by the shiny drops. Leaf blades curl about the prey, releasing enzymes that break down the food.

Plants produce gemmae, that detach and move away with spring freshets. Flowers are small and carried in a circinate inflorescence, opening sequentially. Fruit is a capsule.

***Drosera* L.**  
**sundews**

Genus description as above.

Key to species

A. Leaves with round blades; petioles pubescent.

*Drosera rotundifolia*

aa. Leaves with blades much longer than wide; petioles smooth.

B

B. Blades oblong or spatulate, to 2cm; petioles 2–5cm long.

*D. intermedia*

bb. Blades linear or filiform, to > 10cm long; petiole not distinct.

*D. filiformis*

***Drosera filiformis* Raf.**

**Thread-leaved Sundew; droséra filiforme**



Photo by Martin Thomas

Long linear and erect leaves, from 10–20 cm separate this species from the following two. The mauve or pink flowers numbering up to 12 are borne on a nodding peduncle.

Flowers from mid- July, earlier than our common species.

Ombrotrophic peatlands, in depressions where there is little competition from shrubs.

The Nova Scotia population is the only one in Canada: several bogs in Shelburne County: Swaine's Road, Quinn's Meadow, Port LaTour, Villagedale and West Baccaro bogs.

Ranges from NS; MA south to MD; NC; FL.





Photo by Mark Elderkin



### ***Drosera intermedia* Hayne**

**Narrow-leaved Sundew; droséra intermédiaire**



Photo by Sean Blaney

Leaves are clavate, longer than wide. Petioles are smooth. Flowers are generally smaller than in the previous species, white or cream.

Flowers from mid-July to mid-August.

Tolerant of waterlogged depressions in wetlands, where competition is absent from shrubs. Also on lakeshores on peat mats.

Common throughout the province. Present on Sable Island,

although less frequent than the next species.

NF to NU, south to FL and TX; ID.

***Drosera rotundifolia* L.**

**Round-leaved Sundew; droséra à feuilles rondes**



Photo by Marian Munro

Small tidy plants, their petiolate leaves are nearly round. Petioles are densely pubescent; the leaves, as in all our species, are covered in glandular hairs tipped with glistening drops of mucilage. Pedicels are very short, attached to a long smooth scape. It is variable in form depending on habitat.

Flowers mid-July to mid-August.

Frequents the drier hummocks in bogs, swamps, lakeshores and ditches. Tolerates more shade and competition and is usually found in drier situations than the other species.

Common throughout including Sable Island.

NF to AK, south to CA, CO, MS and GA. Greenland.

There is a single collection of the hybrid *D. xbelezeana* from Lac d'Ecole, Yarmouth Co. (ACAD) (*D. intermedia* x *rotundifolia*).

## **Elaeagnaceae**

### **oleaster family**

Of the three genera of woody plants, two are found in Nova Scotia. One is native and one is introduced. Shrubs or small trees, all have scaly bark and leaves. In addition the leaves are simple, their margins entire. Flowers may be solitary or arranged in umbels or racemes, perfect or unisexual. Hypanthium of staminate flowers is of a different shape from that of the pistillate flowers. Stamens are inserted and equal the number of sepals or double. Fruits are dry achenes, subtended by a fleshy or mealy hypanthium forming a berry or drupe.

## Key to genera

Small tree; leaves alternate; flowers with 4 stamens.

*Elaeagnus*

Small shrub; leaves opposite; flowers with 8 stamens.

*Shepherdia*

## ***Elaeagnus* L.**

Asian temperate and subtropical regions are the origins of this genus of 50–60 small trees or shrubs. Generally armed, and with silvery or rusty scaly leaves, the flowers are usually fragrant. Petals are absent; calyx is four-merous. Both are introductions and may be somewhat invasive.

## Key to species

Fully expanded leaves with abundant silvery scales on both surfaces;  
fruit yellow and mealy.

*Elaeagnus angustifolia*

Fully expanded leaves with abundant silvery scales on the lower surface only; fruit  
red, juicy.

*E. umbellata*

## ***Elaeagnus angustifolia* L.**

**Silverberry; Oleaster; Russian Olive; olivier de Bohême**



Photo by Marian Munro

With silvery bark and lanceolate leaves, this tree somewhat resembles aspen at a distance; its leaves often in motion with the slightest breeze. It is armed with thorns. Fragrant flowers are borne in clusters 1–3 per inflorescence. Fruit is yellow or orange and mealy.

Specimen tree or hedgerow planting, persisting after cultivation and spreading, especially in sandy soil

Known from Halifax, Wolfville and Windsor.  
Found throughout North America, except for the extreme southeast.

***Elaeagnus umbellata* Thunb.**

**Autumn Olive; oléastre à ombelles**

Similar to Russian Olive, although the fruit is red and juicy and abundantly produced.

Only recently discovered as an escape in Nova Scotia and potentially invasive. Ditches and roadsides.

Recently found to be spreading along the Highway 101 verges as at Nictaux, Annapolis Co. and at Avonport, Kings Co. in similar habitat. Falmouth, Hants Co.

Found in ON and throughout the eastern US.

***Shepherdia* Nutt.**

North American in distribution, three species comprise the genus. All are dioecious, with the flowers borne in small clusters on the previous year's wood. Sepals are yellow green; petals are absent. Hypanthium has an eight-lobed disk atop it, the stamens alternating with the lobes. Fruit is a berry with no stone.

***Shepherdia canadensis* (L.) Nutt.**

**Rabbit-berry; Shepherdia; Russet Buffaloberry; shépherdie du Canada**



*Photo by Martin Thomas*

A small shrub and one of only a handful in NS, having very scaly buds, leaves and twigs. Leaves are broadly lanceolate and opposite. The scales are silvery and covered with rusty spots.

Flowers from April to June throughout its range.

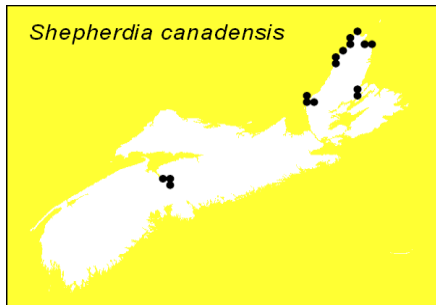
Found on talus slopes, especially on gypsum soils.

Local in NS but abundant where found: northern Cape Breton and around Brooklyn and Windsor, Hants Co.

Found throughout North America, but for the southeast.



Photo by David Mazerolle



## **Elatinaceae**

### **waterwort family**

A single species of these tiny herbaceous creeping plants reaches Nova Scotia. Worldwide there are only 40 species. Sprawling stems bear erect branches, with whorled or opposite leaves. Axillary flowers are solitary or in cymes. Flowers are regular, 2–5-merous, with one or two series of stamens. Fruits are capsules, with many seeds.

### ***Elatine* L.**

#### **waterwort**

Small sessile flowers bear two or four petals. Seeds have shallow pits or dents on their surface. They are tiny creeping plants on mucky soil, sometimes even submerged rendering them often overlooked.

***Elatine minima* (Nutt.) Fischer & CA Meyer**

**Waterwort; élatine naine**



*Photo by Sean Blaney*

These tiny, fleshy squat annuals are less than 4cm tall and may form dense mats. Each plant produces 5–10 pairs of opposite obovate or round leaves. Flowers are two-merous. Flowers and fruits often when less than 1cm tall.

Flowers produced July to October.

Under water at lower shorelines in damp sand.

Widespread and found wherever suitable habitat is present.

NL to ON, south to IL and NC.

## **Ericaceae**

### **heath family**

All species of this family are woody, vines or shrubs. Totalling about 3500 species worldwide, most are found on peaty soils of headlands and bogs in particular.

Some are known for their ornamental beauty; others for their fruits.

Flowers are generally 4–5-merous, with twice as many stamens as petals. Ovary is inferior or superior, with a single pistil. Fruit is produced as a berry or capsule. Leaves are alternate, opposite or whorled.

#### **Key to genera**

- |   |                   |
|---|-------------------|
| A. Plants non-green: white, yellow or orange; leaves reduced to scales.                             | B                 |
| B. Flowers few to many; plant yellow to orange when fresh becoming dark brown long after flowering. | <i>Hypopithys</i> |
| bb. Flowers solitary; plants pure white when fresh, soon turning black.                             | <i>Monotropa</i>  |
| aa. Plants not as above; leaves green, scale-like, needle-like, or expanded.                        | C                 |
| C. Leaves scale-like or needle like.  | D                 |
| D. Flowers miniature, barely visible, whitish.  | E                 |
| E. Fruit a dark berry.  | <i>Empetrum</i>   |
| ee. Fruit a capsule.  | <i>Corema</i>     |
| dd. Flowers large, pink to purple.  | <i>Calluna</i>    |



cc. Leaves expanded.	F
F. Leaves arranged in a basal rosette; plants herbaceous.	G
G. Inflorescence asymmetrical raceme; style recurved, at least 4mm long.	<i>Pyrola</i> , in part
gg. Inflorescence secund, or single-flowered, not as above; style straight	H
H. Inflorescence a single flower.	<i>Moneses</i>
hh. Inflorescence a secund raceme.	I
I. Style 2.5-6.5mm long, exerted at maturity.	<i>Orthilia</i>
ii. style <1.5mm and not exerted.	<i>Pyrola</i> , in part
ff. Leaves opposite, alternate or whorled.	J
J. Leaves opposite or whorled.	K
K. Leaves coarsely toothed; plant shrubby only at the base.	<i>Chimaphila</i>
kk. Leaves smooth on the edges; plant a shrub.	<i>Kalmia</i>
jj. Leaves alternate.	L
L. Fruit a dehiscent capsule (berry in <i>Gaultheria</i> )	M
M. Petals separate; lower leaf surface with rusty orange tomentum.	<i>Rhododendron</i> , in part
mm. Petals united, at least at the base; leaves without tomentum beneath.	N
N. Flowers four-merous, fruit with 4 locules.	O
O. Leaves alternate, not reduced to scales; native plants.	<i>Gaultheria</i>
oo. Leaves opposite and scalelike; Introduced.	<i>Calluna</i>
nn. Flowers 5-merous; fruit with 5 locules.	P
P. Arctic alpine shrubs; leaves 2–10mm long.	<i>Phyllodoce</i>
pp. Boreal shrubs; leaves >1cm long.	Q
Q. Corolla bell, funnel or wheel-shaped, not constricted distally.	R
R. Corolla bell-shaped or funneliform.	<i>Rhododendron</i> , in part
rr. Corolla round or saucer-shaped.	<i>Kalmia</i>
qq. Corolla tubular or round, constricted distally.	S
S. Leaves rolled under, white tomentum beneath; flowers in a short terminal inflorescence.	<i>Andromeda</i>

ss. Leaves flat, not as above; flowers produced in axils of leaves.	T
T. Flowers solitary in the leaf axils; pedicels with 2 bracteoles.	<i>Chamaedaphne</i>
tt. Flowers in umbelliform lateral clusters in leaf axils or on leafless twigs forming a compound inflorescence.; pedicels without bracteoles.	<i>Lyonia</i>
II. Fruit an indehiscent berry or drupe.	U
U. Ovary superior.	V
V. Foliage and fruit with wintergreen flavour when crushed.	<i>Gaultheria</i>
vv.. Foliage and fruit without wintergreen flavour or odour when crushed.	W
W. Prostrate, matlike shrub; corolla oval, reflexed distally; flowers not fragrant.	<i>Arctostaphylos</i>
ww. Trailing vine, corolla tube slender, with wide-spreading lobes; fragrant flowers.	<i>Epigaea</i>
uu. Ovary inferior.	X
X. Upright shrub, flowers 4–5 merous.	Y
Y. Ovary with 4–5 locules, many seeds; leaves not glandular.	<i>Vaccinium</i> , in part
yy. Ovary with 10 locules; seeds 10; leaves glandular beneath.	<i>Gaylussacia</i>
xx. Trailing shrub; flowers 4-merous.	<i>Vaccinium</i> , in part

## ***Andromeda* L.**

### **bog rosemary**

There are two species of *Andromeda*, and both are circumboreal. One of these reaches NS. Plant has stiff evergreen leaves, bluish-green in colour, tightly inrolled, and sharply pointed. Lower surfaces are white. Flowers are white or pink, five-merous; the calyx is saucer-shaped.

***Andromeda polifolia* L.**

(=*A. glaucophylla* Link)

**Bog-rosemary; andromède à feuilles de polium**



*Photo by Sean Blaney*

Distinctive, although it superficially resembles *Kalmia polifolia*. The narrow sharply pointed leaves of this species are dark bluish green above, white-pubescent below. Flowers are white or pink and waxy in texture. Our material belongs to var. *glaucophylla* (Link) DC.

Flowers produced in early June.

Grows on saturated peat, as in bogs or pools in barrens.

Common throughout NS.

NL to NU south to SK, IL and WVA.



*Photo by Martin Thomas*



*Photo by Martin Thomas*

***Arctostaphylos* Adans.**

Forty-five species comprise this genus, most numerous in western North America. All are low, creeping shrubs, producing five-merous flowers in short, terminal racemes of white to pink individuals. Drupes contain five seeds, and mature into bright red berries.

***Arctostaphylos uva-ursi* (L.) Spreng**  
**Bearberry; Kinnikinnick; raisin d'ours**



*Photo by Alain Belliveau*



*Photo by Martin Thomas*

A mat-forming species, Bearberry is an attractive ground-cover. Its stems are lightly downy, bearing obovate dark green shiny leaves. Margins of the leaves are smooth. Bright red berries are not highly prized edibles here, as they are tasteless and mealy.

Flowers early June.

Grows on sandy, gravelly soils.

Locally distributed, but abundant where found. Annapolis Valley, southwestern counties, eastward to Cape Breton.

Arctic regions of North America, south to VA, NM and CA; Greenland.

***Calluna* Salisb.**  
**heather**

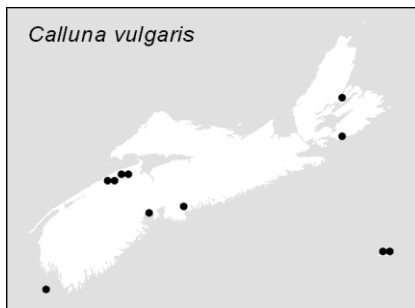
A monotypic genus, heather is native to Europe. It is a small compact shrub, with scalelike plicate leaves, opposite on the stem. Flowers are pink or red, borne in long slender racemes. Four-merous, the sepals are petaloid, exceeding the length of the corolla.

***Calluna vulgaris* (L.) Hull**

**Scottish Heather; Ling; bruyère commune**



Photo by Alain Belliveau



A sprawling freely-branched shrub, its flowers are pink or mauve, on long terminal racemes. The scalelike leaves bear auricles at the bases.

Flowers in August.

Peat or damp organic soils.

An introduction known from Point Pleasant Park, Halifax; Seal Island, Sable Island. Also from Kings Co.; Victoria and Richmond counties in Cape Breton.

Locally introduced; NF to QC, variously south to WI and VA; west coast.

***Chamaedaphne* Moench**

**leather-leaf**

Another monotypic genus, it is limited to circumboreal regions. The alternate leaves are folded above the stem, appearing to be on one side only. Usually rusty-scaly, the leaves reduce in size distally. Nodding flowers are axillary forming a leafy raceme. Corolla is cylindrical, constricted at the throat.

***Chamaedaphne calyculata* (L.) Moench**

**Leather-leaf; Cassandra; cassandre caliculé**



This is a distinctive shrub with its rusty appearance. Leaves are arranged in neat ranks, secund on the arcuate stems. Raceme is made up of waxy white vase-shaped flowers.

Flowers 15 May to 10 June.



Photo by Sean Blaney



Photo by David Mazerolle

Peat wetlands, lake margins and pond edges. Often dominant shrub at water's edge, particularly where soils are peaty.

Common throughout Nova Scotia.

NL to AK, south to BC, IA and GA.

## ***Chimaphila* Pursh**

Low-growing and nearly evergreen, describes this genus of shrubby perennials, with a single Nova Scotian species. Rhizomatous, it occurs in small colonies. Leaves are cauline, in opposite pairs, nearly whorled. Flowers are few, white or pink and arranged in small umbels or corymbs.

### ***Chimaphila umbellata* (L.) Bartram** **Princes-pine; Pipsissewa**



Photo by David Mazerolle

From creeping rhizomes, this little plant bears woody stems. Leaves are oblanceolate, distally toothed. Flowers are pinkish with darker stamens carried in umbels from a terminal peduncle. Ours is ssp. *cisatlantica* (SF Blake) Hult  n.

Flowers in mid-July.

Dry soils in rocky mixed conifer woods.

Not common but scattered throughout. Seems absent from eastern mainland.

Ranges from NF to AK, variously, south to CA and GA. Eurasia.



Photo by David Mazerolle



## ***Corema* D. Don**

This genus contains two species; one produces berries and is western European. The other is dry-fruited and our native *Corema conradii*. Dioecious species they have no petals; sepals number 3–4. Flowers are purplish and carried in sessile terminal heads. Dry globose fruit produce three seeds.

### ***Corema conradii* Torr.**

#### **Broom-crowberry; corème de Conrad**



*Photo by Eugene Quigley*

Reaching to 50 cm in height, these plants are freely branching and forming mats 2m wide. The leaves are linear, narrower than those of *Empetrum* and only 3–6mm long. Flowers are distal.

Early May flowering.

Sandy or rocky soils.



*Photo by Eugene Quigley*

Coastal barrens along Atlantic shores; granitic barrens inland. Kingston sand barrens. No Cape Breton collections. NS has rare- broom-crowberry-jack pine plant community.

Ranges from NS to QC, south to NJ. A globally rare plant.

## ***Empetrum* crowberries**

Northern hemisphere in distribution, there are two variable species, both in Nova Scotia. Flowers are green or purple, sessile and perfect or unisexual. They are four-merous in floral symmetry. Fruit is a drupe, with 6–9 stones.

Key to species

Young twigs smooth; fruits black.

*Empetrum nigrum*

Young twigs densely white tomentose; fruits red or purple.

*E. eamsii*

***Empetrum eamsii* Fern. & Wieg.**

(=*E. rubrum* Vahl.)

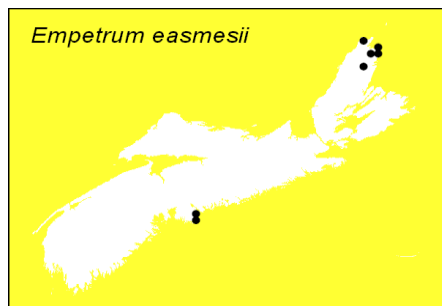
**Purple Crowberry; camarine noire-pourprée**



Photo by David Mazerolle



Photo by Sean Blaney



Young twigs are densely white-woolly. Leaves are evergreen. Fruit is reddish or purplish, but not black. There are two subspecies. Both are reported from NS.

Ssp. *atropurpurem* (Fern. & Wieg.) D. Löve has dark-red fruit and longer leaves than the following subspecies. Its North American range extends to Lake Superior.

Ssp. *eamsii* has its leaves shorter and the fruit may be light brown or red, with translucent skin. Its range is limited to NS, NF and St. Pierre & Miquelon.

Both subspecies flower early, producing fruit from July until frost.

Habitat includes sands and gravels of headlands, bogs and barrens.

Recently found at South Canoe Lake a *Corema* community on granite. Collected from Halifax to Peggys Cove and in northern Cape Breton, with both subspecies having similar distribution in the province.

NL to NS, ME, NY and west to Lake Superior.

Hybrids are frequent.

***Empetrum nigrum* L.**

**Black Crowberry; camarine noire**



Photo by David Mazerolle



Photo by Sean Blaney



Photo by Eugene Quigley

Branches are smooth and sometimes shiny brown distally. Leaves are short and needlelike. Fruit is black, but glaucous.

There are two ssp. the typical one is said to be the diploid form and with all flowers unisexual. Ssp. *hermaphroditum* (Hagerup) Sorensen sometimes has perfect flowers.

Fruits from July to September.

Habitats include bogs, acidic barrens (may be dominant) and exposed sites such as headlands.

Around the entire Fundy and Atlantic coasts. Nearly absent along the Northumberland plain.

Ranges from Greenland across Canada, south to alpine areas in NY, MN and CA.

Forms hybrids with *E. eamsii*.

## ***Epigaea* L.**

A small genus of only three species, one is well-known in Nova Scotia, as the Mayflower. The other species are native to Japan, Asia Minor and the Caucasus region. Species are dioecious, although flowers appear perfect. Flowers are five-merous and pleasantly scented, and white to pinkish. Inflorescence is a terminal spike, sometimes arising from the leaf axils. Sepals are persistent, connate and subtended by two oval bracts. Fruit is a fleshy capsule. Evergreen leaves are alternate and leathery in texture. Elsewhere they would be evergreen.

***Epigaea repens* L.**

**Trailing Arbutus; Mayflower; épigée rampante**



*Photo by Ross Hall*

Nova Scotia's provincial flower is an evergreen vine, that flowers in early spring. Its leaves are ornamented by a rusty bristly pubescence. Veins prominently mark the ovate leaves. Sweetly fragrant flowers range from nearly white to deep pink. Fruits only occasionally.

Look for flowers 15 April until mid-May.

Grows on acidic and well-drained soils of pastures, fields, barrens, woods and uplands.

Common throughout the province.

NL to MB, south to MS and FL.

***Gaultheria* L.**

**wintergreens**

Best developed in mountainous regions of South America, there are about 150 species, two only, in Nova Scotia. Woody plants, their leaves are persistent and flowers generally solitary and white. Fruit of both our species are edible. Both taste of wintergreen.

Stems erect, leafy; leaves 2.5–3.5 cm long, reddish and smooth; flowers five-merous; berries red.

*Gaultheria procumbens*

Stems long-trailing; leaves <1cm long, green, glandular below; flowers four-merous; berries pure white.

*G. hispidula*



***Gaultheria hispidula***  
**(=*Chiogenes h.* Salisb.)**  
**Creeping Snowberry**



*Photo by Sean Blaney*

A small, inconspicuous trailing plant, it is often overlooked. Its scaly stems bear acute elliptic leaves. Small white waxy berries are produced mid-summer, partially buried in the mossy ground or stump.

Flowers in June.

Prefers mossy stumps, in shady spots, treed bogs, swamps and barrens.

Scattered throughout.

NL to NU and BC, variously south to ID and WVA.

***Gaultheria procumbens* L.**  
**Eastern Teaberry; Checkerberry**



*Photo by Alain Belliveau*

A low-growing plant, it is no more than 20cm tall, bearing the pleasant scent of wintergreen, in leaves and fruit. The leaves are terminal, 3–5, drooping over the flowers and fruit beneath. Dentate on the margins, they tend to be dark green to purplish. Delicious red berries are formed from the sepals, which soon become fleshy, enclosing the capsule. Berries are persistent, providing food for birds and wildlife over winter.

Flowers July and August.

Forests, barrens, pastures and even drier bogs.

Very common throughout.

NL to MB, south to GA and AL.

## ***Gaylussacia* Kunth**

### **huckleberries**

A genus of colonial shrubs, 50 species are limited to North and South America. Small leaves are sprinkled with gold-coloured resinous glands, a defining character. Flowers are five-merous; the corolla is tubular or conical. Fruit is a drupe, containing 10 seeds, that separates them from the blueberries.

Leaves ovate, rounded distally, but ending in a sharp point formed from the midvein; ovary and fruit hirsute.

*Gaylussacia dumosa*

Leaves elliptic, tapering to a point; ovary and fruit smooth.

*G. baccata*

### ***Gaylussacia baccata* (Wang.) K. Koch**

#### **Huckleberry; gaylussaquier à fruits bacciformes**



*Photo by Alain Belliveau*



*Photo by Sean Blaney*



One of our most common shrubs, with leathery thin ovate leaves, bearing golden shiny dots on the undersurfaces. Fruit is a smooth purplish black berry, sometimes produced in large numbers.

Flowers in early June.

Frequents rocky soils in pastures, barrens, edges of woods and bogs.

Throughout the province.

NF to ON, south to GA and AR.

*Photo by Sean Blaney*



***Gaylussacia dumosa* (Andr.) T&G**

**Bog Huckleberry; gaylussaquier de Bigelow**



*Photo by Sean Blaney*

Leaves are noticeably leathery, oblong to obovate. Midrib extends beyond the rounded apex, in a sharp point. Edible black fruit are soft-bristly.

Flowers in early June.

Frequents wet barrens and sphagnum bogs in coastal regions.

Common along the Atlantic coast; scattered elsewhere.

Ranges from NL to ON, south to LA and FL.



*Photo by Sean Blaney*

***Hypopitys* Crantz**

Plants are parasitic on fungi that form a mycorrhizal association with trees. Chlorophyll is absent. Leaves are vestigial and alternate, the entire plant is yellowish with a reddish hue. Flowers are 4–5-merous. They are borne in a raceme; they are regular and hypogynous. Sepals are distinct. Fruit is a capsule, dehiscent from the top.

***Hypopitys monotropa* Crantz**

**(=*Monotropa hypopitys* L.)**

**Pinesap; monotrope du pin**



These yellowish plants turn dark brown long after flowering. From one to eleven flowers are arranged in a raceme.

Associated with conifers.

Throughout Nova Scotia, although less common than the next species.

Photo by Martin Thomas



Photo by Martin Thomas

Across Canada, in most regions south to FL and CA; Eurasia.

## ***Kalmia* L.**

### **laurels**

Shrubs, the plants produce showy saucer-shaped corollas, with rose or pink petals. Each flower bears 10 stamens, sunk into the surface of the corolla. Plants are toxic to livestock and people.

Key to species

Leaves glaucous beneath; flowers lateral and never terminal; twigs round in cross-section.

*Kalmia angustifolia*

Leaves with downy white pubescence beneath, margins inrolled; flowers terminal; twigs sharply angled.

*K. polifolia*

### ***Kalmia angustifolia* L.**

**Lambkill, Sheep Laurel; kalmia à feuilles étroites**



Photo by Eugene Quigley

Leaves are opposite, smooth and glaucous beneath. Their margins may be slightly inrolled. Flowers after leaves unfold, the magenta flowers borne in a lateral cluster beneath the leaves. Corolla is saucerlike.

Flowers late May to early July.

Colonial species on acidic soil, fields, barrens, forest



Photo by Martin Thomas

openings, bog margins.

Very common throughout.

Ranges from NL to ON, south to NC.

### ***Kalmia polifolia* Wang.**

**Bog Laurel; Pale Laurel; kalmia à feuilles d'andromède**



Photo by Sean Blaney

Differs not just in habitat from the species above, but the leaves are distinctly shiny dark green, their margins tightly rolled inward. Flowers are palest of pink, terminal on the stem rather than lateral like the previous species. Generally, individual plants are found; it is not colonial. It is similar to *Andromeda*, except in leaf colour, having opposite leaves and the absence of a sharp point. (Leaves are glaucous and alternate in *Andromeda*, ending in a sharp point).

Flowers mid-June.

Grows on peat bogs.

Common in its preferred habitat, scattered throughout.

NL to AK, south to MT and NJ.



Photo by Sean Blaney

***Kalmia procumbens*** Gift, Kron & P.F. Stevens ex Galasso, Banfi & F. Conti (= *Loiseleuria procumbens* (L.) Desv. is not included in the keys. This species was historically reported from Kingsport and not seen until a recent report from Saint Paul Island.

## ***Lyonia* Nutt.**

A genus of the northern hemisphere, *Lyonia* includes 35 species. The shrubs are freely branching and bear simple serrulate leaves alternately arranged along the stems. The inflorescence is compound made up of numerous axillary clusters of flowers, white to rose in colour. The flowers are five-parted with a saucer-shaped calyx and the corolla round to tubular. Stamens are deeply inserted, their filaments dilated at the base and often geniculate. Nova Scotia is host to a single species of *Lyonia*, recently found in southwestern NS.

### ***Lyonia ligustrina* (L.) DC**

#### **Maleberry**



*Photo by Martin Thomas*

This shrub is deciduous, reaching up to 4m bearing thin obovate leaves, which are minutely serrated. The flowers number 2–8 per cluster at the ends of the previous year's wood, forming a panicle. Sepals are deltate and the corollas are globose.

Flowers in May throughout its range.

Generally found in wet mucky soils.



*Photo by Martin Thomas*

In Nova Scotia, so far known only from Springhaven, Yarmouth Co.

Elsewhere from NS; ME to KY and AR, south to FL and LA.





*Photo by Martin Thomas*

## ***Moneses* Salisb.**

### **One-flowered Shinleaf**

A monotypic genus, it produces basal clusters of pairs or triplets of globose leaves. Its single waxy white flower nods from the top of the peduncle.

## ***Moneses uniflora* (L.) A. Gray**

### **One-flowered Shinleaf; monésès uniflore**



*Photo by Sean Blaney*

Leaves are round to elliptic, toothed on the margins and forming a basal rosette. Petioles may reach to 1cm long. Solitary flowers are borne on peduncles to 10cm tall. Stamens are appressed to the petals.

Flowers from late June-late July.

Deciduous or mixed coniferous forest.

Throughout mainland Nova Scotia and Cape Breton.

LB to AK, south to PA, AZ and CA; Eurasia.



*Photo by David Mazerolle*

## ***Monotropa* L.**

A northern genus of parasitic plants, now including four species. All are without chlorophyll and depend upon their relationship with mycorrhizal fungi. Inflorescence is white turning black upon dessication. Flowers are the same colour as stems, erect or nodding. Petals are distinct, forming a corolla tube. Round capsule dehisce from the top downwards.

***Monotropa uniflora* L.**

**Indian Pipe; monotrope uniflora**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Nearly pure white plants, they are translucent in appearance. The reduced cauline leaves are alternate. Flowers are solitary on the stem and nodding, becoming erect in fruit.

Flowers June to September.

Of coniferous forests, or in deep leaf mould in mixed deciduous forests.

Scattered throughout Nova Scotia.

NL to BC south to CA, TX and FL into Mexico. Absent from the arid southwest.





Photo by Sean Blaney

## ***Orthilia* Raf**

Recently separated from *Pyrola* on the presence of single pollen grains, rather than the typical groups of four. In addition there is a hypogynous disk, bearing 10 lobes. The petals are united to form a corolla tube, the stamens and style are exerted, and straight.

### ***Orthilia secunda* (L.) House**

#### **Sidebells Wintergreen; One-sided Wintergreen; pyrole unilatérale**

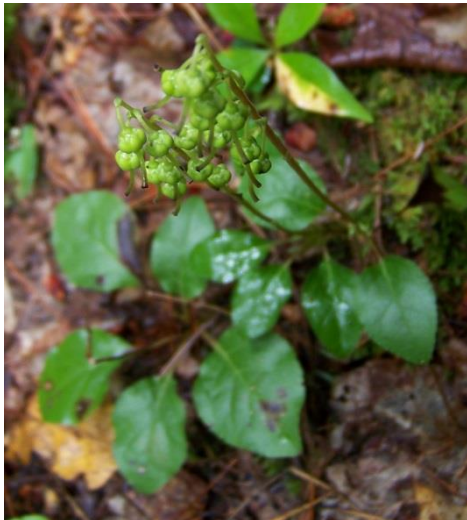


Photo by Ross Hall

Bearing broad ovate leaves, their margins are crisped or serrate. Leaves are basal, or reduced in size and number on the stem. Flowers 7–15 in a secund raceme. Petals are white or green; the styles exerted.

Flowers in July.

Generally found in mixed or coniferous forests, thriving after clearing.

Scattered to common throughout.

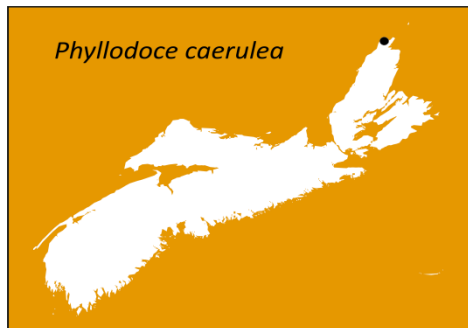
NF to AK, south to CA and VA; Greenland.

## ***Phyllodoce* Salisb.**

A shrub genus of the arctic and north-temperate zone, only one species is known from Nova Scotia. Flowers are five-merous and borne on long peduncles arising from the leaf axils.

### ***Phyllodoce caerulea* (L.) Bab.**

#### **phyllodoce bleue**



Mat-forming and low, this wiry shrub is freely branching from its cespitose base. Leaves are linear.

Flowers from June to August.

Peaty pockets on alpine rocks.

Known only from Lockhart Brook, Salmon River, Victoria Co.

Species is circumboreal. NF to NT and AK; south to MB, ON and VT.

STATUS: ORANGE-listed in NS.

## ***Pyrola* L.**

### **wintergreens**

These are typical species of bogs, barrens and coniferous forests, indicating acidic soils. Limited to the north-temperate zones, there are about 40 species; five in Nova Scotia. Perennials, they arise on creeping rhizomes. Generally the leaves are basal and may persist. Flowers are borne in racemes.

#### **Key to species**

A. Flowers with corolla tube; stamens and style straight.

*Pyrola minor*

aa. Flowers with distinct petals; stamens and styles recurved, with tips erect.

B

B. Bracts on the stem absent, or <3, narrowly lanceolate and acuminate, not sheathing; sepals shorter than broad.

C

C. Blades of the leaves nearly round, 1–3cm long, acuminate

*P. chlorantha*

and shorter than the petioles; basal bracts <5mm long, distinct from the leaves.

cc. Blades of the leaves ovate to elliptic, 3–8cm long, exceeding that of the petioles; bracts at least 1cm long, often grading into leaves.

*P. elliptica*

bb. Bracts on the stem 1–5, ovate to lanceolate, sheathing the stem, sepals longer than broad.

D

D. Sepals oblong, blunt or sharp, not overlapping; flowers white; leaves not cordate.

*P. americana*

dd. Sepals deltate, acute, overlapping at the base; petals crimson to pale pink; leaves cordate or blunt across the base.

*P. asarifolia*

### ***Pyrola americana* Sweet**

**(= *P. rotundifolia* L.)**

#### **Round-leaved Pyrola; pyrole d'Amérique**



*Photo by David Mazerolle*

Leaves are ovate, elliptic or round. Bracts are present on the stem below the inflorescence, which is 2–9cm tall and bears 3–12 white flowers.

Flowers July and August.

Frequents from Yarmouth to Colchester counties. Scattered to southern Antigonish Co.

Greenland and NL west to MB, and SD, south to TN and NC.

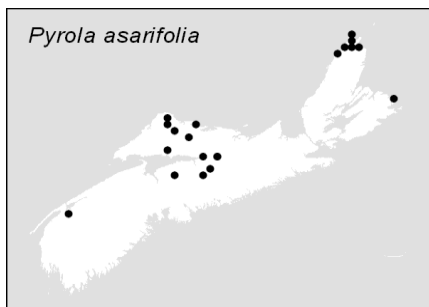


*Photo by Sean Blaney*

***Pyrola asarifolia* Michx.**  
**pyrole à feuilles d'asaret**



Photo by Jamie Ellison



Bearing leaves on long petioles, their blades are round or ovate, cordate at the base. Their margins are scalloped rather than serrate. Bracts are present. Flowers are pink, with deltate sepals. Ours are ssp. *asarifolia*. The varieties are no longer recognized.

Flowers from late June to early August.

Found mostly in fertile calcareous woodland and thickets.

Scattered on the northern side of the province from Digby County to northern Cape Breton.

Ranges from NF to AK, south to CA, NM and IN; Asia.

***Pyrola chlorantha* Swartz**

**Green-flowered Wintergreen; pyrole à fleurs verdâtres**



*Photos by Martin Thomas*

Leaves are broadly ovate or elliptic, margins toothed or scalloped. Petiole length exceeds that of blade. Flowers are distant and on all sides of the scape, from midpoint to the top. Bracts are absent.

Flowers during July and August.

Grows on dry sandy soil, usually under conifers.

Scattered from Digby to Hants counties and common eastward to northern Cape Breton Absent from extreme southwestern regions and central NS.

NL to AK, south to CA, NE and VA; Eurasia.





***Pyrola elliptica* Nutt.**

**Shinleaf; pyrole eliitique**



*Photo by Martin Thomas*

Shinleaf is one of the easier species to identify and is often found. Its leaves have the oblong blades longer than the petioles. Bracts are present, leafy and elliptic in outline, about 1cm long and borne at the base of the plant.

Flowers from early July to early August.

Frequents open woods and fields, pastures and other sites with lighter soils.

Common throughout NS.

Ranges across Canada south to PA, IA and ID; AZ and NM; Japan.



*Photo by David Mazerolle*

***Pyrola minor* L.**

**Small Wintergreen; pyrole mineure**



Leaves are globose or at least broadly elliptic, borne on petioles 1–3cm long. Numerous bracts are present at the base of the plant. Nodding flowers are carried in a raceme. Style is inserted

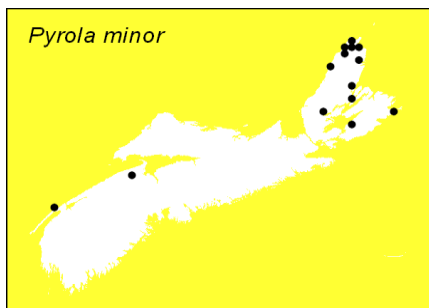
Flowers during July and August.



Photo by David Mazerolle



Photo by Sean Blaney



Characteristic of mature coniferous forests.

Scattered north from Digby Neck to Kentville and east to Cape Breton.

Ranges from Greenland to AK, south to CA, NM and NY. Eurasia.

## ***Rhododendron* L.**

A larger genus, with about 850 species, many of them prized ornamentals, such as Azaleas. Ours are shrubs, although further south, there are tree species as well. Leaves are alternate, deciduous or persistent. Flowers are borne in umbels (in our species), five-merous. Ovary is superior and is divided into five locules.

A. Leaves deciduous, thin; erect common shrub.

B

B. Flowers with distinct petals, white. Leaves with white to rusty tomentum below.

*Rhododendron groenlandicum*

bb. Flowers with petals fused to form a tube, pink to purple; leaves scurfy or scaly but without tomentum.

*R. canadense*

aa. Leaves evergreen, leathery; dwarf matted and aromatic shrub; alpine in Cape Breton.

*R. lapponicum*

***Rhododendron canadense* (L.) Torr.**  
**Rhodora; rhododendron du Canada**



*Photo by Sean Blaney*

It is most noticeable in late spring, when the magenta flowers colour our ditches and wetlands. Leaves are obovate, smooth, appearing after the flowers. Corolla is asymmetric, with three connate upper petals and two distinct lower petals. White forms are sometimes reported.

Flowers from early May to late June.

Swamps, and barrens, bogs and any poorly-drained soils.

Very common.

NL to ON, south to NJ.



*Photo by Sean Blaney*



*White form*

*Photo by Sean Blaney*

***Rhododendron groenlandicum* (Oeder) Kron & Judd**

**(=*Ledum groenlandicum* Oeder)**

**Labrador Tea; thé du Labrador**



*Photo by Martin Thomas*

Plants are freely branching shrubs with downy stems and woolly tomentum of white to orange on the undersurfaces of the sessile leaves. Their margins are tightly inrolled. White flowers are arranged in terminal corymbs.

Flowers in June.

Grows on wet acidic soil as in bogs, wooded swamps, wet barrens and poorly drained pastures.

Scattered in its habitat throughout.

Arctic North America, south to OH and OR; Greenland.

Leaves were traditionally used to make teas.



*Photo by Martin Thomas*

***Rhododendron lapponicum* (L.) Wahlenb.**

**Lapland Rosebay; *rhododendron de Laponie***



A dwarf shrub, it forms prostrate mats with long-trailing leafy stems to 60cm. Stems and leaves are rugose, leaves 2cm long. Corollas are purple. Fruit is a capsules, 4–7mm long.

Calcareous ledges.

Only known to date from Corney Brook gorge, Cape Breton

Highlands National Park, Inverness Co.

Limited range from NF to AK, south to BC, WI and NY.

ORANGE-listed in NS.

***Rhododendron maximum* L.:** Previous reports of localities of *Rhododendron maximum* have not been substantiated in 50 years. Historically collected midway between the “Upper Musquodoboit and the sea”. There are no extant collections and the accuracy of the original identification was contested in 1876 (Lawson, 1876, Proc. NSIS, Vol.4: 1875-1878; Dore, WG, 1970, personal comm.).

### ***Vaccinium* L.**

Nearly 500 species comprise this genus, best-developed in Asia and on its archipelagos. Several North American species are cultivated commercially for their edible fruit, such as cranberries and blueberries. These and other native species have enjoyed gathering by aboriginal communities long before agricultural endeavours.

Identification can be complicated by frequent hybridization. In general, the flowers are epigynous or nearly so, arranged in racemes, and 4–5-merous. The lobed corolla is tubular, ovate or bell-shaped. Here they are shrubs, although trees are included in the genus elsewhere. Species may be evergreen or deciduous.

The following key is extracted from VanderKloet (1988)

#### Key to species

- A. Twigs of current year’s growth warty or nodular. B
  - B. Shrubs forming a crown, shrub >1.5m tall; leaves *Vaccinium corymbosum*  
3.5–5.5(+)cm long.
  - bb. Shrubs rhizomatous, colonial; <75cm tall; leaves <3.5cm (rarely 4cm) C  
long.
    - C. Leaf margins entire, or irregularly serrate; leaf blades *V. myrtilloides*  
pilose.
    - cc. Leaf margins evenly serrate; not pilose. D
      - D. Shrubs 2–5cm tall; leaf blades 2.5–5.5mm wide; *V. boreale*  
northern or alpine.
      - dd. Shrubs 9–27cm tall; leaf blades 6–16mm wide; *V. angustifolium*

	widespread.	
aa. Twigs of current year's growth not warty or nodular.		E
E. Bud scales 2.		F
G. Shrubs <50cm tall; new twigs terete.	<i>V. cespitosum</i>	
gg. Plants >50cm tall; new twigs angled.	<i>V. ovalifolium</i>	
ee. Bud scales more than 2.		H
H. Plants erect.	<i>V. vitis-idaea</i>	
hh. Plants trailing, creeping or mat-forming.		I
I. Plants not evergreen; corolla urceolate; leaves strongly bluish green.	<i>V. uliginosum</i>	
ii. Plants evergreen; corolla split to below the middle; leaves leathery and green.		J
J. Leaves ovate or strongly inrolled.	<i>V. oxycoccos</i>	
jj. Leaves narrowly elliptic, not strongly inrolled.	<i>V. macrocarpon</i>	

***Vaccinium angustifolium* Ait.**

**Lowbush Blueberry; bleuët à feuilles étroites**



Photo by Martin Thomas

It is the dominant blueberry of barrens, fields and of course, commercial blueberry production. It forms dense colonies. Leaves are deciduous, their margins serrate. Plants are generally smooth, exceeding 10cm in height. A variable species, although white-fruited forms are relatively rare.

Flowers late May until mid-June.



Photo by Sean Blaney

Peaty, acidic soils as found on barrens, in fields, headlands and other dry, sandy areas.

Common throughout.

NL to MB, south to TN and NC.



***Vaccinium boreale* Hall and Aalders**

**Sweet-hurts; Northern Blueberry; bleuët boréal**



*Photo by Martin Thomas*

Dense colonies are formed of shrubs less than 10cm tall. Twigs are delicate and green, with the plants freely branching. Leaves are bright green, narrowly elliptic. Similar to the above species, it varies according to environmental factors.

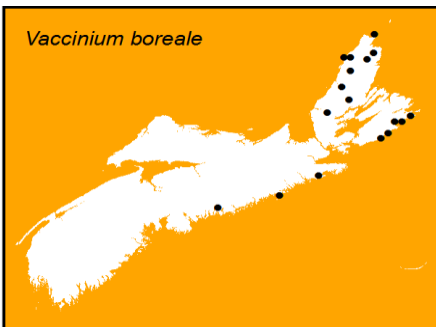
Grows on the windswept headlands and barrens.



*Photo by Martin Thomas*

Scattered at several Cape Breton localities, rare on the mainland.

NL to QC, south to NY.



***Vaccinium cespitosum* Michx.**

**Dwarf Bilberry; airelle gazonnante**



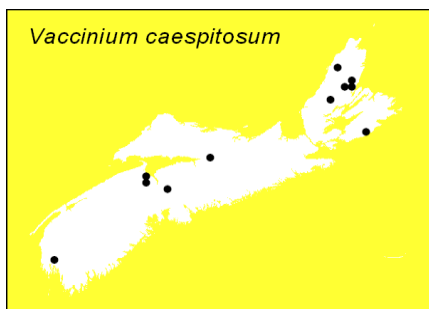
A rhizomatous species, it forms mats of small branching plants. Leaves are obovate and serrate, arising from puberulent twigs. Nodules are absent. Fruit is blue, rarely black and usually glaucous.

Rocky cliffs and crevices and lowland acidic soils.

Photo by David Mazerolle



Photo by Sean Blaney



Localities are widespread: Black River area, Kings Co. ; to near Riversdale, Colchester Col. and locally abundant in northern cape Breton.

Its range is circumpolar, across North America and south to CA and NM in the west and MN and NY in the east.

STATUS: YELLOW-listed.

### ***Vaccinium corymbosum* L.**

#### **High-bush Blueberry; bleuet en corymbe**



Photo by Alain Belliveau

A tall shrub, it forms a crown 1.4m tall. It is variable in both colour and pubescence. Leaves are elliptical and sharply serrate. Berries are glaucous, blue to dull black or shiny. Easily suckers if damaged.

At least 50 cultivars have been named of this widely planted species, since 1920.

Flowers appear in mid-June.

Limited to bogs, rock barrens and lakeshores.

Distinctly coastal plain in distribution, from Digby to Queens counties.



*Photo by David Mazerolle*

NS to ON, south to GA and TX; BC to WA.

***Vaccinium macrocarpon* Ait.**

**Large Cranberry; canneberge à gros fruits; su'n**



*Photo by Sean Blaney*

A small evergreen vine, it has elliptic leaves slightly longer than 1 cm. Their lower surfaces are covered with a waxy indument. Nodding flowers are carried solitary in the axils of the current year's leaves, on slender pedicels. Green bracts are persistent. Red berries range in size from 9–14mm.

Commercial cranberries are cultivars of this species.

Flowers mid-July.

Acidic soils as in bogs, barrens, lakeshores, meadows and streamsides.

Common throughout.

Ranges from NL to ON, south to TN and NC; NT and AK south to CA.



*Photo by Alain Belliveau*

***Vaccinium myrtilloides* Michx.**

**Velvet-leaf Blueberry; bleuët fausse-myrtille**



Photo by Sean Blaney

Downy pubescence marks this species and the warty young twigs. Leaves are entire and softly hairy. Small glaucous fruits are produced. Plants are colonial, although the colonies remain small.

Sterile and dry soils in barrens, thickets and coniferous woods.

Common throughout.

NL to NT, south to WA and NC.

Hybridizes with *V. boreale*.

***Vaccinium ovalifolium* JE Smith**

**Oval-leaved Blueberry; airelle à feuilles ovées**



Photo by David Mazerolle

Small shrub to 50cm tall, it produces yellow-green or golden brown twigs. The leaves are ovate, irregularly serrate and their undersurfaces are bluish green. Berries range from blue to black, often glaucous.

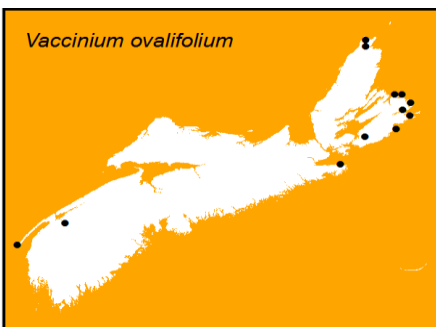
Flowers late, from July to September.

Habitat preferences include coniferous woods from sea-level to 2100msl, throughout its range.

Two localities in northern Cape Breton.

NS; NF to ON and south to MI; NT to AK south to OR and SD.

STATUS: ORANGE-listed in NS.





***Vaccinium oxycoccos* L.**

**Small Cranberry; canneberge commune**



*Photo by Sean Blaney*

A vine, it has tiny revolute leaves. The flowers are borne 1–4 on long slender pedicels, bearing minute scales. Fruit is a red berry, 6–12mm wide. It is a highly variable species throughout its range.

Flowers towards the end of June.

Open bogs, swamps and usually on Sphagnum hummocks.

Throughout the province.

Circumboreal. NF to AK, south to VA, IL and OR. Absent on the arctic archipelago.

***Vaccinium uliginosum* L.**

**Alpine Whortleberry; Bog Blueberry; airelle des marécages**



*Photo by David Mazerolle*

A dwarf creeping shrub, it forms tight mats or large open colonies. Young twigs are smooth and pale green. Bluish green leaves are ovate. Fruit are blue.

Wide tolerance of moisture and fertility, but generally acidic soils.

Ranges from Halifax and Digby along the east coast to Baleine; northern Cape Breton.

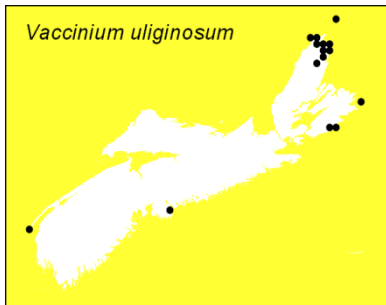




Photo by David Mazerolle

Ranges across the continent, south to CA, WY and NY.

STATUS: YELLOW-listed in NS.



***Vaccinium vitis-idaea* L.**

**Foxberry; Mountain Cranberry; Lingonberry; airelle rouge**



Photo by David Mazerolle

A low rhizomatous shrub, it forms small colonies where found. Fruit are shiny red berries. Leaves are ovate and glossy.

Flowers in June.

Frequent on cooler barrens and headlands, especially on the coast.



Photo by Martin Thomas

Most common along Atlantic shore and in cape Breton; inland populations are scattered and often vegetative.

Ranges across arctic America, south to New England, WI and BC; Eurasia.

Delicious cooked, as in jams and sauces. Their harvest is a cottage industry in NF, where they are sold as Partridgeberries.

## Euphorbiaceae

### spurge family

Worldwide, the spurges total about 7500 species in 300 genera. Nova Scotia's flora contains only nine species. Many are trees or shrubs, while ours are all herbaceous annuals or perennials. Leaves are simple and may be alternate, opposite or whorled. Flowers are regular and always unisexual, the perianth small and inconspicuous. Sepals distinct or connate and may be in one or two whorls, or absent. The fruit is a dehiscent capsule known as a schizocarp.



Generally the plant's latex is mildly to violently poisonous. Several are ornamentals or houseplants, the Castor-bean Plant, Poinsettia and Croton for example.

#### Key to genera

Leaves mostly alternate; stipules absent or vestigial; glands of the involucre without appendages.

*Euphorbia*

Leaves opposite; stipules present; glands of the involucre with coloured appendages.

*Chamaesyce*

## **Chamaesyce Gray**

### **sandmats**

Historically these plants were a subgenus of *Euphorbia*, now separated on the basis of flower and leaf forms. Generally with opposite leaves and unisexual flowers, although most species are monoecious. Flowers arranged in pseudanthia called cyathia, of greatly reduced flowers. The involucral bracts may be petal-like and variously coloured.

#### Key to species

- A. Young stem and leaves glabrous. B
  - B. Leaves entire; limited to seashores and other saline habitats. *Chamaesyce polygonifolia*
  - bb. Leaves toothed, at least distally; not limited to saline habitats. *C. glyptosperma*
- aa. Young stems pubescent or ciliate; leaves pubescent at least when young. C
  - C. Ovary and schizocarp smooth. *C. vermiculata*
  - cc. Ovary and schizocarp pubescent. *C. maculata*

### ***Chamaesyce glyptosperma* (Engelm.) Small**

#### **euphorbe côtelée**

An annual species, it is freely branching and reclining from the prostrate base. Generally smooth, although the oblong or ovate leaves may be puberulent at the apices. The involucre bears 1–5 stamens. Schizocarps are sharply three-angled.

Flowers from June until October.

Grows on dry, sandy soil. Associated with railway beds.

Historically collected from the South Maitland rail siding. Recently collected from Annapolis Royal, Annapolis Co. and from Amherst, Cumberland Co.

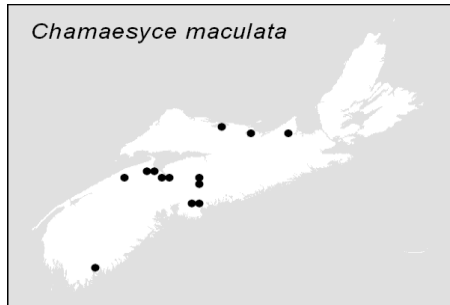
Ranges from NS to BC south to CA, TX and NY. Introduced here.

### ***Chamaesyce maculata* (L.) Small**

#### **Spotted Sandmat; euphorbe maculée**



Photo by Sean Blaney



*Chamaesyce maculata*



Photo by Martin Thomas

Another prostrate plant, this species bears small ovate leaves on very short petioles. Leaves are also finely serrate. Freely branching, their stems are sparsely hirsute. Schizocarps are rugose and distinctly lobed.

Flowers June through September.

Generally where there is low competition from sod or taller species. Dry, open soils.

Occasionally introduced and spreading, from Kings and Shelburne counties, to Strait of Canso and the Northumberland.

Ranges throughout the continent but for the north and the three prairie provinces. Introduced to NS.

### ***Chamaesyce polygonifolia* (L.) Small** **Seaside Sandmat; euphorbe à feuilles de renouée**



Photo by Sean Blaney

A reclining species, it has a much reduced terminal cyathium on most branches. The leaves are linear and succulent, glossy and almost-needlelike, covered in resin dots. Plants and fruits are smooth.

Flowers from July until frost.

Sandy beaches above the highwater mark, dunes and flats,



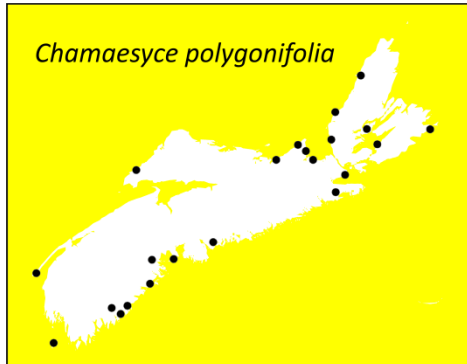
Photo by Martin Thomas

always in saline habitats.

More common in southwestern counties, but found around the entire coast, including Cape Breton and smaller offshore islands.

Eastern ranging, Magdalen Islands, to Great Lakes south to MS and FL.

Recently designated at-risk, with YELLOW-status.



***Chamaesyce vermiculata* (Raf.) House**  
**Wormseed Sandmat; euphorbe vermiculée**



Photo by Sean Blaney

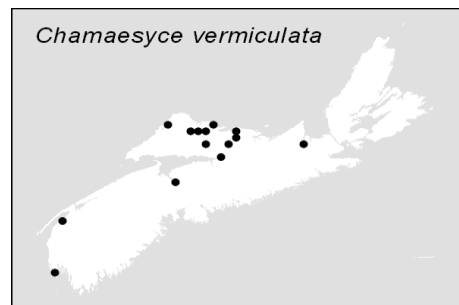
Sprawling from a basal rosette, this species bears ovate leaves with finely serrate margins. Stems may be armed with sparse straight pubescence. Ovary and fruit are glabrous.

Flowers from July until frost.

Associated with rail lines.

Yarmouth County, northeastward to the Northumberland Strait.

NS to ON and MI, south to IL and VA; AZ and NM.  
 Introduced to NS.





## ***Euphorbia* L.**

### **spurges**

These species are cosmopolitan, totalling 1500 species. As with *Chamaesyce*, they are typified by the very small unisexual flowers. Each pistillate flower bears a single pistil and is surrounded by several staminate flowers, each with a single stamen. All flowers are inserted into a lobed and glandular involucre forming a cyathium, functionally imitating a single flower — a character unique to this family. Ovary has three locules, ovules and styles. Schizocarp is three-lobed. Plants contain a very bitter latex.

#### Key to species

- |  |                              |
|--|------------------------------|
| A. Glands of the involucre ovate, elliptic or nearly round in cross-section. | <i>Euphorbia helioscopia</i> |
| aa. Glands kidney-shaped or crescent-shaped, concave side outside.           | B                            |
| B. Rays of the cyathium 3–5; annual.   | C                            |
| C. Seeds pitted; tubercles absent.   | <i>E. peplus</i>             |
| cc. Seeds smooth; tubercles present.   | <i>E. exigua</i>             |
| bb. Rays of the cyathium >5; colonial perennials.                            | D                            |
| D. Main leaves 3–8cm long, >4mm wide; plants >30cm tall.                     | <i>E. esula</i>              |
| dd. Main leaves <3cm long; <3mm wide; plants <30cm tall.                     | <i>E. cyparissias</i>        |

## ***Euphorbia cyparissias* L.**

### **Cypress Spurge; euphorbe cyprès**

Arising from a creeping rootstock, the stems of this herb may also have weakly ascending branches near the top. Leaves are linear and sessile. The inflorescence is a terminal cyathium, although a few solitary flowers may arise from the leaf axils on ascending pedicels. Each flower has two connate sepals and no petals. Seeds flat.

Flowers in August.

A garden escape often persisting in cemeteries, old gardens and escaping roadside.

Scattered localities especially in the western half of NS.

Naturalized after introduction from Europe from NF to BC; absent in AB; variously south to CA, TX and GA.

***Euphorbia esula* L.**

**Leafy Spurge; euphorbe éśule**

Vigorously colonial, this species is considered to be noxious in its spread. Plants smooth, leaves narrowly lanceolate, with a single raised midrib. Leaves interspersed with many lateral pedicels below the terminal cyathium.

Flowers throughout the summer.

Grows on sandy soil, banks, roadsides, old fields.

Pictou Co. collection and a report from Wilmot and Annapolis Royal.

Ranges across Canada to YT, south to CA, CO and VA. Introduced.

***Euphorbia exigua* L.**

**euphorbe exiguë**

Annual species, its height may reach to 30cm in height, often branching from the base. Cauline leaves are linear and sessile, but decreasing in size towards the inflorescence. Seeds are grey.

Flowers from July to frost.

Fallow soils and roadsides.

No extant collections and perhaps not persisting. North Sydney.

Ranges from NS; ON; BC; NY to WVA; CA; TX. Adventive from Europe.

***Euphorbia helioscopia* L.**

**Sun Spurge; euphorbe réveille-matin**



*Photo by Ross Hall*

An attractive garden plant with glaucous ovate cauline leaves, whorled just beneath the cyathium. All leaves are obovate, finely serrate on the margins. The cyathium is lightly hirsute on the peduncles. Involucral cup bears round white glands.

Flowers from July to September.

Also a species of waste ground and fallow soil.

Widely distributed where it has escaped from gardens.

Introduced from Europe and throughout North America.

NOTE: Fatally poisonous if enough is ingested.

***Euphorbia peplus* L.**

**Petty Spurge; euphorbe des jardins**

An annual herb, from 10–30cm tall. It bears oblong cauline leaves, to 20mm long. Ovate leaves subtend the cyathium, which is sparsely rayed. Fruit bear two longitudinal ridges along each valve.

Flowers from June until frost throughout its range.

Fallow soils and waste ground.

An occasional collection made from Windsor and Pictou, but perhaps best treated as an historic occurrence.

Ranges from NS to AK and throughout the US, but for the Great Plains, after introduction from Europe.

## **Fabaceae**

### **pea family**

A large family, it includes about 440 genera and 12,000 species worldwide. Leaves are alternate, compound and subtended by stipules. Flowers are showy, perfect and variously arranged. They are bilaterally symmetric. Sepals number five, joined to form a calyx tube, with lobes. Corolla comprises five petals. The uppermost petal forms a hood over the other four, called the standard. The two lateral wings may be adnate to the keel, comprising the lower two petals. The keel is connate distally enfolding the stamens and single pistil. Ten stamens are sometimes connate to form a column. The fruit is dry, a legume containing large seeds, sometimes dehiscent. The fruit is also called a pod.

Key to genera

A. Trees or shrubs.

B

B. Large trees, armed with thorns or spines; leaves pinnate; flowers white, green or pink.	C
C. Flowers small, green; spines long and branched.	<i>Gleditsia</i>
cc. Flowers showy, white to pink; thorns only on stipules.	<i>Robinia</i>
bb. Low shrubs less than 1m; leaves simple; not armed; flowers yellow.	D
D. Leaves simple; stems round; calyx merely bilabiate.	<i>Genista</i>
dd. Leaves simple or with 3 leaflets; stem angled; calyx bilabiate, both lips shallowly toothed.	<i>Cytisus</i>
aa. Herbs.	E
E. Leaves pinnately compound.	F
F. Terminal leaflet absent, or if present, modified into a tendril.	G
G. Leaflets less than 2cm long; wing petals adnate to keel.	<i>Vicia</i>
gg. Leaflets more than 2cm long; wing petals free or nearly so.	<i>Lathyrus</i>
ff. Terminal leaflet present and similar to others.	H
H. Leaflets 1–7, common plants of forests and fields.	I
I. Leaflets 1–3; flowers small, rose-purple; roadside plantings.	<i>Securigera</i>
ii. Leaflets 5–7; flowers yellow or brownish purple.	J
J. Plant long-trailing; flowers brownish purple; native species.	<i>Apios</i>
jj. Plant erect, many stems; flowers yellow or reddish; escaped field crop.	<i>Lotus</i>
hh. Leaflets >9; rare plants of arctic-alpine habitats.	K
K. Leaves basal; flowers 15–20mm long; leaflets more than 15.	<i>Oxytropis</i>
kk. Leaves cauline; leaflets 9–17; flowers 1cm long.	<i>Astragalus</i>
ee. Leaves palmately compound.	L
L. Leaflets numerous.	<i>Lupinus</i>
II. Leaflets 3.	M
M. Plant very slender and long trailing; a vine.	<i>Amphicarpea</i>
mm. Plant not as above.	N
N. Leaflets not toothed; flowers purple; forest species.	<i>Desmodium</i>

nn. Leaflets serrate or or merely toothed; flowers not purple; plants of open, disturbed habitats.	O
O. Flowers in dense heads; petals turning brown and persistent; fruit straight and membranous.	<i>Trifolium</i>
oo. Flowers in short spikes or long racemes; petals deciduous.	P
P. Tall plants >1m, freely branched; flowers in long racemes; pods straight.	<i>Melilotus</i>
pp. Plants <1m tall; flowers in short spikes; pods coiled or twisted.	<i>Medicago</i>

## ***Amphicarpaea* Elliott**

### **hogpeanut**

Three species comprise this widespread genus, in North America, Africa and Asia. Ours is a vining herb. Leaflets arranged in threes, their axes bearing slender clusters of showy white to lilac flowers. In addition, cleistogamous flowers are sometimes produced, developing into the single-seeded subterranean peanuts.

***Amphicarpaea bracteata* (L.) Fern.**  
**Hogpeanut; amphicarpe bractéolée**





*Photo by Sean Blaney*



*Photo by Sean Blaney*

A very slender and delicate vine, the three leaflets are ovate in outline and rounded at the base. The showy flowers produce pods bearing three seeds. Cleistogamous flowers arise from the base of the plant and produce single-seeded pods at or below the soil surface. Often mat-forming.

Flowers in August.

In herbaceous communities along streams.

Locally common, from Shelburne and Cumberland counties to Antigonish. In Cape Breton known only from Southwest Margaree area in Inverness County.

Elsewhere NS to MB, MT south to the Gulf of Mexico.

## ***Apios* Fabr. groundnut**

A genus of only 10 species, they are found in eastern Asia and eastern North America. Perennial vines, they arise from slender rhizomes. Calyx is rounded with the upper lobes barely visible, the lowermost deltate and about equal in length to the calyx-tube. Keel is strongly curved, with the wings curled below it. Fruit is dehiscent, the pods coiling. Rarely produces seeds. Produces a series of edible tubers prized by aboriginal people.

***Apios americana* Medic.**  
**Groundnut; apios d'Amérique**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Trailing along the ground or clambering over other plants, this species has from 3–7 lanceolate and acuminate leaflets. Axillary flowers are borne in densely-flowered racemes of purplish brown flowers. More robust than *Amphicarpaea* and with more leaflets.

Flowers late July and August.

Lakeshores, clambering over shrubs.

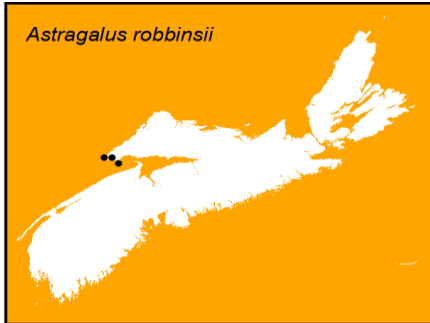
Common in the southwest and scattered to Cumberland and Antigonish counties. Absent along the Atlantic coast.

Ranges from NS to ON, south to CO, and to the Gulf of Mexico.

***Astragalus* L.**  
**milk-vetches**

One of the largest genera of the Fabaceae, it totals more than 1500 species. A single arctic-alpine perennial reaches Nova Scotia in very limited habitats. Generally plants have numerous pinnate leaflets and white or blue flowers arising from the leaf axils in racemes. The standard petal exceeds the others in length. Keel is unbeaked.

***Astragalus robbinsii* Oake**  
**Milk-vetch**



It is a low caespitose species, freely branching to 50cm. Leaves are few, each with 9–17 leaflets. Short and densely flowered racemes arise from long peduncles. Flowers are each about 1cm long. Pods reach 15mm in length, are covered with crisped black pubescence.

Ours is var. *minor* (Hook.) Barneby

Flowers in June.

Exposed cliffs on headlands.

Cape d'Or and West Advocate, Cumberland Co.

Found from NL to QC, south to NH and VT; absent in NB in the east. Western range from AK to NM.

## ***Cytisus* L. broom**

A genus of Eurasian shrubs, with about 33 species. One was formerly introduced to the province for use in the pharmaceutical trade. Flowers are yellow, with the leaves simple or divided only into three leaflets. Usually the calyx is cupiform, the lobes shallow. Wings are oblong, lobed on one side

### ***Cytisus scoparius* (L.) Link Scotch Broom; genêt à balais**



A stiffly erect shrub, it is freely branching and caespitose. Slender ascending branches are longitudinally grooved. Bright yellow flowers arise from the upper leaf axils, borne on slender pedicels. Dehiscent pods 4–5cm long, are villous on the sutures.

Flowers in June and July.

Sandy sterile soils, as on roadsides and fallow fields and even open woodland.

Photo by Jamie Ellison

Long known only from Shelburne County, now actively spreading throughout. Somewhat invasive.

NS, PEI, south along the coast to AL; west coast; from Europe.

## ***Desmodium* Desv.**

### **Tick-trefoils**

Mainly of warm regions, *Desmodium* totals more than 300 species. Our two perennials have three leaflets and racemes or panicles of white to purple flowers. Calyx is divided into two lobes, the upper nearly entire, while the lower lobes are further cleft in three segments. Standard petal is oblong, constricted at the base. The keel is nearly straight. Fruits are indehiscent with septa present between seeds.

Calyx lobes <half the length of the tube; upper suture along the fruit smooth; stamens connate forming a closed column.

*Desmodium glutinosum*

Calyx lobes >half the length of the tube; upper suture pubescent, the hairs hooked; stamens forming an open sheath.

*D. canadense*

## ***Desmodium canadense* (L.) DC**

### **Canada Tick-trefoil; desmodie du Canada**



Photos by Sean Blaney

An erect plant, 30–60cm tall, it may branch at the summit. Leaflets are narrowly lanceolate, leathery in texture and thick. Their margins are ciliate, and with blunt apices. Inflorescence is terminal, branching, with many rose-purple flowers. Pods are jointed, 3–5 sections.

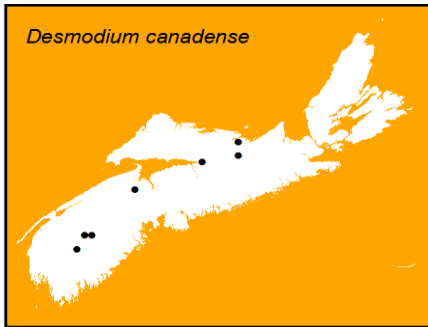
Flowers in late July.



Riparian, open forests.

Kejimikujik Park to the Pictou County rivers. Rare from Annapolis to Colchester Co.

Elsewhere from NS to MB, south to TX and VA.



### ***Desmodium glutinosum* (Willd. ex Muhl.) Wood**

**Tick-trefoil; desmodie glutineuse**



*Photos by Sean Blaney*

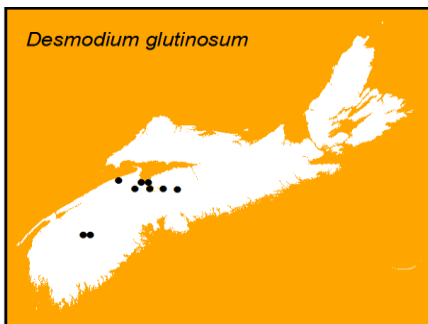
Arising from a solitary erect stem, plants bear several long-stemmed leaves towards the summit. Leaflets are obovate and acuminate. Purplish flowers are carried in a long-pedunculate terminal raceme. Pod is jointed 2–3 times.

Flowers earlier in June and July.

Fertile soils beneath deciduous forest or on intervalles.

Rare and local: Halfway and Herbert Rivers, Hants Co., Gaspereau River, Kings Co. and Kejimikujik National Park, Annapolis and Queens counties.

From NS to ON, south to FL and TX.





## ***Genista* L.**

Fifty species comprise this Eurasian genus; a single species is introduced to Nova Scotia. Ours is a small shrub with simple leaves. Flowers are arranged in terminal racemes. Calyx is divided into two lobes, the upper bears two teeth and the lower has three. Standard petals are ovoid; the keel and wings are oblong.

### ***Genista tinctoria* L.**

#### **Dyers' Greenwood; genêt des teinturiers**

Less than 1m tall, this shrub bears no thorns. The erect branches are marked with longitudinal striations. The simple leaves are lanceolate. Flowers are bright yellow, borne in short ascending racemes.

Flowers in late July.

Disturbed soils where it tends to be invasive.

Formerly known only from the Sydney area. More recently documented from several locations on the Cabot Trail.

Introduced and spreading NS; QC and ON, variously south to MS; WA.

## ***Gleditsia* L.**

### **Honey-locust**

With 14 species of trees, this genus is widespread. A single species has been planted as an ornamental in central Nova Scotia and this tree may persist about old home sites. The leaves may be once or even twice pinnate on pubescent petioles. Twigs are armed with branching thorns. Flowers are carried on spurs, amongst the leaves.

### ***Gleditsia triacanthos* L.**

#### **Honey-locust; févier épineux**

As above bearing yellowish-green flowers producing dark brown pods to 40cm long.

Flowers in June.

Old gardens, parks and may even be found roadside.

Lunenburg, Kings and Colchester counties. Some trees still cultivated in Halifax.

Introduced from further south, it is a popular ornamental. Native in ON; ME to ID, south to CA and FL.

## ***Lathyrus* L.**

### **peas**

Wild peas or vetchlings include 150 species. Very similar to *Vicia* in leaf arrangement, they are more robust and the styles are bent at the tip and bearded. Peas bear large stipules and oft-winged stems. Flowers are variable in colour and often variegated, borne in racemes.

#### Key to species

- A. Leaflets in 2 or more pairs; native species. B
  - B. Stipules symmetric, attached at the base, with 2 lobes, 10–20mm broad. *Lathyrus japonicus*
  - bb. Stipules distinctly asymmetric, laterally attached, single lobe, <7mm broad. *L. palustris*
- aa. Leaflets a single pair; introduced species. C
  - C. Stem wingless. *L. pratensis*
  - cc. Stem winged, with stripes of green tissue. *L. latifolius*

## ***Lathyrus japonicus* Willd.**

(=*L. maritimus* Bigel.)

**Beach Pea; gesse maritime**



*Photos by Martin Thomas*

Glaucous green and entirely smooth, Beach Pea forms sprawling mats of leafy stems. Leaflets are ovate, 10–25mm wide. Terminal leaflets are modified into tendrils. Racemes of pink to purple flowers arise from the leaf axils on long, slender peduncles. Veined pods are 3–5cm long. As described here, is var. *maritimus* (L.) Kartesz and Gandhi. Var *pellitus* Fernald is covered with a pubescence of fine short hairs. Both varieties are found together throughout.

Flowers from July to September.

Coastal, on strand lines, sand beaches, roadsides.

Found throughout.

Greenland to ON, south to NJ; Arctic Canada west to AK and south along the coast to CA; Eurasia.

***Lathyrus latifolius* L.**

**Perennial Pea; Everlasting Pea; gesse à feuilles larges**



*Photos by Martin Thomas*

A climber or trailer, this robust species may reach 2m in length. Stems and petioles have broad wings. There is a single pair of leaflets. Racemes of 4–8 showy purple flowers are borne on long peduncles. Calyx lobes are unequal. Corollas are each 15–25mm long.

Flowers from July to September.

Cultivated and escaping to roadsides and in old gardens, where it persists.

A couple of localities are on record: one each in Shelburne and Kings counties.

Absent only from the arctic and the Canadian prairies. Introduction from Europe.

***Lathyrus palustris* L.**

**Wild Pea; Marsh pea; gesse des marais**



*Photos by Martin Thomas*

A slender trailing or climbing species, plants reach to 1m in length. Leaves are divided into 4–6 leaflets, each linear or narrowly lanceolate. Stipules are lanceolate, acute at either end and attached in pairs on either side of the stem. Inflorescence is made up of pairs or clusters of purple flowers, less than 2cm long from long slender peduncles. A variable species, although separating varieties is no longer accepted.

Flowers July to September.

Coastal marshes, headlands, meadows and adjoining dyked land.

Common throughout.

NF to AK south to GA and CA in coastal regions.

***Lathyrus pratensis* L.**

**Yellow Vetchling; Meadow Pea; gesse des prés**



*Photos by Sean Blaney*

Another slender species, reaching 80cm in length. Stems are not winged. There is but a single pair of leaflets. The flowers are lemon-yellow, arranged in short racemes on a stalk or peduncle.

Flowers in July.

Grows on grassy areas roadside, fields, etc.

Occasional. Scattered in NS. More frequently encountered along the Northumberland shore, from Wallace to Merigomish.

From NF to ON and south to IL and VA; AK south to WA. Eurasian.

## ***Lotus* L.**

### **trefoils**

Mostly herbs or half-shrubs, there are 100 species across the north-temperate regions. Nova Scotia has two introduced species. The flowers are solitary or arranged in umbels, their calyces campanulate and toothed. Petals are clawed with those of the standard with thick imbricate margins. Dehiscent pods contain several seeds and are variable in cross-section, round or flattened, even angled. Leaves are pinnate.

Key to species

Flowers in an umbel.

*Lotus corniculatus*

Flowers in a head.

*L. uliginosus*

### ***Lotus corniculatus* L.**

#### **Birdsfoot-trefoil; lotier corniculé**



*Photos by Sean Blaney*

Freely-branching and perennial, this plant may reach 60cm tall. Leaves are sessile, with five leaflets, the lower two like stipules, while the terminal leaflet is sessile. Long-stalked umbels with bright yellow flowers (2–7) produce dehiscent pods, which soon twist after dispersal.

Flowers from July to September.

Roadsides, old fields, meadows provide suitable habitat for this introduced forage crop.

Becoming frequent on mainland Nova Scotia; uncommon in Cape Breton.

Eurasian introduction throughout most of temperate North America.



***Lotus uliginosus***

(=*L. pedunculatus* Cav.)

**Tick Trefoil; lotier des marais**

A stoloniferous species, otherwise resembling the previous species. Flowers, 5–12(15), are clustered in a terminal head, on a long peduncle.

Flowers in June and July.

Fallow fields and disturbed soils or grassy streamsides.

Reported only from Dartmouth to date.

NS to MB; BC to CA; other jurisdictions. Introduced.

***Lupinus* L.**

**lupines**

A widespread genus of 200 species, two western plants have been introduced to Nova Scotia. These are attractive herbaceous perennials with palmately divided leaves. Flowers are borne in tall spikes or racemes of white, blue, pink, yellow shades and hues. Calyx is bilobed with the lobes toothed. Wings are connate near their summit; the keel is convex and beaked. Stamens number 10 within a hollow tube. Pods contain at least a pair of seeds and are grey-villous at maturity. Plants are reported to be toxic to livestock and people.

Key to species

Plants densely pubescent, less than 70cm tall.

*Lupinus nootkatensis*

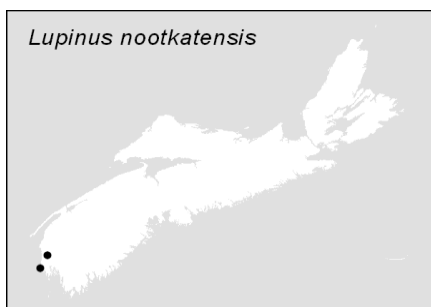
Plants smooth, usually exceeding 1m.

*L. polyphyllus*



***Lupinus nootkatensis* Donn**

**Lupine, Lupin; lupin de Nootka**



*Lupinus nootkatensis*

Ranging in height from 40–70cm, this species is readily separated from the next by its dense pubescence on all but the upper leaf surfaces. Leaf has 6–9 oblanceolate leaflets, round at their apices and velutinous below. Inflorescence is a narrow raceme, each flower about 2cm long, mauve to purple.

Flowers during June and July.

Roadsides and old gardens.

Naturalized in Yarmouth County, where it probably forms hybrids with the next species.

Ranges from AK to Vancouver Island and introduced to NF and NS.

### ***Lupinus polyphyllus* Lindl.**

**Garden Lupine, Lupin; lupin polyphyllus**



*Photos by Andy Dean*

A stout, robust perennial, its leaflets are cleft into many leaflets. Flowers are usually blue arranged in a tall, narrow raceme. Each flower is 1–1.5cm long. Multiple colours appear amongst the blue ones, possibly indicating mixed ancestry of garden plants.

Flowers during late June and July.

A frequent ornamentals with a tendency to spread into roadsides, meadows and fallow fields.

Common throughout.

NF to ON, south to MN and NY; MD; west coast.



## ***Medicago L.***

There are about 80 species of these Eurasian species; two have been introduced to Nova Scotia. Blue or yellow flowers are clustered into short racemes or heads arising on peduncles from the leaf axils. Pollen is explosively released via a trip mechanism. Pods are usually coiled although some may be straight, and dehiscent. Leaves are finely serrated and compound, with three leaflets, the terminal leaflet stalked.

### Key to species

Plants tap-rooted, perennial; flowers yellow or blue, 6-12mm.

*Medicago sativa*

Plants annual or biennial; flowers yellow, 2-4mm long.

*M. lupulina*

## ***Medicago lupulina L.***

### **Black Medick; luzerne lupuline**



*Photos by Sean Blaney*

A low mat-forming reclining plant, its stems may reach 50cm in length. Leaflets three, tapering at the base from a round or notched apex. Tiny yellow or blue flowers are tightly clustered into a spikelike raceme. Pods are coiled, to 2cm long soon turning black. Resembling *Trifolium*, it may be distinguished on the basis of having puberulent petioles and the teeth of the leaflets are not bristly. Terminal leaflet with a mucronate tip.

Flowers June through September.

Dry fields, roadsides and lawns, fallow land.

Common throughout, but especially in the Annapolis Valley.

Throughout North America.

***Medicago sativa* L.**

**Alfalfa; Lucerne; Luzerne cultivée**



*Photos by David Mazerolle*

An erect perennial, it reaches 1m in height. Leaflets are widely lanceolate, round distally and serrate. Purple flowers are arranged in a short raceme on peduncles 2–3cm long. Pods are loosely coiled. It is a superior forage crop.

Two subspecies are recognized; both are present. ssp. *falcata* (L.) Arcang. has looser fruit and yellow flowers, compared to the typical variety. It has been collected from Hants and Kings counties. A white form is also known from Truro.

Flowers throughout June to August.

Persistent in fallow fields and escaping to nearby roadsides. Also found in damp acidic habitats.

Digby and Lunenburg counties spreading north and eastward.

NS to AK; south through US. Asian.

***Melilotus* Miller**

**sweet clover**

Twenty species comprise this genus of annual or biennial herbs. Leaves usually divided into three serrate leaflets. Inflorescences are axillary from the upper leaves, long and narrow. Flowers are numerous. Calyx is campanulate and deciduous. Petals are separate, the standard longer than the others. Pods are round or oval and flattened, with 1–4 seeds.

Key to species

Pods smooth.

*M. officinalis*

Pods sparsely puberulent.

*M. altissimus*

***Melilotus altissimus* Thuill.**

**mélilot élevé**

Resembles the following species in many respects. However its larger pods, 5–6mm long, develop early. They are also finely hairy and only weakly veined. It is probably often overlooked due to its similarities.

Flowers during July and August.

Disturbed soils.

Common around Windsor; scattered elsewhere in central Nova Scotia. Sydney.

NS to ON, south to IL and NJ. From Eurasia.

***Melilotus officinalis* (L.) Lam.**

**(now includes *M. alba* Medik.)**

**Yellow Sweet Clover; mélilot élevé**



*Photos by Martin Thomas*

A tall freely-branching plant, it reaches 1–3m in height. Leaflets are obovate to oblanceolate, finely serrate. Flowers are white or yellow, less than 6mm long on short pedicels and clustered into long narrow racemes, covering the top of the plant. Pods are glabrous and only 2.5–3.5mm long. Conspicuous in flower due to its height.

Flowers in July and August.

Disturbed fallow soils and roadsides, especially in gypsum areas.

Widespread from Annapolis and Lunenburg counties to Cape Breton.

Across the continent; from Eurasia.

## ***Oxytropis* DC**

Similar to *Astragalus* and north-temperate in distribution, the genus comprises 300 species. A single species reaches Nova Scotia in limited distribution. Distinguished from *Astragalus* on the shape of the keel petal. Purple flowers of *Oxytropis* have the keel ending in a short beak, not sharply pointed. Oval fruits sessile. Leaves are basal and with the flowers, arise from a caudex.

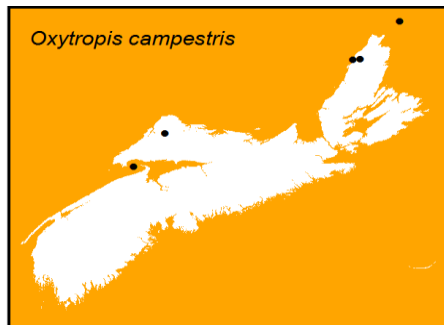
### ***Oxytropis campestris* (L.) DC**



*Photos by Sean Blaney*

A tufted perennial, 10–30cm tall, densely pubescent, especially when young. Leaves are basal, short-petiolate and the 15–31 leaflets are lanceolate. Purple flowers are arranged in short spikes, their scapes extending above the leaves. Corolla to 2cm. Pods are strongly ascending and prominently beaked. Resembles *Astragalus*, but for the strongly ascending pods, beaked keel and more copious leaves.

Flowers in June to July.



Grows in subarctic-alpine habitats as exposed cliffs, rocky outcrops, scree.

In NS, northern; coastal Inverness County and Cape d'Or, Cumberland Co.

Ranges from western NL to AK, south to UT.

## ***Robinia* L.**

### **locusts**

A genus of small trees or shrubs, it is limited to North America. Three may be found in Nova Scotia as ornamentals or escapes from cultivation. Flowers are showy, white to purple in colour, their corollas are relatively large. The wing and keels are long-clawed, the keel also has a rounded lobe. Flat pods are



elongated and contain numerous seeds and aborted ovules. Seeds and inner bark are poisonous to humans if consumed. Leaves are divided into an odd number of leaflets. Stipules may be modified into spines.

#### Key to species

A. Flowers white; ovary and fruit glabrous; twigs smooth.

*Robinia pseudoacacia*

aa. Flowers pink or rose; twigs, ovary and fruit hispid or glandular.

B

B. Twigs with sticky glands; leaflets 13–25.

*R. viscosa*

bb. Twigs hispid or bristly; leaflets 7–13.

*R. hispida*

#### ***Robinia hispida* L.**

##### **Bristly Locust; Rose Acacia; robinier hispid**

A shrub to 3m in height, it bears short racemes of rose-purple flowers. Stoloniferous, it is generally not sticky, merely hispid. The pedicels and calyces are also bristly, the hispid pubescence is 2–5mm long.

Flowers in June and July.

Long-persistent on fallow land.

In Nova Scotia persisting near the former college dump, University Avenue, Wolfville.

Introduced to NS and ON; ME to MN south to TX and FL; western. Introduced here from further south.

#### ***Robinia pseudoacacia* L.**

##### **Black Locust; robinier faux-acacia**



*Photos by Andy Dean*

Generally found as a large shrub or tree. Leaves of 7–19 leaflets, 4cm long. Stipules are modified into woody thorns; the branches are further armed with appressed pubescence. White fragrant flowers are arranged in drooping inflorescences. Long black pods are produced, which may be 10cm in length. Fruit not often seen in NS material.

Flowers in early summer, June and July.



Photo by Sean Blaney

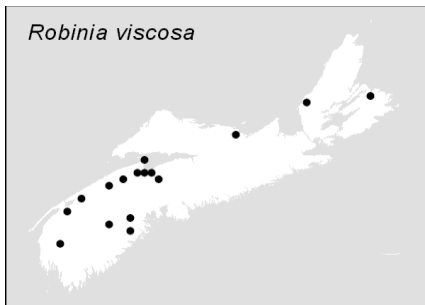
An ornamental, persisting along fences, in thickets and roadside.

Collected and reported from Yarmouth to Pictou counties.

An Appalachian deciduous forest element from further south introduced to NS.

### ***Robinia viscosa* Vent.**

**Rose Acacia; Clammy Locust; robinier visqueux**



Another large shrub or small tree, this one is clearly marked with sticky sessile glands. Young wood, petioles and peduncles are all glandular. The pink flowers are clustered in a short ascending raceme.

Flowers appear during June or July.

An ornamental, spreading to roadsides and thickets.

Occasional in Cape Breton; most common in the western half of the province. Expected elsewhere.

Ranges from NS to ON, south to AL and GA. Introduced from further south.

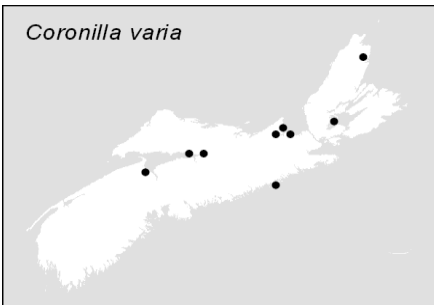
### ***Securigera* DC**

A Mediterranean genus, there about 12 species of annuals or perennials in all. One has been used to stabilize roadsides in Nova Scotia. Leaves are sessile and odd-pinnately compound. Umbels of flowers arise on slender stalks from the axils. The petals are unequal in size and shape, and clawed. The keels are arching. The tomentose pods are transversely jointed, containing several seeds. Formerly included with *Coronilla*, it is now separated on characters other than the fruit.

***Securigera varia* (L.) Lassen**  
 (= *Coronilla varia* L.)  
 Crown Vetch; coronille bigarrée



Photo by Sean Blaney



Pretty in flower as it usually grows in colonies. Branching, it may reach 40cm in height, with ample leaves. Flowers deep rose-pink, tinged purple on the keels, each about 1–1.5cm long.

Flowers in July.

Occasionally planted along highway verges to stabilize slopes, persisting or spreading locally. May become invasive of beaches. (Garbary and Moller, 2012).

Central NS, with scattered reports to Cape Breton.

Throughout North America south of the Arctic.

***Trifolium* L.**  
 clovers

Widespread plants, the genus comprises 250 species; we have seven introductions persistent in Nova Scotia. Some are our most valuable forage crops. All are herbs with typically three ovate leaflets and small flowers. The inflorescences are heads, tight rounded clusters of small flowers. Some species require fruit to confirm identification, although the strongly bilobed calyx distinguishes them from *Medicago*. Calyx tube is tubular or campanulate. Petals may be united or separate. The corolla tube if present, withers but remains attached.

Key to species

- A. Flowers yellow. B
  - B. Leaves palmate, terminal leaflet sessile; stipules equal in length to petioles. *Trifolium aureum*
  - bb. Leaves pinnate; terminal leaflet stalked; stipules half as long as petioles. C
- C. Flowers 3.5mm long or greater; leaf rachis 1–3mm long. *T. campestre*

- cc. Flowers 3.5mm long or less; leaf rachis barely 1mm. *T. dubium*
- aa. Flowers white, pink, purple, never yellow. D
  - D. Flowers sessile in heads. E
    - E. Individual flowers 10–20mm *T. pratense*
    - ee. Individual flowers <7mm long. *T. arvense*
  - dd. Flowers on pedicels 2mm long within heads. F
    - F. Stems trailing and rooting at the nodes. *T. repens*
    - ee. Stems ascending, not rooting at nodes. *T. hybridum*

***Trifolium arvense* L.**

**Rabbitfoot Clover; trèfle pied-de-lièvre**



*Photo by Martin Thomas*

Low-growing and wiry, this little plant may reach 40cm in height. Its leaflets are linear, borne on short petioles. The silvery sessile flowers are sessile, tightly clustered in cylindrical heads borne on short peduncles. The calyx lobes are long bristly and densely villous, exceeding the length of the tiny red corollas.

Flowers throughout the summer July to September.

Grows on stony, gravelly sand such as found on roadsides, where it may form a pale mauve haze in flower.

Common from Kings to Pictou counties; occasional elsewhere.

Ranges from NF to MB, variously south to TX and FL; west coast.

***Trifolium aureum* Pollich**  
**trèfle doré**



*Photo by Martin Thomas*

An annual species less than 40cm in height. Leaves are carried on short petioles, with the terminal leaflet nearly sessile. Stipules nearly equal in length to the petioles. The cylindrical heads of yellow flowers turn brown with age.

Flowers from June to September.

Roadsides, disturbed soils, fallow fields or meadows.

Scattered throughout.

Ranges from NF to ON, south to MO and GA; western; Eurasian.

***Trifolium campestre* Schreber**  
**Low Hop Clover; trèfle couché**



*Photo by Sean Blaney*

A small neat plant resembling the previous species, but for the long stalk of the terminal leaflet. The other two leaflets are sessile. Stipules are present, ovate and half as long as the petioles. Yellow flowers are borne in an ovoid head, the lower flowers on short drooping pedicels.

Flowers in July and August.

Waste places, old fields and roadsides.

Common throughout.

Ranges from NF to MB, south to TX and FL; western.





Photo by Martin Thomas

***Trifolium dubium* Sibth.**  
**petit trèfle jaune**



Photo by Martin Thomas

A small slender species, it has a very short-stemmed terminal leaflet. Flowers and flower-heads are smaller than most clovers. The standard is barely striated, in contrast to those of *T. campestre* which has definite markings.

Flowers June to September.

Roadsides, fields, meadows, even open forests.

Common in the southwestern counties, Yarmouth and Digby to Annapolis and Hants counties.

Ranges from NS to ON south to FL and TX; AK to BC and inland.

***Trifolium hybridum* L.**  
**Alsike Clover; trèfle alsike**



Photo by Sean Blaney

A perennial clover, tall and glabrous, and widely planted for forage. Its erect or ascending stem may be nearly 80cm tall. Leaflets are ovate, rounded at the apices and not acute. Flowers are white to rosy coloured and to 3.5cm across, on slender peduncles.

Flowers during June and July.

Roadside banks, pastures, cultivated fields escaping to ditches, meadows and roadsides. Not long-persistent.

Common throughout.

NL to AK, south to CA and FL; absent from TX.



***Trifolium pratense* L.**

**Red Clover; trèfle rouge**



*Photo by David Mazerolle*

Growing as a biennial or short-lived perennial, this species may reach 60cm tall. Leaves are carried on long densely pubescent petioles, their blades 2–3cm wide. Flowers are reddish, sessile or carried on short peduncles. The species is highly variable and several cultivars have been introduced. This is our largest clover species.

Flowers throughout the summer.

Grown for forage and freely spreading into neighbouring habitats.

Common throughout.

NF to AK and south; Eurasian.



*Photo by Martin Thomas*

***Trifolium repens* L.**

**Creeping White Clover; trèfle blanc**



*Photo by Sean Blaney*

A perennial plant, this species roots freely from the stems. Leaves are long-petiolate and smooth, but leaflets are mucronate. Flower-heads are white or rose-coloured on long peduncles. Flowers are pedicellate, with the corolla longer than the calyx. It is widely seeded in lawns and pastures.

Flowers throughout the summer into early fall.



Photo by David Mazerolle

Spreading into fields, pastures, edges of forests, along paths and trails.

Common throughout.

Widely grown and naturalized throughout northern North America. From Europe.

## ***Vicia* L. vetch**

Vetch is widespread, with 140 species and includes vining annuals and perennials. Tendrils are formed by the modified terminal leaflet of each leaf allowing it to climb or clasp. Leaves are pinnately divided into an even number of leaflets, stems bearing tiny stipules. Flowers are white or blue in axillary racemes. Calyx is regular or irregular, sometimes swollen on one side. Standard petal is clawed, overlapping the wings, which are connate to the keel and overlap it.

### Key to species

- |  |                       |
|--|-----------------------|
| A. Inflorescence and flowers sessile or nearly so; style pubescent near the summit only on the outer side. | B                     |
| B. Calyx irregular; upper 2 lobes much shorter than the lower and half as long.                            | <i>Vicia sepium</i>   |
| bb. Calyx regular or nearly so; lobes similar in shape and size; more than half as long as the tube.       | <i>V. sativa</i>      |
| aa. Inflorescence and flowers within distinctly stalked; style pubescent all around the tip                | C                     |
| C. Flowers 3–7mm long, whitish; solitary or in racemes of 2–8; annual.                                     | D                     |
| D. Calyx lobes equal or nearly so; fruit mostly 2-seeded, hirsute.   | <i>V. hirsuta</i>     |
| dd. Calyx lobes distinctly unequal; fruit mostly 4-seeded, smooth.   | <i>V. tetrasperma</i> |
| cc. Flowers >7mm long, blue, rarely white, >8 per raceme; annual, biennial or perennial.                   | E                     |
| E. Calyx only slightly swollen; pedicel basal; perennial.  | <i>V. cracca</i>      |
| ee. Calyx very swollen at base; pedicel appearing almost lateral; annual or biennial.                      | <i>V. villosa</i>     |

***Vicia cracca* L.**

**Tufted Vetch; vesce jargeau**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

Perennial trailer forming tangled mats, plants produce slender linear or oblong pairs of leaflets. Flowers are arranged in slender one-sided racemes. They range from palest lilac to deep purple. Calyx tubes are rounded, sometimes narrowing to a constricted base. Pods are light brown, to 3cm long.

White flowers are known from Truro, Wolfville and Annapolis Royal.

Flowers from late June into the fall.

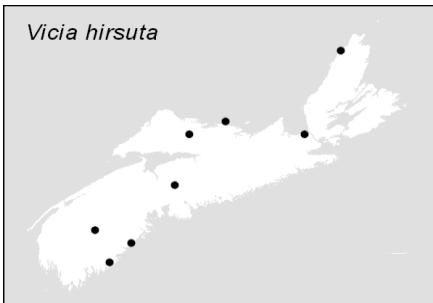
Frequents dryish soils in meadows, fields, arable land and fallow soil. A persistent weedy species.

Abundant throughout.

Across Canada and variously south to CA and GA. Eurasian.

***Vicia hirsuta* (L.) Gray**

**Hairy Vetch; vescuë hérissée**



A very slender plant, it has oblanceolate leaves. Flowers number 3–8, on a slender glaucous puberulent peduncle. 3–4cm long. Hirsute pods may reach 1cm in length, each containing two puberulent seeds.

Flowers in July.



Photo by Martin Thomas

Open areas in light disturbed soils.

Infrequent throughout.

Ranges from NF to ON; south to TX and FL; west coast.  
Introduced from Europe, perhaps associated with ballast.

***Vicia sativa* L.**

(incl. *V. angustifolia*)

**Cultivated Vetch; vesce cultivée**



Photo by Sean Blaney

An erect or ascending annual, its stems may reach 1m in height. Leaves are divided into 4–8 pairs of oblong leaflets, each to 3cm long. Sessile flowers, violet or purple, arise in pairs from the leaf axils. Calyx teeth are equal in size and about the same length as the calyx tube. Pods are finely hairy, 4–6cm long.

Two ssp. are present in Nova Scotia, differing mainly on the colour of the seeds. Ssp. *nigra* (L.) Ehrh. has black seeds contained within black glabrous pods. Ssp. *sativa* is as above; the seeds are pale.

Flowers in June and July.

Found on roadsides and in fields, dykelands and shores. Not long-persisting.

Throughout.

Widespread in North America, wherever planted.



Photo by Martin Thomas



***Vicia sepium* L.**

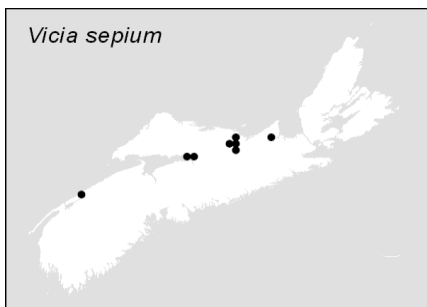
**Hedge Vetch; vesce des haies**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



Robust for a vetch, it is also a perennial. Leaflets are lanceolate and rounded at their bases. Flowers are borne in a sessile raceme of 2–5 flowers, their calyces with the upper teeth much shorter than the lower teeth, deltate, and only half as long as the tube.

Flowers in July.

Roadsides and old fields.

Occasional from Annapolis to Pictou counties.

NF to ON, south to WVA. From Europe.

***Vicia tetrasperma* Moench.**

**Slender Vetch; vesce à quatre graines**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

A small, delicate winter-annual, it rarely exceeding 30cm in height. Leaves are divided into 3–4 pairs of leaflets, to 1.5cm long. Flowers are gathered in pedunculate heads with 1–6 individuals per inflorescence. Pods are smooth and contain four seeds, 1–1.5cm in length.

Flowers during July and August.

Orchards, fields, arable soils, gardens where it may become troublesome. Fall planted in grain fields.

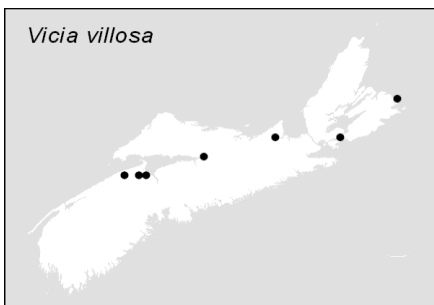
Frequent on the sandy soils of the Annapolis Valley, spreading throughout the province.

NF to ON, south to TX and FL; west coast.

***Vicia villosa* Roth**

**(incl. *V. dasycarpa* Tenore)**

**Hairy Vetch; vesce velue**



Annual or biennial, this species is mostly pubescent. Flowers are reddish purple arranged in a one-sided raceme, which is villous. Calyx is irregular, the lower lobes as long as the tube, drooping from pedicel attachment. Pods range 2–3cm long.

Two ssp. are found here, ssp. *varia* (Host.) Corb. is found





Photos by Martin Thomas



only at two stations in the Annapolis Valley, our only Canadian records. It is distinguishable in the presence of appressed pubescence in the raceme and on the calyx and not the villous covering of the typical subspecies.

Flowers July to September.

Persistent on sandy soils in full sun.

Scattered from Kings Co. to Colchester Co. and Cape Breton. Persisting after cultivation.

NF to AK, south to CA and FL. Absent from the prairies. Introduced.

## Fagaceae

### Beech Family

A family of trees and shrubs, there are almost 800 species in 6–8 genera. Monoecious species, the inflorescence is of tiny unisexual flowers interspersed with a few perfect flowers. Staminate flowers arranged in clusters or catkins, with 4–7 tepals, appearing as the leaves unfurl. Stamens 6–12. Pistillate flowers may subtend the staminate ones in clusters, or are borne in separate axils. Inflorescences are subtended by an involucre. Ovary is inferior, with carpels numbering three or six, producing but a single seed, with the remaining carpels aborting. Fruit is a nut in our species, enclosed by numerous scales. Leaves are alternate, simple and ranging from entire to lobed. Stipules present and deciduous.

#### Key

Leaves coarsely and sharply serrated; nuts triangular, surrounded by a 4-parted involucre. *Fagus*

Leaves deeply lobed; nut round, subtended by a cuplike involucre. *Quercus*

## ***Fagus L.***

### **Beeches**

Beeches number 10 species of the northern-temperate regions; a single beech species reaches NS. Ours has the leaves serrate, each vein ending in a tooth. The pendulant staminate flowers arise on the lower part of the tree on drooping peduncles. Pistillate flowers are carried on short peduncles on the upper branches and are usually arranged in pairs, from the leaf axils. Ovary has three locules. Fruit is a sharply angled nut, containing a single seed.

### ***Fagus grandifolia* Ehrh.**

#### **American Beech; hêtre à grandes feuilles; suomusi**



*Photo by Sean Blaney*

Leaves are ovate, and stiffly serrate at the ends of each vein. Pointed distally, they are carried on short petioles. Varying degrees of pubescence on the lower surfaces were formerly used to separate forms no longer recognized. Beech in NS rarely reach maturity because of beech canker, which develops when the fungus, *Nectria coccinea* is spread by an introduced scale insect (*Cryptococcus fagisuga*).

Flowers appear in late May with the leaves.

Fertile soils on uplands.

Very common throughout the northern deciduous region, with Sugar Maple. Scattered elsewhere. Good undiseased stands are limited but some occur at Kentville, along the Cornwallis River.

Ranges from NS to ON south to TX and FL; UT.



*Photo by Martin Thomas  
staminate flowers*

## ***Quercus* L.**

### **Oaks**

Oaks are usually tall robust trees with spreading canopies. Frequent and high degree of hybridization makes counting the number of species irrelevant. Their leaves are thick, entire or pinnately lobed, often persisting throughout the winter. Staminate flowers are borne in long slender catkins; calyx divided into six segments. Stamens 3–12.

#### Key to species

Leaves with rounded lobes; acorn oblong to elliptical.

*Quercus robur*

Leaves with pointed lobes, ending in a bristle or acuminate; acorns about as long as wide.

*Q. rubra*

*Quercus bicolor* Willd., the Swamp-white Oak was found recently as an escape from cultivation near Wolfville. As no subsequent record is known, it has not been included in the key.

## ***Quercus robur* L.**

### **English Oak; chêne pédonculé**



*Photo by David Mazerolle*

Bark is dark and deeply furrowed. Leaves are borne on very short petioles, less than 5mm long. They are obovate in outline, with deep lobes. The bristles are absent and the lobes rounded. Pale green acorns are ovate and elongated.

Readily escapes from cultivation.

Scattered roadside tree from Annapolis Royal to Halifax and Truro. Several Hants County localities. Becoming invasive from Windsor to Falmouth and spreading from Uniacke Estate Museum Park into native woods.

From NS to ON, south to OH and PA; BC. From Europe.

***Quercus rubra* L.**

**Northern Red Oak; chêne rouge; mimgwaqanimusi**



Photo by Martin Thomas  
Staminate flowers

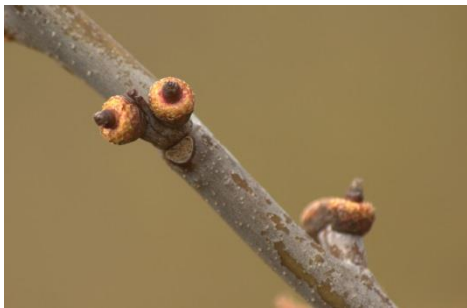


Photo by Alain Belliveau  
Immature fruit

Leaves are deeply cleft, the lobes are sharply pointed and often bristle-tipped, oblong in outline. Acorns are about as wide as long and the nut is conical at its base.

Two varieties are recognized: var. *ambigua* (A. Gray) Fernald is considered to be a more northerly form, with smaller acorns 1.5–2cm across the cup. Var. *rubra* with the larger acorn cup, 2.5–3cm wide and flattened at the base, has been reported as scattered in southwestern NS. Canoe Lake, Yarmouth Co. and Boot Lake, Annapolis Co. Northern Red Oak is a defining species of the Acadian forest.

Granitic areas where the soil is light and well-drained or sandy.

Scattered throughout the province.

NS to ON, south to OK, LA and GA.

**Fumariaceae**

**Fumitory Family**

Closely allied with the poppies, this family of 400 species is represented here by only three species, in three genera. Several ornamentals may persist after cultivation. Historically *Adlumia fungosa*, was found at Point Pleasant Park in Halifax. It is unknown if this vine is persisting elsewhere.

Flowers are irregular, with two sepals and four petals, the inner ones dilating and forming a hood above the stigma. Stamens number six, filaments adnate in pairs opposite the outer petals. Nectary spurs are present. Inflorescences may be a racemose, paniculate or of single flowers. Fruit is generally a capsule. Leaves are alternate and finely divided in our species. The stems are brittle.

## Key to genera

- A. Corolla with 2 opposite petals spurred at the base; flowering only until early June. *Dicentra*
- aa. Corolla 1 petal spurred at the base; summer-flowering. B
- B. Fruit oblong, with several seeds; flowers 10–15mm long. *Corydalis*
- bb. Fruit round, single-seeded; flowers 5–7mm long. *Fumaria*

## ***Corydalis* Vent.**

### **Corydalis**

Worldwide, there are about 300 species with a single one reaching NS. North-temperate in distribution, these delicate herbs have a single spurred outer petal. Flowers are of various shades of rose or pink, they are borne on pedicels in a raceme, subtended by a whorl of bracts.

### ***Corydalis sempervirens* (L.) Pers.**

#### **Pink Corydalis; corydale toujours verte**



Photo by Sinnikka Jauensen



Photo by Sean Blaney

The slender stems may reach 60cm, erect and branching. Leaves are glaucous, becoming sessile towards the top and twice-pinnate. Their margins are ciliate. Flowers are borne in small terminal panicles. Corollas are pink with yellow tips, or white, and no more than 1.5cm in length. Fruits are erect 2–4cm long.

Flowers and fruit from June through September.

Most noticeable following fire or disturbance, especially on rocky soils with fertile pockets.

Scattered throughout the province, except along the Northumberland plain.



NF to AK, south to MT, IA and GA.

## ***Dicentra* Bernh.**

### **Dutchman's-breeches**

*Dicentra* includes some of the familiar pink-flowered bleeding-heart species. There are upwards of 20 North American and Asian species of *Dicentra* and a single species in NS. Inflorescence extends above the leaves on an arcuate scape. Corollas are cordate or oval, with the petals weakly connate. The outer two petals are expanded, while the inner pair are fused. Style is long, with a bifurcate stigma. Fruit is a capsule. As the individual flowers resemble little pairs of pants hanging on a line, so arose the vernacular name, a fanciful reference to styles of the past!

## ***Dicentra cucullaria* (L.) Bernh.**

### **Dutchman's-breeches; dicentre à capuchon**



*Photo by Peter Neily*



*Photo by Sean Blaney*

Leaves are pinnately divided into finely fringed leaflets, with a glaucous appearance. Scapes are slender and gracefully arching, 10–30cm in height, with a terminal raceme of white and yellow flowers.

Flowers from 20 May until the 10 June.

In rich deciduous forest soil and along intervals.

Most common in Colchester and Pictou counties and through the Cobequids, east to northern Cape Breton. Large colonies present on Cape Blomidon and the trail to Cape Split.

NS to MB, south to GA and OK; west coast.



## ***Fumaria* L.**

### **Fumitory**

Resembling *Corydalis*, but for its proximity to cultivation and the shape of the fruit. A Eurasian genus of 50 species, only one occasionally found in our province. Plants branch from a weak, reclining base. Flowers arise from the leaf axils.

### ***Fumaria officinalis* L.**

#### **Common Fumitory; fumeterre officinale**



*Photo by Sean Blaney*

A tenuous plant, it has a sprawling messy habit. Finely divided leaves are borne on weak petioles. Flowers are tiny and purple-tinged.

July to August.

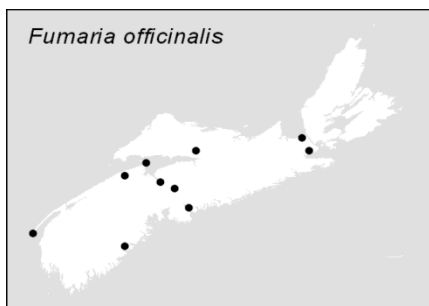
Found about gardens, where it persists after cultivation. Occasionally about ports where it has landed in ballast.



*Photo by Martin Thomas*

Queens County: Mill Village; Digby Co.: Westport; Guysborough Co. and Havre Boucher, Antigonish Co.

Widely introduced and persisting.



## Gentianaceae

### gentian family

Of temperate and subtropical lands, the gentians comprise 1000 species. All are herbaceous plants and may have alternate, opposite or whorled leaves. Leaves reduced to scales in some species, otherwise simple and entire. Flowers are perfect, 4–5-merous, arranged in cymes. They are usually regular except for a deeply incised calyx. Sympetalous, the corolla lobes may be rolled. Stamens alternate with corolla lobes. Ovary is superior, unilocular. Fruits are capsules.

Most of the species below are rare or uncommon in Nova Scotia or overlooked.

#### Key to genera

- |   |                    |
|---|--------------------|
| A. Leaves reduced to scales, less than 5mm long.                        | <i>Bartonia</i>    |
| aa. Leaves not reduced to scales, exceeding 1cm in length.              | B                  |
| B. Corolla lobes spurred at the base.                                   | <i>Halenia</i>     |
| bb. Corolla lobes not spurred.  | C                  |
| C. Corolla rotate, lobes much longer than the tube.                     | <i>Sabatia</i>     |
| cc. Corolla bell-shaped, tubular or funnel-shaped.                      | D                  |
| D. Corolla salverform; flowers pink or white; fruit turgid.             | <i>Centaurium</i>  |
| dd. Corolla cylindrical or funnelform; flowers blue; fruit not swollen. | <i>Gentianella</i> |

### ***Bartonia* Muhl.**

Limited to North America, the genus includes only three species; two in Nova Scotia. Known as screw-stems, they are mycotrophic. Leaves are cauline, minute and reduced to scales. Inflorescence is a terminal panicle or raceme; the flowers are white or pinkish.

#### Key to species

- |                          |                           |
|--------------------------|---------------------------|
| Scales mostly opposite.  | <i>Bartonia virginica</i> |
| Scales mostly alternate. | <i>B. paniculata</i>      |

***Bartonia paniculata* (Michx.) Muhl.**

**Screw-stem; bartonie paniculée**



*Photos by Sean Blaney*

A slim tenuous plant, its scales are alternate. White to pink flowers are arranged in a slender and loose raceme. Our plants are variable, but the varieties have been included now in ssp. *iodandra* (BL Rob) JM Gillett. The typical ssp. is found further south.

Flowers found from August until October.

Frequents wet hollows of bogs, peaty or cobbly shores. Often overlooked.

Common in southwestern counties and scattered east to Halifax and Annapolis counties.

This subspecies ranges from NL, NS, NB, ON, ME, MA and CT.

***Bartonia virginica* (L.) BSP**

**bartonie de Virginie**



Leaf bracts are opposite, closely spaced towards the base of the stem. Flowers are white, arranged in a loose panicle. Sepals are purplish nearly obscuring the flowers.

Flowers July to September.

Dry barrens, sandy or peaty soils, bogs, lakeshores.

Common in the southwestern counties becoming scarcer east to Annapolis and Halifax; St. Peter's area of Cape Breton.

Photo by Alain Belliveau



Photo by Sean Blaney

Ranges from NL to ON, mostly south to LA and FL.

## ***Centaurium* Hill centaury**

Cosmopolitan in distribution, some 50 species are found worldwide. Plants are annual or perennial, produce terminal cymes of pink or white flowers. Flowers are 4–5-merous. Calyx is deeply incised and the corolla tube expands above it. Anthers may twist around each other post-anthesis. Both are introduced.

Key to species

A. Flowers in flat-topped cymes, sessile or nearly so.

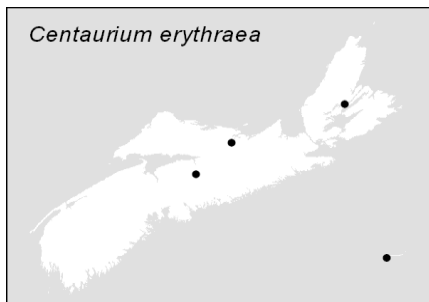
*Centaurium erythraea*

aa. Flowers in paniculate cymes, their pedicels more than 2mm long.

*C. pulchellum*

### ***Centaurium erythraea* Raf.**

**Centaury; petite-centaurée commune**



Plants have opposite leaves, broader than those of *Sabatia* which it resembles superficially. Flowers are pink, but with very long corolla tubes and short lobes.

Flowers in August and September.

Wet dunes, sandy hollows, roadsides. Pond margins.

Long known from Sable Island, appearing sporadically from Digby County to Cape Breton; Halifax.

NS; QC to ON and variously south to GA; west coast.  
Naturalized from Europe.

***Centaurium pulchellum* (Swartz) Druce**  
**petite-centaurée délicate**



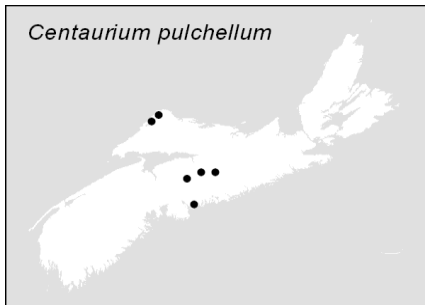
Photo by Sean Blaney

Resembles the previous species but for the branching leafy inflorescence.

Found in waste ground as along roadsides and railways.

Recently found in Cumberland, Colchester, Hants and Kings counties. Halifax Co.

Wider range than previous species, NS to ON, south to WY, TX and LA.



***Gentianella* Moench**

Annual or perennial herbs with opposite cauline leaves; 15 species are recognized to date. If branching, the branches are strongly ascending. Flowers are five-merous, the funnelform corolla exerted, lobed at the summit and fringed at the throat. Lobes are entire and not fringed. Flowers are blue or purple. Calyx is cleft to at least three-quarters its length. Seeds are smooth.

***Gentianella amarella* (L.) Boerner**  
**Felwort; gentiane amarelle**





Photo by Sean Blaney

As above, growing here as an annual or biennial. Purplish blue flowers have lobes spreading at the summit and fringed at the throat. Stiffly erect, these plants may branch along the stem.

Flowers July to September.

Turfy soils and damp sands and gravel.

So far only known from Pollett Cove and Meat Cove area of Inverness Co. where it was found only in the late 1990s.

Ranges from Greenland to AK, south to CA and NM in the west and VT eastward.



## ***Halenia* Borkh.**

Of nearly 100 species, a single species reaches Nova Scotia, in a limited distribution. Leaves are basal and cauline; the cauline leaves are opposite. Flowers are terminal borne in a cyme, each four-merous. Tubular corollas, lobed at least half their length and spurred at the base. Stamens are inserted, near the summit. Fruit are lanceolate and acute.

### ***Halenia deflexa* (Sm.) Griseb.**

#### **Spurred Gentian; halénie déflechie**



Freely branching from the base, this species is an annual with pairs of broadly lanceolate leaves. Flowers are crowded in a leafy cyme, yellowish purple, prolonged at the base, forming limbs or spurs.

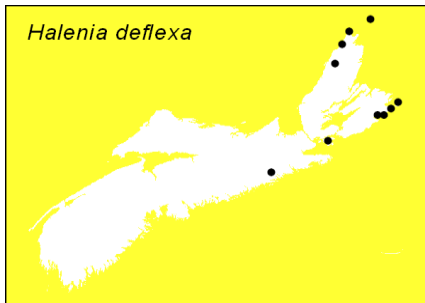
Flowers from July to September.

Exposed shorelines and headlands along the coast.

Photo by David Mazerolle



Photo by David Mazerolle



Rare and local on the mainland: Hall's Harbour, Kings Co.; Sherbrooke, Guysborough Co. Common in northern Cape Breton, and eastward to Scatarie Island.

NF to NT and BC, south to WY, IL and NY.

STATUS: YELLOW-listed.

## ***Sabatia* Adans.**

North American in distribution, there are 17 species in total. Plants have sessile linear leaves and terminal cymes of flowers with anthers that coil after pollen release. Calyx lobes are narrow and elongated, subtending a rotate corolla with a short tube. Capsules are long persistent, eventually becoming bivalved.

### ***Sabatia kennedyana* Fern.**

#### **Plymouth Gentian; sabatie de Kennedy**



Photo by David Mazerolle

A handsome coastal plain species with a simple stem bearing pairs of linear or narrowly lanceolate leaves. Inflorescence has 1–4 flowers on slender pedicels, each bearing a single fragrant pink and yellow flower. Styles bifurcate.

Flowers in August.

Cobbly, and sandy beaches of lakes, streams and savannahs.



Photo by Martin Thomas

Local and rare: Tusket River valley in Yarmouth Co.

Disjunct range: southwestern NS; MA, VA to SC, only along the coastal plain.

STATUS: RED-listed and protected by the Endangered Species ACT 1999 and the Species at Risk Act, 2002.



## Geraniaceae geranium family

Long-known for the prized ornamentals and house plants obtained from South African species. Nova Scotia hosts two genera and a half-dozen species. Most are herbs with lobed or compound leaves. Cauline leaves are opposite. Flower parts are in fives or multiples of fives. An outer whorl of sterile stamens may be present. Pistil has a single style, the stigmas distinct. Typically a beak covers the column of the style formed by an elongation of the carpels, and splitting at maturity, each carpel releasing a single seed. (schizocarp).

### Key to genera

Leaves palmately compound or lobed; most with 10 fertile stamens.	<i>Geranium</i>
Leaves pinnately compound or lobed; fertile stamens 5.	<i>Erodium</i>

***Erodium* L.**  
**stork's bill**

Best developed in the Mediterranean or Middle Eastern regions, with about 75 species described. One species has been introduced to NS. It differs from our other genus in having the beak of the carpel completely separating from the column and persisting as an awn. Seeds are smooth. Basal leaves are dissected and toothed. Flowers usually pink or purple, borne in cymes.

***Erodium cicutarium* (L.) L'Her.**  
**Stork's-bill**



*Photo by Andy Dean*



*Photo by Andy Dean*



*Photo by Sean Blaney*

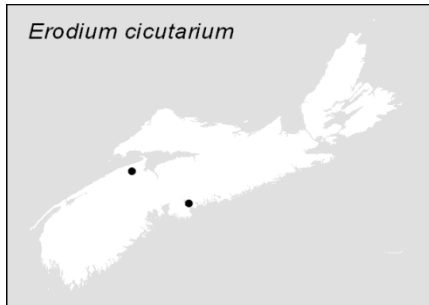
Plants arise on ascending pubescent stems. Leaves are coarsely oblong, pinnately divided into numerous toothed leaflets. Basal leaves crowded, borne on long petioles. Cauline leaves are more distant and sessile. Flowers are small, purple and carried in cymes of up to eight flowers. Fruit may reach 4 cm in length.

Flowers June through to September.

Grows in sandy cultivated or disturbed soils.

Scattered collections from Halifax, Kings counties to Antigonish. Collected in 2014 from Greenwood, Kings Co.

Found throughout North America; introduced.



## ***Geranium* L.**

### **wild geranium; crane's-bill**

Nearly 300 species are included, all producing white, pink or purple flowers in pairs. *Geranium* differs from *Erodium* in having the carpel beaks remaining attached to the styler column by their tips. Capsules are dehiscent, sometimes ventrally, or indehiscent.

#### Key to species

- |   |                          |
|---|--------------------------|
| A. Rhizomatous; perennial; petals 12–20mm long; anthers 2mm or longer.  | <i>Geranium pratense</i> |
| aa. Not rhizomatous, arising from a taproot; annual or short-lived perennial; petals <12mm; anthers equal to or less than 1mm.                                | B                        |
| B. Leaves compound; leaflets petiolate; carpel bodies separating from styler beak at maturity, but remaining attached by means of 2 long filiform appendages. | <i>G. robertianum</i>    |
| bb. Leaves not compound, but deeply dissected; carpel bodies persistently attached to styles.   | C                        |
| C. Leaves >4cm wide; deeply divided and leaflets further lobed; sepals 6–10mm long, ending in a slender bristle.  | <i>G. bicknellii</i>     |
| cc. Leaves mostly <5cm wide, round in outline, shallowly divided; sepals <4mm long, not ending in a bristle.  | D                        |
| D. Body of carpels rugose; beak of style 2–5mm long.  | <i>G. molle</i>          |
| dd. Body of carpels pubescent, not rugose; beak of style absent or very short.  | <i>G. pusillum</i>       |



***Geranium bicknellii* Britt.**

**Wild Geranium; géranium de Bicknell**



*Photo by Sean Blaney*

The entire plant is pubescent. Leaves are cleft into five deeply incised lobes. Flowers are violet, the slender, awned sepals about equalling the petals in length.

Flowers from late June to July.

Colonizes recently burned or cleared land; recently exposed lakeshores.

Sporadic from southern counties to central Nova Scotia.

NF to AK, variously south to CA and TN.



*Photo by Sean Blaney*

***Geranium molle* L.**

**Dove's-foot Crane's-bill; géranium mou**

An ascending or erect plant, it freely branches from the base, often reaching 50cm or more. Basal leaves are globose, or kidney-shaped. Cauline leaves are usually trilobed. Calyces and pedicels are densely glandular. Petals mucronate, to 7mm long. Fruits 9–13mm long, glabrous but rugose on the carpel bodies.

Flowers from June to August.

Grows on compact, disturbed soils such as those of lawns.

Reported from only Annapolis and Colchester counties.

Scattered in the east from NS to ON, south to OK and GA; west coast. Introduced.

***Geranium pratense* L.**

**Meadow Geranium; géranium des prés**



*Photo by Ross Hall*

Taller than others included here, the stems, petioles, peduncles and fruit are glandular pubescent. Cauline leaves are opposite, deeply incised into 5–7 lobes. Leaves near the base of the plant are borne on long petioles; upper leaves are sessile. Inflorescence is a corymb, with few flowers. Petals lilac to purple.

Flowers June to August.

Roadsides, old gardens, near dwellings. Escape from gardens.

Scattered or occasional throughout.

Ranges from NF to AB, south to MN and PA; European native.



*Photo by Martin Thomas*

***Geranium pusillum* L.**

**Small-flowered Crane's-bill; géranium à tige grêle**



*Photos by Martin Thomas*

Smaller than *G. molle* in stature, it bears distinctive basal leaves. They are long-petiolate and nearly round, shallowly divided into palmate lobes. Leaves reduce in size towards the top of the plant. Flowers are small, their petals ranging only from 2–4mm in length. The outer whorl of stamens is sterile.



Flowers from June through October.

Weedy in lawns and gardens and may become invasive once established.

Local. Reported from Wolfville and Kentville.

From NS to AK, south to CA and GA. Introduced.

***Geranium robertianum* L.**

**Herb-Robert; géranium de Robert**



*Photo by Martin Thomas*

Stems are villous bearing three-lobed leaves, further pinnately cleft. Leaves are petiolate and puberulent above and below. Pinkish flowers are subtended by a calyx, measuring 9mm tall, constricted at the top. The sepals are ovate, awl-shaped distally.

Flowers June to September.



Photo by Alain Belliveau

Usually grows in shady forests, ravines, talus slopes and cobbly beaches.

More prevalent along the northern side, from Digby to Cape Breton; along the Atlantic as far as Queens Co.

Ranges from NF to MB, south to TN; west coast; Eurasia and Africa. Native.

## Grossulariaceae gooseberry family

Trees or shrubs, there are about 300 species worldwide. Typically, the alternate leaves are simple, although they may be deeply cleft. Inflorescence may be a raceme or corymb, or the flowers are solitary. Flowers are regular and perfect and may be perigynous or epigynous. Hypanthium is present. Calyx may be tubular, in which case it extends beyond the hypanthium and is showy. Fruits are berries in our species, containing many seeds. Cultivated species are sometimes naturalized, notably some of the currants.

### ***Ribes* L.**

Nearly 150 species comprise the gooseberries and currants, generally north-temperate in distribution and Andean. Ours are shrubs, with ovaries inferior, each with a pair of carpels. Calyx tube if present, is five-merous, the sepals showy. Petals are five-merous; stamens four. Leaves are palmately lobed and may be bristly.

#### Key to species

A. Stems spiny; flowers in clusters of 1–4.

*Ribes hirtellum*

aa. Stems smooth or bristly, not spiny; flowers in drooping racemes.

B

B. Stems, ovaries, fruits densely bristly.	<i>R. lacustre</i>
bb. Stems and fruit not bristly.	C
C. Lower leaf surface without resin glands.	D
D. Ovary and fruit with glandular hairs; plant with a foul odour when bruised; leaves with 5 lobes.	<i>R. glandulosum</i>
dd. Ovary and fruit glabrous; plants without odour; leaves with 3 distinct lobes or 5 indistinct ones.	E
E. Weakly erect; flowers purple; pedicels with pale red glands; native plant.	<i>R. triste</i>
ee. Stout and stiffly erect; flowers greenish or golden; pedicels smooth or with a few glands, not red; introduced species.	<i>R. sativum</i>
cc. Lower leaf surface with conspicuous, shining resin glands.	F
F. Calyx densely pubescent; ovary and fruit with sessile glands; upper leaf surfaces not glandular.	<i>R. nigrum</i>
ff. Calyx smooth or sparsely hirsute; ovary and fruit without glands; upper leaf surfaces glandular.	<i>R. americanum</i>

***Ribes americanum* Miller**

**American Black Currant; gadellier d'Amérique; gawaqtejg**



Photo by Sean Blaney

This erect shrub is neither bristly nor thorny. The flowers are carried in drooping racemes.

Look for this shrub on shady slopes and in bottomland thickets where soils are fertile.

Reported here from Truro and Windsor areas.

NS to AB, south to NM and VA.



***Ribes glandulosum* Grauer**

**Skunk Currant; gadellier glanduleux; gawaqtejj**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

Smooth plants but for the red berries, which are glandular-bristly. The leaves present a distinct skunky odour when crushed or bruised. They are lobed, with five deltate lobes, irregularly dentate. Pedicels also bear stalked glands.

Flowers from mid-May to mid-June.

Rocky coniferous woods where canopy is opened. Also in alluvial soils and even sphagnous thickets.

Abundant throughout the province.

NL to AK, west to BC, south to MN and NC

***Ribes hirtellum* Michx.**

**Gooseberry; groseillier hérissé; gawaqtejj**



*Photo by Martin Thomas*

This species is diverse in pubescence and leaf shape. Typically, the leaves are deeply divided into five lobes and wedge-shaped at the base. They may be hirsute below.

Flowers in early June.

A plant of edges, forest, fields, meadows and pastures, occasionally in wetlands, as well as along fences.



Photo by Martin Thomas

Scattered throughout.

NF to AB, south to NE and VA.

***Ribes lacustre* (Pers.) Poiret**

**Bristly Black Currant; gadellier lacustre; gawaqtejg**



Photo by Sean Blaney

A very bristly species, with stems and pedicels so armed; the petioles are glabrous. Leaves are lobed, the terminal lobe diamond-shaped and exceeding the length of the lateral lobes.

Flowers in June.

Prefers alkaline soils, in rocky or swampy forests, in ravines and streamsides, anywhere the soil is moist and fertile.

North from Annapolis Co. to Guysborough Co.

Ranges from NL to AK, south to CA, SD and VA.

***Ribes nigrum* L.**

**Black Currant; gadellier noir**

This erect shrub is mostly smooth, but the lobed leaves carry resin glands on their lower surfaces. Flowers are borne in drooping racemes. Sepals are purplish within. Ovary may also have glands on it, if so they are sessile. Fruit is black.

A cultivated shrub, sometimes persisting for a short time.

The collections in local herbaria are probably from cultivated plants.

This Eurasian native is known from NS to ON, south to IL and MD; west coast.

***Ribes rubrum* L.**

**(*R. sativum* Syme)**

**Red Currant; gadellier rouge**

An erect shrub with lobed leaves, bearing bristles on their undersurfaces. Pedicels of the racemes are glandular. It is a parent species for several cultivars or hybrids.

Flowers late May and June.

May be short-persistent on old garden sites.

Several sites recorded, but unclear whether the material is from cultivated shrubs.

European native, widely planted and naturalized from NS to MB, variously south to TN and NC, with several western states also included.

***Ribes triste* Pallas**

**Wild Red Currant; gadellier amer**



*Photo by David Mazerolle*

A sprawling reclining shrub, its leaves are trilobed and dentate. Although bristles are absent, it may be variously pubescent or glabrescent.

Flowers earlier, late April to July.

Frequents deep leaf mould in ravines, alluvial habitats and fertile forested sites.

Uncommon, local from northern Digby and Cumberland counties to northern Cape Breton.

Ranges from NF to AK, south to OR, IL and VA; eastern Asia.



*Photo by Sean Blaney*

*Ribes uva-crispa* L., the European Gooseberry is to be expected here. It has naturalized from QC and ON south to TN and NC.

## Haloragaceae

### water-milfoil family

One hundred species comprise this family; all are aquatics in this region. Plants are heterophyllous; the leaves are finely divided. The flowers are wind-pollinated and tiny, epigynous, 3–4-merous. Stamens are twice as numerous as the sepals. Styles feathery. Fruit a nutlet or drupe-like.

#### Key to genera

- |  |                     |
|--|---------------------|
| Submerged leaves much reduced, filiform and bractlike; flowers 4-merous. | <i>Myriophyllum</i> |
| Submerged leaves not filiform nor bractlike; flowers trimerous.          | <i>Proserpinaca</i> |

## *Myriophyllum* L.

### water-milfoils

Cosmopolitan in distribution, there are about 20 species in total. Flowers are unisexual and axillary, often arranged in emergent terminal spikes. Calyx is absent or four-merous; petals present or absent. Leaves are usually pinnately divided.

#### Key to species

- |  |                              |
|--|------------------------------|
| A. Leaves absent, or if present, entire.                 | <i>Myriophyllum tenellum</i> |
| aa. Leaves pinnately cleft; leaflets filiform.           | B                            |
| B. Foliage leaves alternate.                             | C                            |
| C. Mature fruit with distinct tubercles on the back.     | <i>M. farwellii</i>          |
| cc. Mature fruit smooth, or barely wrinkled.             | <i>M. humile</i>             |
| bb. Foliage leaves distinctly whorled.                   | D                            |
| D. Bracts and flowers mostly alternate.                  | <i>M. alterniflorum</i>      |
| dd. Bracts and flowers whorled.                          | E                            |
| E. Bracts exceeding the staminate flowers, deeply cleft. | <i>M. verticillatum</i>      |
| ee. Bracts shorter than the staminate flowers;           | <i>M. sibiricum</i>          |

nearly entire or serrate.

***Myriophyllum alterniflorum* DC**

**Water-milfoil**



*Photos by Sean Blaney*

Plants are slender, the whorls of leaves decreasing slightly in width towards the top of the plant. Leaves are mostly filiform. Floral bracts are alternate and exceed the flowers in length.

Flowers from June to September.

Slow-moving streams and in shallow pools.

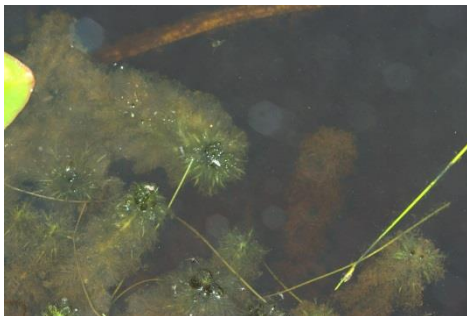
Hants and Halifax counties, northward to Cape Breton, where it is common.

Europe, including Greenland; NF to NT south to NY and MN.



***Myriophyllum farwellii* Morong**

**Myriophylle de Farwell**

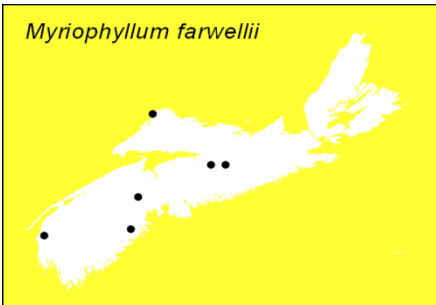


*Photo by Martin Thomas*

Leaflets are longer towards the base of the plant; all whorled. Some leaves also scattered the length of the stem and not in whorls. The submerged flowers are axillary, not terminal.

Flowers June to September.





*Myriophyllum farwellii*

Ponds and slow-flowing fresh water.

Scattered across the mainland.

NS to MB. south to MN and PA; AK; BC.

***Myriophyllum humile* (Raf.) Morong**  
**myriophylle menu**



*Photo by David Mazerolle*

Leaves are scattered the length of the stem. Flowers are arranged in terminal spikes and submerged. They are subtended by leaflike bracts, which exceed their length.

Flowers from mid-June until October.

Riparian where substrate is peat, sand or mud.



*Photo by David Mazerolle*

Scattered from Yarmouth to Hants Co.; local to Pictou and Guysborough counties.

NS to QC, south to VA and west to MN and IL.

***Myriophyllum sibiricum* Komarov**  
**myriophylle de Sibérie**



*Photos by Sean Blaney*



A large coarser species, with whorled leaves. Unlike *M. farwellii*, the paired flowers are in terminal spikes, with their bracts less than or equalling their length.

Flowers July to September.

Grows in brackish shallows or alkaline ponds.

Northern in its range in NS. Cumberland County east to Cape Breton Co.

NF to AK, south to CA, NM and MD.

***Myriophyllum tenellum* Bigel.**  
**myriophylle grêle**



*Photo by David Mazerolle*

Its height is variable. Plants may appear when exposed as small pegs projecting from lakeshore mud. The tiny entire leaves are inconspicuous.

Flowers from July to October.

Peaty margins of lakes and stream shallows.

Scattered throughout.

NF to ON, south to MN and NC.



*Photo by Martin Thomas*

***Myriophyllum verticillatum* L.**  
**myriophylle verticillé**



Photo by David Mazerolle

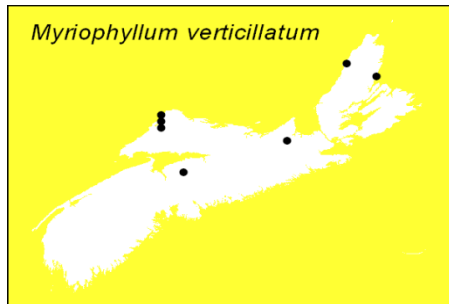
Leaves are whorled, the whorls decreasing in width towards the apex. Floral lobes are deeply cleft and twice as long as the flowers. Rachis is compressed and much wider basally.

Flowers late June until September.

Shallows, especially in fine, often calcareous sediments, as in oxbow ponds.

Cumberland and Hants counties to northern Cape Breton.

NF to BC, variously south to CA, TX and FL



## ***Proserpinaca* L.** **mermaidweeds**

The genus is small, with only 2–3 species worldwide, two in Nova Scotia. Plants of marshes, they are usually emergent. The emergent leaves differ in size and shape from those submerged. Sessile flowers are purplish or green, perfect but without petals. Axillary, they are carried in clusters of 1–3. Fruit is bony, carrying three seeds and is indehiscent.

### Key to species

A. Bractlike leaves serrate.

aa. Bractlike leaves deeply cleft or pinnatifid.

B. Leaves deeply cleft.

bb. Leaves shallowly cleft.

*Proserpinaca palustris*

B

*P. pectinata*

*P.x intermedia*

***Proserpinaca x intermedia* Mack.**  
**proserpinie intermédiaire**



Resembling *P. pectinata*, but for the more shallow leaf lobes. The solid portion of the leaves is more than 1mm wide in emergent leaves. Submerged leaves are also deeply pinnatifid in this species. The plants are held to be hybrid in origin (Voss and Reznicek, 2012).

Filling in small depressions in shallow water on lakeshores and in fens.

Known from Yarmouth to Queens Co. in scattered localities.

Coastal plain: NS; MA inland to MI, south to PA, FL and MS.

***Proserpinaca palustris* L.**  
**proserpinie des marais**



Photo by Sean Blaney



Submerged leaves are deeply divided into filiform pinnate segments, whilst the aerial leaves are lanceolate and serrate. The submerged flowers are axillary. Both the typical variety and var. *creba* Fern. and Grsc. The former has concave fruit 4–6mm wide while var. *creba* has convex fruit only 2.3–4mm wide.

Flowers July to September.

Lakeshore fens and streamsides.

Var. *palustris* is known only from Lunenburg and Yarmouth counties although it may be more widespread. Var. *creba* is abundant where found from southwestern NS to Cumberland Co. It tends to be less frequent on Cape Breton's Atlantic side.



*var. creba*

Photo by David Mazerolle



Photo by Sean Blaney

Species ranges from NS to ON, south to FL and TX.

***Proserpinaca pectinata***  
**proserpinie pectinée**



Photo by David Mazerolle

Mat-forming, it resembles *Myriophyllum*. Its leaves however are alternate and pinnately divided. Flowers are axillary and solitary, submerged.

Flowers from June until October.

Grows in sphagnum peatlands, lacustrine peaty sands and gravels.

Frequently seen in Yarmouth and Shelburne counties, becoming scarcer to Cumberland County.

NF, NS; ME to TX, inland along the Great Lakes' southern shores.



*Photo by Sean Blaney*

## **Hamamelidaceae**

### **witch-hazel family**

Trees or shrubs, ranging throughout eastern and tropical Asia; of the 120 species, a single common understory shrub reaches NS. Flowers are regular, perfect or unisexual. Corolla is 4–5-merous. Ovary is bilocular, producing a woody capsule, dehiscent at the top.

### ***Hamamelis* L.**

#### **Witch-hazel**

Our single shrub bears alternate toothed leaves. Inflorescence is axillary and short-pedicellate. Corolla is four-merous. Petals are long and slender, subtended by short deltate sepals. Stamens also number four, shorter than the sepals and alternate with bractlike staminodes. Fruit is a bristly capsule.

### ***Hamamelis virginiana* L.**

#### **Witch-hazel; hamamélis de Virginie**



*Photo by Beth Cameron*

Shrub may reach 5m in height, bearing yellowish-brown twigs. Winter buds are stalked and covered with yellowish tomentum. Leaves are widely ovate, obovate or oblong, their margins wavy and toothed and sometimes with a shallow sinus at the base. Straplike petals and stamens are in fours. Fruit is a woody capsule, often with persistent sepals, covered in gray tomentum. Mature fruit is persistent for one year then dehisces to release shiny black seeds.



*Photo by Ross Hall*

One of our few truly autumn flowering plants, about the time of leaf-drop.

Shade-tolerant, frequents rocky forests and ravines where there is ample water.

Scattered in Yarmouth Co. Common in Kings and Lunenburg counties, becoming infrequent eastward. So far absent from Cape Breton.

NS to ON and MN, south to TX and FL. Not known from PE.

## **Hippuridaceae**

### **mare's-tail family**

A monogeneric family, it has three North American species, one in Nova Scotia. It is an aquatic emergent. Bearing filiform leaves in whorls of 6–12, it is distinctive in shallow silty waters. The plants bear minute glandular pubescence scattered along the stems. Flowers are axillary and solitary, carried near the top of the plant. Wind-pollinated, some are perfect and some are unisexual. Calyx is reduced to a ridge around the ovary and the corolla is absent. The single style is stigmatic most of its length. Fruits are achenes.

### ***Hippuris* L.**

#### **Mare's-tail**

It is as described above.

***Hippuris vulgaris* L.**

**Mare's-tail; hippuride vulgaire**



*Photo by Sean Blaney*

Stems are simple, and those which bear flowers, erect. Leaves are filiform and sessile, arranged in whorls around the stem and reduced in size towards the top of the stem. Sometimes the submerged leaves are reduced to scales. Fruit is elliptic.

An aquatic plant, frequents the edges of ponds, swamp pools and in brackish water behind barrier beaches.

Widespread and locally abundant.

Ranges from Greenland to AK, south to CA, NM and NY; Eurasia.

**Hydrangeaceae**

**hydrangea family**

Of the 170 or so species worldwide, only one occurs in Nova Scotia as a garden escape. Members of this family include shrubs, woody vines and small trees. Most have simple, estipulate, and opposite leaves. Inflorescences are cymose with perfect flowers or with marginal flowers sterile. The corolla and calyx are 4-5-parted; stamens 8-many. The fruit is a capsule.

***Hydrangea* L.**

Shrubs or vines, they have many small flowers in cymes. The fertile flowers are small with short petals. Sterile flowers have only large petaloid sepals. The capsular fruit exhibit conspicuous ribs, two compartments and many seeds.

***Hydrangea arborescens* L.**

**American Hydrangea; hortensia en arbre**

A shrub, it may grow up to 3m. Leaves are toothed, oblong to round-ovate. Inflorescence is generally flat-topped, up to 10cm wide. Flowers are white, ranging from all fertile to partly fertile, and partly sterile to all sterile; ovary is epigynous .

Flowers in July-September.

Shaded hillsides.

One location known in Wolfville, Kings Co.

Canadian populations are considered introductions; occurring in ON, NB and NS ranging south to FL, LA, OK, west to KS.

**Juglandaceae**  
**walnut family**

Of the approximately 60 species (7–8 genera) worldwide, only one has made its way to Nova Scotia as an infrequent escape. These are mostly trees which bear alternate, pinnately compound leaves. The unisexual flowers are borne in separate catkins. Male catkins occur on the previous year's growth or at the base of the current season's growth. They are long and drooping, the flowers solitary in catkin bracts, with two to many stamens. Female flowers occur in short, few-flowered catkins at the tip of the current season's growth. Ovary is inferior; styles number two. Fruit is a nut with a woody or fibrous husk.

***Juglans* L.**

Six species occur in North America. These trees have chambered pith and odd-pinnate, alternate, deciduous leaves. Leaflets number 9–17, nearly sessile. Male catkins are densely flowered and pendulous. The pistillate catkins are short and few-flowered. Both types of catkins can be found on the same tree. Fruits have indehiscent husks surrounding the edible nuts.



***Juglans cinerea* L.**

**Butternut, noyer cendré**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

A tree growing to 30 m the leaf scars have a line of dense hairs along the upper edges. Leaflets number 11–17, rugose and oblong-lanceolate, pubescent with stellate hairs. Fruit is ellipsoid, 4–8 cm, the nut longer than thick and rough.

Flowers in the spring.

Rich floodplains, moist fields.

Reported from near the Meander River in Hants Co. and South of Kentville, Kings Co.

Ranges from MB to NB and south to AR, MI, AL and GA. A recently discovered introduction to Nova Scotia.

## **Lamiaceae**

### **mint family**

Cosmopolitan in distribution, the mints include 3200 species of aromatic herbs and low shrubs. All have square stems and opposite, simple leaves. Flowers are generally irregular and may be whorled, an arrangement in this family called verticils. They are sympetalous and bilabiate, the corolla cleft into five lobes, sometimes fused to four. Stamens two or four, inserted in the tube. The anther on one may be vestigial.

Calyx has its lobes fused and is sometimes irregular. Ovary is four-merous, with one nutlet fitted in each quarter. The style is erect between the lobes. Many of our aromatic or culinary herbs are included: marjoram, oregano, thyme, sage and basil, not to mention peppermint and spearmint.

#### **Key to genera**

A. Inflorescence mostly axillary: clustered or solitary flowers.

B

B. Calyx irregular, bilabiate.

C

C. Flowers few, blue.	D
D. Calyx villous in the throat; stamens 2.	<i>Hedeoma</i>
dd. Calyx not villous; stamens 4.	<i>Scutellaria</i>
cc. Flowers white to blue, crowded in the axils.	E
E. Stamens 2.	<i>Lycopus</i>
ee. Stamens 4.	F
F. Corolla 4–5-lobed, not bilabiate.	<i>Mentha</i>
ff. Corolla bilabiate or entire.	G
G. Flowers 3 per axil; calyx with 15 nerves; creeping habit.	<i>Glechoma</i>
gg. Flowers 6 or more; calyx with 5–10 nerves; erect growth.	H
H. Calyx lobes not spiny at tips.	I
I. Flowers many; calyx with 10 nerves; leaves rounded at base.	<i>Teucrium</i>
ii. Flowers <12; calyx 5-nerved; leaves cordate.	<i>Lamium</i>
hh. Calyx lobes spiny.	J
J. Lower lip with 2 yellow or white limbs at the base; stem nodes swollen.	<i>Galeopsis</i>
jj. Lower lip limbless; stems not swollen.	<i>Leonurus</i>
bb. Calyx mostly regular.	K
K. Leaves mostly cauline; stamens exerted.	<i>Mentha</i>
kk. Leaves basal and cauline; stamens inserted.	<i>Satureja</i>
aa. Inflorescence mostly terminal.	L
L. Inflorescence a loose panicle.	<i>Origanum</i>
II. Inflorescence of one or more terminal racemes, spikes or heads.	M
M. Calyx distinctly bilabiate.	N
N. Calyx with 15 nerves.	<i>Dracocephalum</i>
nn. Calyx with <13 nerves. (10–13)	O
O. Bracts subtending flowers absent; leaves cauline.	<i>Mentha</i>
oo. Bracts subtending flowers present; basal leaves present.	P
P. Bracts leaflike.	<i>Ajuga</i>
pp. Bracts noticeably different from leaves.	Q
Q. Corolla without a ring of hairs in the throat, reddish pink; calyx throat hairy.	<i>Clinopodium</i>
qq. Corolla with a ring of hairs in the throat, blue-violet; calyx throat not hairy.	<i>Prunella</i>
mm. Calyx mostly regular, or lobes different only in size.	R
R. Stamens inserted.	S
S. Calyx with 15 nerves.	<i>Nepeta</i>

ss. Calyx with 5–10 nerves.  
rr. Stamens exerted.

T. Upper and lower corolla lips nearly equal in length.

tt. Lower lip of corolla twice as long as the upper.

*Stachys*

T

*Thymus*

*Hyssopus*

## ***Ajuga* L.**

### **bugle**

A Eurasian genus comprising 40 species, most produce showy flowers favoured in gardens. A single mat-forming ornamental has naturalized near old gardens in Nova Scotia. Rhizomatous, the leafy runners produce upright stems with terminal clusters of violet flowers. Calyx lobes about the same length as the tube, but unequal to each other. Upper lip on the corolla is two-lobed and shorter than the inflated lower lip. Stamens four and also of unequal lengths.

### ***Ajuga reptans* L.**

#### **Bugleweed; bugle rampante**



*Photo by Martin Thomas*

Reaching only from 10–30cm tall, this perennial has a tendency to quickly spread from leafy stolons. Opposite leaves are ovate or spatulate. Flowers borne in terminal spikes of dense blue or purple flowers.

Flowers from late May through June.

Roadsides and fields, spreading from gardens, even into sod.

Halifax and other communities in central and western Nova Scotia.

Found from NF to ON , south as far as TX and FL; west coast; UT. Naturalized from Europe.



Photo by Martin Thomas

## ***Clinopodium* L.**

Perennial herbs, totalling 13 species, most are pubescent and stoloniferous. Leaves are petiolate and entire or crenate. Flowers range from pink to white and are densely packed in the leaf axils or in terminal spikes. Bracts are present, long ciliate. Calyx has two lips and five teeth. The corolla is bilabiate with the upper lip entire and the lower lip three-lobed. Four stamens are exerted and ascending.

### ***Clinopodium vulgare* L.**

(= *Satureja vulgaris* (L.) Fritsch.

**Wild Basil; sarriette vulgaire**



Photo by Martin Thomas

Arising on simple stems, the plants may reach 60cm in height. Leaves are oblong or ovate, blunt at the tips and shallowly serrate or crenate. Petioles are short. Flowers are clustered in one or two verticils in the leaf axils at the top, subtended by filiform bracts.

Flowers from June to September.

Grassy areas, slopes, forested seepy talus of ravines.

Northern from Annapolis and Cumberland counties to Cape Breton.

NF to ON, south to NC and AR; western.



Photo by Martin Thomas

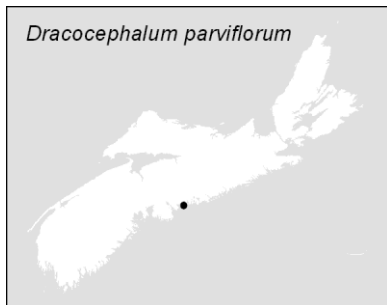
## ***Dracocephalum* L.**

### **dragon-head**

A single species is known from NS of the 40 widespread northern species described. Erect herbs, all have serrate leaves. Inflorescence is of small blue flowers arranged in verticils. Calyx is tubular and bilabiate, ornamented by 15 nerves. Upper lobe is much expanded beyond the width of the other four. Corolla is weakly bilabiate (in ours), with the tube much exceeding the limbs. The upper stamens are longer than the lower ones.

## ***Dracocephalum parviflorum* Nutt.**

### **Dragon-head; dracocéphale parviflore**



Arising from a taproot, this short-lived perennial is a recent discovery here. The entire plant may be puberulent. Leaves are broadly lanceolate and petiolate. Flowers are borne in tight whorls forming a spike of purple flowers, sometimes interrupted by spaces.

Flowers from June through August.

Grows on rocky or gravelly calcareous soils, where canopy is open.

Known from the Eastern Shore.

NF to AK, south to AZ and NM, MS and NC. Exotic in NS.

## ***Galeopsis* L.**

### **Hemp-nettle**

Eurasian in distribution, there are 10 species of annuals. Leaves are entire or toothed, flowers borne in densely packed verticils. Calyces marked by 10 nerves, ending in bristly spines. Bilabiate corolla has the lower lip split into three lobes and bearing a pair of appendages at the base.



Key to species

Leaf blades cuneate at the base; central lobe of the lower lip of the corolla notched.

*Galeopsis bifida*

Leaf blades rounded at the base; lower central lobe of the lip not notched.

*G. tetrahit*

***Galeopsis bifida* Boenn.**

**Split-lip Hemp-nettle; galéopside bifide**

Pale pink or whitish flowers 1.5cm in length are borne amidst the five bristly spines of the calyx. The verticils are small and tightly packed, arising from the axils of the upper leaves. Plants are freely branching and often hispid to puberulent. Leaves are toothed, lanceolate to ovate, tapering to the short petioles.

Flowers from June throughout the fall.

Weedy and often common where soils are loamy and dry. Fields, roadsides, gardens and agricultural fields.

Common throughout.

Atlantic Canada; MB, SK. BC and AK, south to ID, CO and NC. Introduced.

***Galeopsis tetrahit* L.**

**Hemp-nettle; ortie royale**



*Photo by Martin Thomas*

Resembles the previous species, except for the squared lower lip of the corolla; it is not split. Plants may reach 50–75cm and are also freely branching. Inflorescence arises from the leaf axils of upper leaves. The corollas are white to purple. Leaves are lanceolate and toothed, their bases rounded.

Flowers from June through the summer and fall.



*Photo by Alain Belliveau*

Waste ground and sterile soils; agricultural weed.

Throughout.

NF to AK, south to CA, LA and TN. Introduced.

## ***Glechoma* L.**

### **ground-ivy**

All are creeping perennials, 10 species in total. Their leaves are cordate to reniform and long-petiolate. Flowers are blue and borne on short pedicels, within the leaf axils. Usually there are three flowers per axil. Calyx is ribbed by 15 nerves and is divided into five unequal lobes, each terminating in an awn. Corolla is bilabiate, the upper lip further divided into two lobes and the lower spreading, with the central lobe expanded. The four stamens are exerted.

### ***Glechoma hederacea* L.**

**Ground-ivy; Gill-over-the-ground; lierre terrestre**



*Photo by Martin Thomas*



*Photo by Ross Hall*

A creeping plant, its slender stems may reach 1m in length, simple or branched. Leaves are round to cordate, and conspicuously scalloped. Flowers are blue to mauve.

Flowers throughout the summer.

Grows on shady soils, roadsides, lawns, fields.

Known from throughout the province.

Introduced from Europe throughout North America.

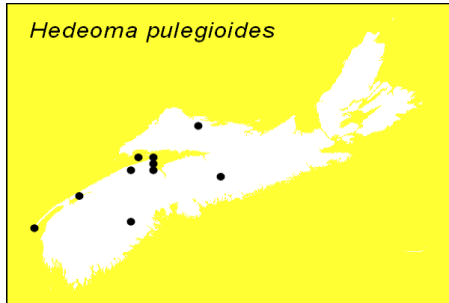
## ***Hedeoma* Pers.**

### **American pennyroyal**

There are 38 species of this North American genus, a single annual herb reaches Nova Scotia. Flowers are axillary in numerous verticils, with only a few flowers in each. Blue corollas are bilabiate or weakly so and bearing only two stamens. Calyx is tubular, strongly marked by 13 nerves. It may be villous in the throat.

***Hedeoma pulegioides* (L.) Pers.**

**American Pennyroyal; hédéoma faux-pouliot**



Plant is strongly scented, its slender stems are carried erect, reaching 40cm. Simple or profusely branched, it bears small elliptical leaves, which are irregularly toothed. The tiny flowers, 3mm long, are borne in most of the leaf axils.

Flowers late, in August.

Coastal in stony soils on open sites.

Most common on the hills surrounding the Annapolis Valley and scattered in Colchester and Cumberland counties; infrequent elsewhere.

Ranges from NS to ON, south to OK and GA.

***Hyssopus* L.**

A small genus of only 15 species, this one is native to Asia and the Mediterranean regions of Europe. Only one reaches North America. It is perennial, with a spike-like inflorescence of blue flowers at the top of the stem. The calyx is regular, marked by 15 ribs. The throat is not pubescent. Corolla is strongly bilabiate, the upper lip smaller than the lower one, its wings reflexed. Four stamens are exerted.

***Hyssopus officinalis* L.**

**Hyssop; hysope officinale**



*Photos by Martin Thomas*

Stem stands erect from a woody rhizome, it bears pairs of nearly linear leaves which may be sessile or on tiny petioles. Often smaller leaves may arise from the axils. The inflorescence is terminal, an interrupted spike, with small leaves amongst the deep purple flowers.

Flowers from July to October.

Dry sites, roadsides, pastures and streamsides.

Collected only from Wallbrook, Kings Co., where it was once abundant.

NS to ON; SK and southward. Introduced from Europe and once used as an aromatic for flavouring alcohol, medicine, etc.



***Lamium* L.**

Of the 40 Eurasian-African species, two introductions have reached Nova Scotia. Typically the opposite leaves are cordate, lobed or toothed.. Inflorescence is in the form of verticils, of 6–12 flowers, ranging

from white to red or purple. Flowers are subtended by leaves nearly as large as the stem leaves. The regular calyx is marked by five nerves. The corolla is bilabiate, the upper lip entire or further divided into two lobes. Lower lip has an enlarged central lobe, constricted at the base. Stamens number four, one pair is longer than the other.

#### Key to species

Leaves petiolate, with the exception of those subtending the uppermost verticils.

*Lamium purpureum*

Leaves subtending the verticils mostly sessile and clasping.

*L. amplexicaule*

#### ***Lamium amplexicaule* L.**

#### **Henbit; lamier amplexicaule**



*Photo by Andy Dean*

An annual species, it is often branching from the base and nearly prostrate. Leaves are mostly basal, less than 1.5cm long. Floral leaves exceed the calyx in length, but are shorter than the corolla. Verticils are distant, the inflorescence exceeding more than half the height of the plant. Flowers are purple.

Flowers from early spring until frost, throughout its range.

Fallow soils and roadsides.

Historically collected from Truro, Bridgewater and Berwick. Recently collected from the Kentville area.

Ranges from Greenland across North America, absent only in the extreme northwest. Introduced.



*Photo by Sean Blaney*



***Lamium purpureum* L.**

**Red Deadnettle; lamier pourpre**



*Photos by Martin Thomas*



Leaves are broadly ovate, not cordate at the base, but also scalloped along the edges. Long-petiolate, they are also lightly pubescent. Flowering spike is much more compressed than the previous species and leafy. While both var. *incisum* (Willd.) Pers. and the typical variety are listed as present here, our material has not been separated.

Flowers July and August.

Ballast heaps and garden soils.

Known from Colchester to Queens counties.

Scattered from NF to ON, south to TX and GA, in the east; AK to CA and variously inland; Greenland. Introduced.

***Leonurus* L.**

Only 10 species comprise this herbaceous genus and mostly of the Eurasian continent. The leaves are long-petiolate, toothed or deeply cleft. Inflorescences is in the form of terminal spikes, often interrupted and subtended at the base by bracts. Calyx is turbinate, marked by 5–10 nerves, extending outward into stiff spines. Corollas are from white to pink, strongly bilabiate, the upper lip is hooded. Lower lip is trilobed.

***Leonurus cardiaca* L.**

**Motherwort; agripaume cardiaque**



*Photos by Martin Thomas*



A stout plant, its stems are strongly angled, reaching 1.5m in height. Leaves are widely ovate, the lower ones palmately lobed and softly pubescent below. The long inflorescence is prickly, from the spines on the calyx.

Flowers from June to August.

Fallow soils, old gardens and edges. Not actively spreading.

Scattered collections from northern Cape Breton south to Shelburne County.

Ranges across North America; absent only from CA and FL. Asian introduction.

## ***Lycopus* L.**

### **bugleweed**

A North American genus, of wetlands or wet soils, 13 species in all. Most are stoloniferous perennials. The leaves are cauline, with the flowers arising from their axils. The nearly-regular calyx is 4–5 ribbed. Corollas are tiny and bear a tuft of hairs in their throats. Two of four stamens are fertile, the upper pair is reduced to staminodes or absent. Plants have no scent or odour.

#### Key to species

Calyx lobes broadly deltate, less than 1mm long, shorter than the fruit at maturity; *Lycopus uniflorus*  
leaves shallowly toothed, glabrous to scabrous above.

Calyx lobes narrowly deltate, 1–2mm long, exceeding length of nutlets at maturity; *L. americanus*  
leaves deeply cleft, and at least sparsely strigose.

### ***Lycopus americanus* Muhl.**

#### **Water Horehound; lycope d'Amérique**



*Photo by Sean Blaney*

An erect plant with a simple stem that sometimes branches only terminally. Lanceolate or oblong leaves are deeply split into narrow pointed teeth. Tiny flowers are tightly clustered in verticils near the top of the plant. The inflorescence looks bristly from the acute calyx lobes.

Flowers from July to September.

Frequents wet, mucky soils in meadows, swamps or even saltmarshes. Streamsides or on *Sphagnum* mats.

Common everywhere.

Across Canada and south to the Gulf of Mexico.



*Photo by Ross Hall*

***Lycopus europaeus* L. ,Gypsywort** was collected years ago at Point Pleasant Park. It was thought to arise from the ballast.

***Lycopus uniflorus* Michx.**

**Northern Bugleweed; lycope à une fleur**



*Photo by Martin Thomas*

It is variable in appearance, with respect to its leaves. It may have large thin leaves when growing in shade. Impoverished soils promote small waxy leaves, the plants remaining often vegetative. In wet soils, the plants have long filiform branches, arising from the base of the plant. In brackish soils, the plants are nearly succulent, the margins of the leaves barely toothed.

Flowers from late June through September.

Found in swamps, ditches, streamsides and in wet depressions.

Very common throughout.

Found across the continent, south to CA and GA. Mostly absent from the arid southwest.

***Mentha* L.**

**mints**

This genus of about 25 species has its greatest diversity in Australia and Eurasia. The long period of cultivation has encouraged wild populations of hybrids and other cultivated material. Leaves are cauline and generally lanceolate or ovate, with serrate margins. Flowers are borne in terminal spikes or axillary verticils. They may have white to mauve corollas, bearing short tubes and four limbs. The calyx is bilabiate or regular, 10–13-ribbed. All are fragrant perennials and many are rhizomatous.

Key to species

- |   |                        |
|---|------------------------|
| A. Flowers axillary; the verticils distant.                     | B                      |
| B. Calyx pubescent.   | <i>Mentha arvensis</i> |
| bb. Calyx glabrous.   | <i>M. gracilis</i>     |
| aa. Flowers terminal in spikes, bracteate.                      | C                      |
| C. Inflorescence round or ovoid head of 1–3 verticils.          | <i>M. aquatica</i>     |
| cc. Inflorescence a spike of several to many verticils.         | D                      |
| D. Calyx tube smooth; leaves glabrous or glabrescent below.     | E                      |
| E. Petioles of largest leaves >4mm long; spikes stout; sterile. | <i>M. X piperita</i>   |
| ee. Petioles absent or <3mm long; spikes slender; fertile.      | <i>M. spicata</i>      |
| dd. Calyx tube pubescent; leaves densely pubescent below.       | <i>M. suaveolens</i>   |

***Mentha aquatica* L.**

**Water Mint; menthe aquatique**

Stems and pedicels pubescent, cauline leaves recurving. Leaves are broadly ovate, twice as long as wide. Inflorescence is headlike, the verticils tightly packed.

Flowers from August to October.

Local in wet, mucky soils.

Long-known from Pictou and Truro, but no recent localities reported.

Ranges from NF to ON; south to AR and GA; west coast.

A hybrid, *M. xsmithiana* Graham is reported from Cape Breton Co. This is believed to be the result of a cross between *M. aquatica* and *M. spicata*. These have very slightly pubescent stems and broad ovate leaves, cordate at the base. Their flowers are pink or violet and arranged in several interrupted verticils. Only known from NS.

***Mentha arvensis* L.**

**Field Mint; menthe des champs**





Photos by Sean Blaney



Highly variable, it has varying degrees of pubescence and leaf shape. Stems may be simple or branched and are generally pubescent. The leaves are usually lanceolate to ovate, their margins shallowly toothed. Flowers are violet or purple borne in verticils on the upper portion of the stem.

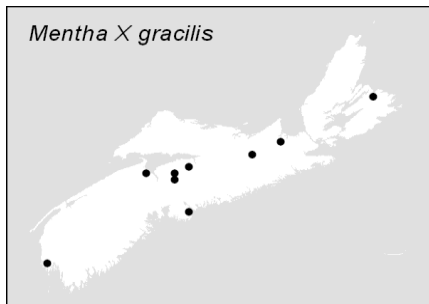
Flowers from July until September.

Considered a serious weed in agricultural lands, Grows on moist loamy depressions.

Common throughout.

Found throughout the continent but for the extreme southeast.

***Mentha x gracilis* Sole, pro. sp.**  
**Scotch Mint**



Resembles the previous species, but for its glabrescent stems and puberulent leaves. This plant tends to be freely branching. The hairs on the stem appear only on the angles and the leaves are ovate. It is thought to be a hybrid between *M. arvensis* X *spicata*.

Flowers July until September.

Frequents fertile, damp soils.

Ranges from Digby and Lunenburg counties to Cape Breton.

Elsewhere from NF to ON, south to AR and NC; AB and BC. Introduced from Europe.



***Mentha x piperita* L.**

**Peppermint; menthe poivrée**



*Photo by Martin Thomas*

A tall mint, reaching 1m in height and completely glabrous. Leaves are ovate and acute, their margins serrate; petiolate. Flowers are pink or mauve, borne in short dense terminal spikes. Parent species are *M. spicata* x *aquatica*

Flowers June to October.

Grows on wet soils.

Found from Digby to Cape Breton counties.

NS to ON, BC; USA. Absent from the plains area.

***Mentha spicata* L.**

**Spearmint; menthe à épis**



*Photo by David Mazerolle*

Spearmint has variable leaves in outline, but generally they are sessile. The flowers are tightly clustered in verticils, interrupted by long internodes and without bracts. Freely branching at the top.

Flowers from late June through October.

Grows on wet soils, near old gardens. Occasionally escapes.

Widely scattered localities in Cape Breton and on mainland



Photo by Martin Thomas

NS.

Ranges from NS to AK, southward. Eurasian.

***Mentha suaveolens* Ehrh.**

**Apple Mint; menthe à feuilles rondes**



Photo by Martin Thomas

Very sweetly-fragrant, this mint may reach 1m in height. Stems are variably covered in white pubescence. The rugose leaves are nearly sessile, sometimes white-pubescent below, and they may clasp the stem. Inflorescences are terminal and crowded, sometimes interrupted at the base.

Summer-flowering.

Garden escape.

Collected from two Cape Breton localities and at two Annapolis Valley stations.

An occasional escape after its introduction from southern Europe in coastal US and NS.



*Photo by Martin Thomas*

### ***Nepeta* L.**

It has a Eurasian centre of diversity and only one species reaches Nova Scotia. Its white flowers are clustered in a terminal inflorescence, simple or branching. Calyx is marked by 15 ribs and divided into five lobes. The bilabiate corolla has the lower lip trilobed, while the upper lip is entire.

### ***Nepeta cataria* L.**

**Catnip; herbe à chat**



Photo by Martin Thomas

Usually branching, this highly fragrant herb is also whitish due to the presence of downy hairs. The leaves are ovate and cordate at the base, deeply toothed and petiolate. Flowers are clustered at the top of the plant in spikelike inflorescences, which are subtended by large ovate bracts.

Flowers from July through September.

Found in small colonies roadside, on talus and near old gardens.

Found throughout but not actively spreading.

Introduced from Europe or southeast Asia into North America and absent only from the north and FL.

## ***Origanum* L.**

Associated with the Mediterranean, these 15 species are all perennial herbs with terminal flower clusters. Stems are ternately branched. Each flower is subtended by a sessile leafy bract. Calyx is regular, marked by 13 nerves and copiously pubescent in the throat. Corolla tube is only slightly flared distally, the lobes barely discernible, but the lower lip is slightly longer. There are two pairs of stamens, with the lower ones greatly exerted.

### ***Origanum vulgare* L.**

#### **Wild Marjoram; origan vulgaire**



Photo by David Mazerolle

An erect herb, it branches near the top and bears fine pubescence. Leaves are ovate and puberulent, their margins entire. Sometimes smaller leaves arise from the axils of large leaves. Flowers are pink or reddish and tightly clustered in a panicle.

Flowers June through October.

Roadsides, fields, sandy old pastures, and open forest.

Scattered localities from Halifax and Hants counties northward.

Naturalized in NS; QC to ON, south to AR and NC; west coast.

## ***Prunella* L.**

### **heal-all**

Only four species are included here. All are erect, perennial herbs, with purple to white flowers crowded at the top of the plant in a spikelike inflorescence, subtended by bracts, soon becoming brown and prickly. The bilabiate corolla has a hooded upper lip and the tube ringed by hairs in its throat. The calyx is also bilabiate and marked by 10 ribs. Lower lip is cleft in two, the upper is broad, and shallowly divided into three teeth.

## ***Prunella vulgaris* L.**

### **Heal-all; Self-heal; brunelle communis**



*Photo by Sean Blaney*

Small in stature, rarely exceeds 60cm. Stems may be simple or branched and are puberulent. Leaves are entire, lanceolate and blunt tipped, and slightly cuneate at the base. Upper pair of leaves subtend the bracts of the inflorescence. Bracts are ciliate. Flowers are violet and densely packed in spikes.

Two subspecies are present here. ssp. *lanceolata* (W. Bartram) Hultén has narrow lanceolate leaves, common throughout. The typical subspecies has broad, elliptic leaves.

Flowers throughout the summer.

Grassy areas and trails.

The native form ranges from NF to AK, south. The introduced form is absent from the north and the Great Plains.



*Photo by Martin Thomas*



***Satureja hortensis*** L., Summer-savory, although not included in the key, was once recorded as thriving outside of cultivation in Antigonish Co.

## ***Scutellaria* L.**

### **skullcap**

Found worldwide and including 300 species, ours are rhizomatous perennials. Flowers are blue or purple and borne in terminal racemes, or axillary. The calyx is strongly bilabiate but faintly ribbed, bearing an appendage on the upper lip. The corollas are also bilabiate. Four stamens ascend beneath the upper lip.

#### Key to species

A. Principal leaves on petioles >4mm long; flowers solitary and axillary. *Scutellaria galericulata*

aa. Principal leaves sessile or on petioles <4mm long; flowers in racemes, terminal or axillary. B

B. Corolla nearly straight, 5–8mm long.

*S. lateriflora*

aa. Corolla recurved, >8mm long.

*S. X. churchilliana*

## ***Scutellaria xchurchilliana* Fern.**

### **scutellaire de Churchill**



*Photo by Sean Blaney*

Considered to be a hybrid between the following two species, it is generally intermediate, but for the larger corollas. It also spreads vegetatively. Leaves are acute and coarsely serrate. Racemes are borne in the leaf axils or on leafy branches, where leaves reduce in size distally.

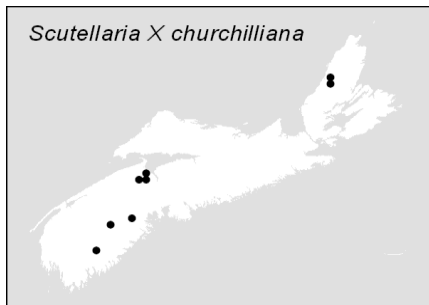
Flowers from July to September.

Grows on sandy, gravelly soils in alluvial thickets or on lakeshores.





Photo by Sean Blaney



Several mainland collections: Wentzells Lake, Lunenburg Co. and at White Rock, Kings Co. The record from Inverness Co. is not represented by a collection.

Limited to NS to QC, south to VT; MI.

### ***Scutellaria galericulata* L.**

#### **Marsh Skullcap; scutellaire toque**



Photo by Andy Dean

Lanceolate leaves are slightly cordate at the base and acutely pointed distally, borne on very short petioles. Pairs of blue flowers are carried in the leaf axils, bearing long flaring corolla tubes and concave upper lips. Corollas measure 15–23mm long.

Flowers from mid-July until August.

Open sunny sites such as behind coastal beaches, cobbly lakeshores, marshes and along streams.

Common throughout NS.

Ranges from NF to AK, south to CA, TX and FL with some exceptions.

***Scutellaria lateriflora* L.**

**Skullcap; Mad-dog skullcap; scutellaire latériflore**



*Photo by Martin Thomas*

Freely branching stems bear paper thin leaves. They differ from the previous species in having acuminate tips and shallow pointed teeth, widely spaced on the margins. Ovate to lanceolate they are carried on petioles, 1–2cm long. Flowers are bluish purple, loosely pendent from an arching axillary raceme.

Flowers during July and August.

Grows on wet soils and shade as in riparian thickets, marshes, streamsides and in wooded depressions.

Common throughout.

Ranges from NF to AK, south to TX and FL; West coast.

***Stachys* L.**

**Hedgenettles**

North-temperate in distribution, they include 200 species. Plants are generally pubescent, flowers blue, white or yellow. The inflorescence is usually a cyme and may be terminal or axillary. Calyx is regular or nearly so, divided into triangular lobes and marked by 5–10 ribs. Corolla is bilabiate, the tube about equal in length to the calyx. Leaves are reduced towards the top of the plant.

**Key to species**

Plants perennial; corolla 11–16mm long; purple; wet soils; native.

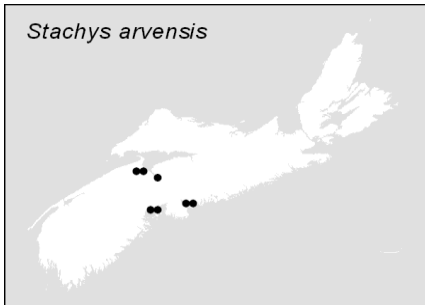
*Stachys palustris*

Plants annual; corolla 6–8mm long; blue or white; dry soils; introduced.

*S. arvensis*

***Stachys arvensis* L.**

**Annual Hedgenettle; Staggerweed; épiaire des champs**



Freely branching, the stems reaching no more than 60cm and are divergent. Broadly ovate leaves are blunt-tipped and crenate. Lower leaves are petiolate, the upper ones on short petioles or sessile. The entire plant is covered in shining pubescence.

Flowers June to October.

Grows on dry, fallow soils.

An occasional introduction from Halifax, Hants and Kings counties.

Local: NS; ME to VA; TX, LA and west coast. Introduced.

***Stachys palustris* L.**

**Woundwort; Hedgenettle; épiaire des marais**



Variable in leaf shape and pubescence, plants are generally stouter than the previous species, the single stems reaching 1m. Leaves are lanceolate, sharply serrate and acute. Sessile at the top, they may be carried on short petioles near the base. Verticils of six flowers borne at the top of the stem, arising from the axils of the bracts.

Flowers from July through September.

Grows on wet soils of ditches and marshes, spreading in drier sites, where it is sometimes aggressive.

*Photo by Sean Blaney*

Scattered throughout but for the eastern shore.

Ranges from NF to MB, south to IL and MD; AK. Introduced in Canada.

## ***Teucrium* L.**

### **Germander**

Cosmopolitan in distribution, 100 species comprise the genus. Our single native species is a rhizomatous perennial bearing a spikelike raceme of pinkish purple flowers. The campanulate calyx is cleft into five teeth marked by 10 nerves. Corolla has a single lip and four exerted stamens.

### ***Teucrium canadense* L.**

#### **American Germander; germandrée du Canada**



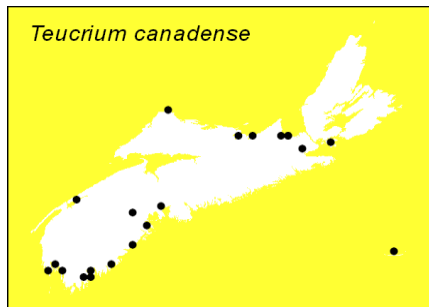
*Photos by Sean Blaney*

Stems are sharply angled and densely pubescent, reaching 1m in height. Leaves are clustered at the top, lanceolate or ovate and coarsely serrate. The lower stem is bare. Petioles are short. The flowers are borne in a dense spike, with bracts extending beyond the lower flowers.

Flowering from July to September.

Gravels behind coastal beaches, above high-tide mark. Often growing with *Scutellaria galericulata*.

Uncommon as individual plants.



NS to BC, south to CA and FL. Absent only from AB.

Of conservation concern in NS, YELLOW-listed.

## ***Thymus* L.**

### **Thyme**

A genus of shrubs, they number 50 Eurasian species. Typically the leaves are small and the spikelike racemes of pale flowers may be axillary or terminal. Both the calyx and corolla are bilabiate, the calyx is marked by 10–13 ribs and bears villous pubescence in the throat. The lower lip has two lobes and the upper is trilobed. The upper lip of the corolla is nearly flat. The four stamens are exerted.

## ***Thymus praecox* Opiz**

### **Creeping Thyme**



*Photos by Martin Thomas*

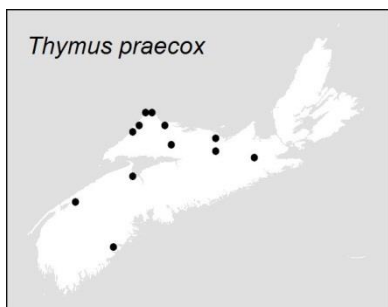
A small sprawling plant, with slender spreading stems and diffuse branches. Leaves are only 1cm long; some plants bear even smaller leaves in the axils. Entire, they are ovate to oblong. Purple flowers are arranged in a terminal spike, sometimes distant. Ours is ssp. *arcticus* (Durand) Jalas.

Flowers during July and August.

Grows on well-drained sandy soils.

Common in Cumberland County and scattered through the northern counties. Uncommon elsewhere.

Introduced; Greenland; NS, QC to ON, variously south to MS and GA; BC south to UT.



## **Lentibulariaceae**

### **bladderwort family**

A family of insectivorous herbs, their leaves are modified into insect traps. In total 200 species are found worldwide. Most are aquatics, although a single species in NS is terrestrial, but of wetlands. Flowers are perfect, the petals united. Corolla is bilabiate, the lower lip is spurred. A pair of stamens is inserted. Calyx is variable. The ovary is superior, style absent or vestigial. Fruits are capsules containing many small seeds.

Calyx with 5 lobes; flowers solitary on scapes; true leaves basal and not linear.

*Pinguicula*

Calyx with 2 lobes; flowers in racemes, subtended by bracts; apparent leaves not basal, but linear.

*Utricularia*

### ***Pinguicula* L.**

#### **butterwort**

The butterworts are mainly boreal, extending into temperate regions of the northern hemisphere and the Andes. Perennials, they total about 35 species. A single species reaches Nova Scotia, but it is one of our rarest and most elusive plants. Typically they have a basal rosette of entire leaves with one or more scapes carrying a single flower. Calyx and corolla are both bilabiate, with five lobes. Palate absent on the lower lip of the corolla and it is longer than the upper, prolonged into a basal spur. The upper leaf surface is soft and buttery, slick and sticky to attract and ensnare invertebrates to the fleshy leaves.



***Pinguicula vulgaris* L.**

**Butterwort; grassette vulgaire**



*Photo by Fritz McEvoy*



*Photo by Fritz McEvoy*



*Photo by Sean Blaney*

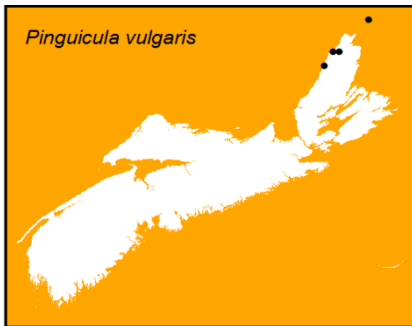
A small plant, its leaves are slick to the touch. The solitary flowers are bilabiate; scapes 1–3, reaching 15cm in height. Bracts are absent. Corollas are blue to purple. The rosette dies back in winter and a central perennating hibernaculum remains; bulbils may be formed at the base of the hibernaculum, the number varying with latitude.

Flowers from June through July.

Grows in moist habitats as on rock ledges and streamsides, especially of basic rocks.

Limited in NS to northern Cape Breton: Saint Paul Island, near the mouth of the Cheticamp River, Corney Brook gorge and along Southwest Brook, amongst other places.

Ranges from Greenland to AK, south to NY and MI.



## ***Utricularia* L.**

### **bladderworts**

Worldwide, the bladderworts total about 100 species. All are herbaceous aquatics, with short-stalked bladders on stems in the water column or pools in saturated sediments or peat. There is a vacuum inside the bladders (modified leaves) and when small prey (rotifers or small arthropods) trigger a sensitive hair at the trap door, the prey and its surrounding water are drawn into the trap and digested with the aid of enzymes. The apparent leaves (they are branches) are fine and linear. Flowers may be yellow or purple, arranged in racemes that are subtended by bracts. Calyx is bilabiate, the upper wider than the lower. Corolla is also bilabiate, with up to five lobes, spurred at the base.

#### Key to species

- |   |                            |
|---|----------------------------|
| A. Leaves absent or minute; bladders absent or tiny.                                  | B                          |
| B. Common plant; bracts with a pair of bractlets.                                     | <i>Utricularia cornuta</i> |
| bb. Uncommon; bractlets absent.   | C                          |
| C. Flowers violet, solitary and terminal.   | <i>U. resupinata</i>       |
| cc. Flowers yellow, few or solitary.  | <i>U. subulata</i>         |
| aa. Leaves highly dissected, conspicuous on submerged stems; bladders well-developed. | D                          |
| D. Leaves whorled, 4–9.   | E                          |
| E. Flowers rose-purple; leaves slender.   | <i>U. purpurea</i>         |
| ee. Flowers yellow; upper leaves with rachis swollen into floats.                     | <i>U. radiata</i>          |
| dd. Leaves all alternate.   | F                          |
| F. Leaf segments flat; lower lip of the corolla twice as long as the upper one.       | G                          |
| G. Bladders on leafless branches.   | <i>U. intermedia</i>       |
| gg. Bladders on leaves.   | <i>U. minor</i>            |
| ff. Leaf segments filiform; lower lip of the corolla equal to upper in length.        | H                          |

- |   |                       |
|---|-----------------------|
| H. Plant forming tangled submerged mats; flowers fewer than 6 per peduncle.     | <i>U. gibba</i>       |
| hh. Plant loosely floating; flowers more than 6 per peduncle.                   | I                     |
| I. Peduncles with 1 to several scales below the bracts; lower lip 10–20mm long. | <i>U. macrorhiza</i>  |
| ii. Scales absent lower lip <8mm long.  | <i>U. geminiscapa</i> |

***Utricularia cornuta* Michx.**

**Utriculaire cornue**



*Photo by Martin Thomas*

Usually this common species has no leaves or only tiny scales. Minute bladders are sometimes seen, on the roots. Stem is simple, to 25cm tall. The flowers are arranged in a terminal raceme, nearly sessile and brilliant yellow in colour. The plants sometimes form dense colonies over considerable area.

Flowers from June through September.

Grows on exposed substrate such as lacustrine sands, peaty, mucky depressions in wetlands.

Common throughout NS.

Ranges from NF to AB; south to TX and FL; WA.

***Utricularia geminiscapa* Benj.**  
**utriculaire à scapes géminés**



*Photo by Sean Blaney*

A smaller species than *U. vulgaris* which it resembles. Flowers are few and the inflorescence is not subtended by bracteate scales.

Flowers from July to September. Cleistogamous flowers are often present.

Frequent in highly acidic waters such as in bog pools, peaty quagmires in barrens and some pools in sluggish streams.

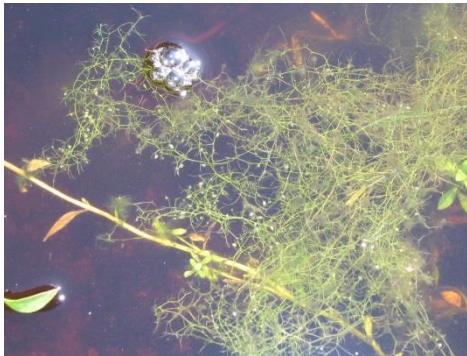
Scattered from Yarmouth to Kings Counties and to northern Cape Breton, although not found along the Northumberland shore.

Ranges from NF to ON, south to IA and NC.



*Photo by Sean Blaney*

***Utricularia gibba* L.**  
**utriculaire à bosse**



*Photo by Sean Blaney*

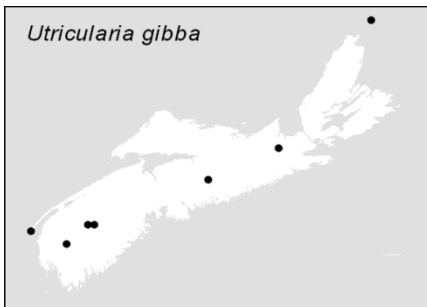
This very slender plant has creeping stems from which the scapes arise, rarely exceeding 10cm in height. There are only one or two flowers on each.

Flowers late June through September.

Found in shallow waters along lakeshores, small pools and



Photo by Sean Blaney



ponds in peatlands.

More frequent in the southwest counties; scattered localities to Saint Paul Island.

Ranges from NS to ON, south to TX and FL; west coast.

***Utricularia intermedia* Hayne**  
**utriculaire intermédiaire**



Photo by Martin Thomas

A leafy species, the individual leaves are no more than 1cm long and usually fan-shaped. They are 1–3 times cleft, the segments flat and linear, the internodes short. Bladders are quite large borne on naked stems.

This species is usually vegetative.

Creeping on the substrate of marshes and lakeshores, or in peaty hollows.

Common throughout.

Greenland; Arctic America, south to MD and CA.



***Utricularia macrorhiza* Leconte**  
**(=*U. vulgaris* L.)**



*Photo by David Mazerolle*

A large species, it is one of our most frequently encountered. Stems are long and free-floating, simple or branched. Leaves are alternate and all submerged. Bladders are conspicuous. Flowers are yellow, 6–12 on each scape, the inflorescence subtended by 1–3 bracts.

Flowers May until September.

Lakeshores, ponds, oxbow ponds, sinkholes and even in sluggish streams.

Common throughout.

NF to AK south to CA and FL. Absent in MS.



*Photo by David Mazerolle*

***Utricularia minor* L.**  
**utriculaire mineure**

Leaves are thrice-pinnate, less than 8mm long and usually have 1–2 bladders. Each peduncle bears 2–6 flowers, with the uppermost nodding. Creeping forms tend to be larger than typical floating form.

Flowers from May to August.

Bog pools, mud, ponds peatlands, lakeshores.



Scattered throughout.

Ranges across Canada, south to NC and CA.

***Utricularia purpurea* Walt.**

**utriculaire pourpre**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

A larger, distinctive species, the whorls of leaves and branches are stiffly floating. The internodes are conspicuously long, up to 5 cm. Terminal bladders are often borne on filiform leaf segments. The plant is generally submerged, but for the purple flowers on long peduncles, reaching out of the water.

Flowers from June to September.

Usually found in deep water of ponds and lakes.

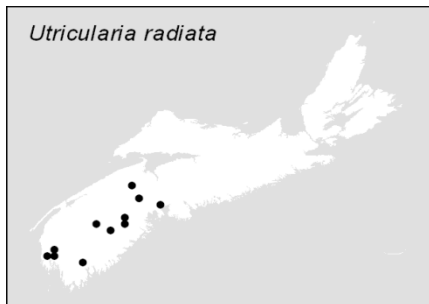
Common from Yarmouth to Halifax and Hants counties and eastern Guysborough Co. Unknown from Cape Breton.

Ranges from NF to ON, south along the coastal plain to FL and TX.

***Utricularia radiata* Small**  
**utriculaire rayonnante**



Photo by Sean Blaney



The lower leaves are finely dissected, the segments filiform and submerged, alternate on the stem. There are numerous bladders, terminal on the segments. Uppermost whorl of leaves arises from modified and inflated petioles, serving to keep the terminal part of the plant afloat. The leaves number 4–7 within the whorl, the terminal portions filiform. The scape bears a few small flowers at the top.

Flowers until November.

Frequents ponds and small lakes.

Known from Lunenburg County around to Yarmouth Co.

Ranges from NS and NB, south along the coastal plain to FL and TX; southern Great Lake states.

***Utricularia resupinata* BD Greene**  
**utriculaire résupinée**



A tiny species easily missed, it has but a few linear leaves. The simple stems are less than 10cm tall, bearing a single violet flower, subtended by a pair of connate bracts.

Flowers from July to September.

Photo by Martin Thomas



Photo by Martin Thomas

Riparian, paludal, lacustrine.

Widespread localities from Digby Neck and Salmon River Lake, Digby Co.; Argyle and Great Pubnico Lake, Yarmouth Co. and Barren Lake, Richmond Co.

Ranges from NS to ON, variously south to FL, along the coastal plain and around the Great Lakes.

STATUS: ORANGE-listed in NS.



### ***Utricularia subulata* L.**

#### **Zigzag Bladderwort; utriculaire à feuilles subulées**



Photo by David Mazerolle

Slender but erect, this species produces no leaves, or very few. The few small yellow flowers (5–6mm, Voss and Reznicek, 2012) alternate along the scape. Cleistogamous flowers are frequent and are even smaller. These are measure only 1–2mm, creamy white in colour and with no spur. This form has been named forma *cleistogama* by some authors.



Photo by David Mazerolle

Flowers from May to September.

Characteristic of the coastal-plain lakes, where shores are peaty sand.

From southern Digby County around to Shelburne Co.

From NS; MA to FL and TX along the coastal plain; MI; IN; CA.

## Limnanthaceae

### meadow-foam family

All small annual herbaceous plants, there are only 11 species worldwide. Leaves are alternate and compound. Flowers are solitary, on long pedicels arising from the upper leaf axils. The small flowers are regular and perfect. The sepals are adjacent to the petals, not beneath. Stamens equal the number of petals or double them in number, and are arranged opposite them. Carpels number 2–5, with a single style. Ovary is deeply lobed and bearing a single ovule in each locule.

### ***Floerkea* Willd.**

#### **false mermaidweed**

A monotypic genus, it is limited in range to North America. Flowers are white, three-merous and autogamous. The sepals exceed the petals in length.

### ***Floerkea proserpinacoides* Willd.**

#### **False Mermaid; floerkée fausse-proserpinie**



This herb is a delicate tenuous plant, its stems barely erect or ascending. Leaves are cleft into 3–5 narrowly oblanceolate leaflets. The solitary flowers arise on slender pedicels from the leaf axils, equal in length to the leaves and petioles.

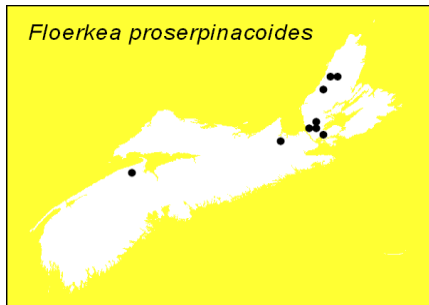
Photos by Martin Thomas



Flowers in spring, until late June.

Limited to ravine slopes beneath deciduous forests, riparian forests.

Known from several Cape Breton localities, such as Glenora Falls. Reported from Coldbrook and Sheffield Mills, Kings Co., Truro and Antigonish Co.



Ranges from NS; QC to ON, south to TN; LA in the east; BC, south to CA, east to ND and CO.

## Linaceae

### flax family

There are 200 species of flax and relatives, clustered in only six genera. Most are herbaceous, with simple, sessile leaves. Their flowers are aggregated into cymes, panicles or racemes. Regular flowers are perfect and hypogynous, 4–5-merous. Sepals are distinct; petals unite to form a tube. Fruits are septate capsules.

#### Key to genera

Flowers 5-merous; sepals entire or toothed.

*Linum*

Flowers 4-merous; sepals with 3 lobes, across their summit.

*Radiola*



## ***Linum* L.**

### **flax**

Cosmopolitan, there are 200 species worldwide. Staminodes are present in some species, alternating with the stamens. Sepals are marked with 1–5 veins, usually ciliate. Leaves are very narrow, linear or oblanceolate.

Key to species

Petals blue; fruit 5–20mm thick.

*Linum usitatissimum*

Petals white; fruit <6mm thick.

*L. catharticum*

### ***Linum catharticum* L.**

#### **Fairy Flax; lin purgatif**



*Photos by Sean Blaney*



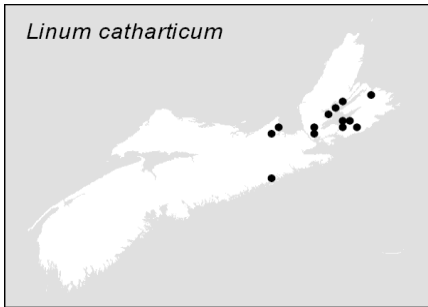
Very slender, this plant bears tiny opposite cauline leaves. Tiny white flowers are distant in a tenuous panicle. Plants are glabrous.

Flowers from June to August.

Grows on moist, seepy ground, as on hillsides, banks or other grassy areas.

Scattered along the Northumberland shores to eastern Cape Breton.

An introduced species from Europe. NF to ON, south to MI and PA.



***Linum usitatissimum* L.**

**Common Flax; lin cultivé**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

Glabrous and erect, plants may reach 60cm tall. This species is more robust than the previous one. Narrow leaves may be elliptic or linear, their margins entire. Flowers are borne in a loosely branched panicle. Sepals are elliptic or ovate and prominently ribbed. Petals are nearly square, bluish to purple.

Flowers July and August.

Dry sterile soils of fallow ground, railbeds and roadsides.

Once widely planted for its fibrous stems (linen), not long-persistent. Collections from central Nova Scotia are historic. Recently collected from Kings and Halifax counties, roadside and at site of former grain elevators.

Widely planted after introduction from Europe, throughout the continent, from the high Arctic southward.

## ***Radiola* Hill.**

### **Tiny All-seed**

A monotypic genus, minute in size, at least in Nova Scotia. Freely-branching from the base, these plants produce flowers less than 4mm wide. Their sepals are split at the top.

## ***Radiola linoides* Roth.**

### **Tiny All-seed; radiole faux-lin**



*Photo by David Mazerolle*

Compact little tufted plant, rarely exceeding 5cm in height. Stems repeatedly branch in pairs. Plants bear tiny leaves that are nearly ovate. Flowers are crowded in a broad, leafy terminal inflorescence. A hand lens may be required to see the flowers.

Summer-flowering in July and August.

Crevices, dry, sandy or stony soil as on roadsides, old fields on coastal headlands.

Found along the coast from eastern Cape Breton to Brier Island; many offshore islands.

Introduced to North America from Europe. Limited to NS, NB and ME.

## **Lythraceae**

### **loosestrife family**

Twenty-five genera with nearly 500 species comprise this family, but only two genera reach Nova Scotia. Typically flowers are perfect, regular and 4–8-merous. Petals are epigynous or inserted. Stamens number at least as many as the petals or double. They are inserted into the hypanthium, which bears but a single style. Leaves are simple and with entire margins, usually whorled, less frequently alternate.

## Key to genera

Hypanthium equal in length and breadth; flowers 4–5 merous; native wetland or emergent plant.

*Decodon*

Hypanthium much longer than broad; calyx and corolla 6-merous; introduced, invasive plants.

*Lythrum*

## ***Decodon* JF Gmelin** **water-willow**

A monotypic genus of North America, the species is a perennial with slender emergent stems, fibrous at the submerged base. Sometimes plants are found rooting from the tip. The leaves are opposite or whorled and the flowers arranged in dense terminal cymes, from the upper leaf axils.

***Decodon verticillatus* (L.) Ell.**  
**(incl. var. *laevigatus* Torr. And Gray.**  
**Water-willow; décodon verticillé**



*Photo by Sean Blaney*



An herb with smooth stems that become spongy at the base. Leaves are opposite and narrowly lanceolate on short petioles. Beautiful fall colours of red and violet mark this species, a striking sight when the colony is large. Flower clusters are distant.

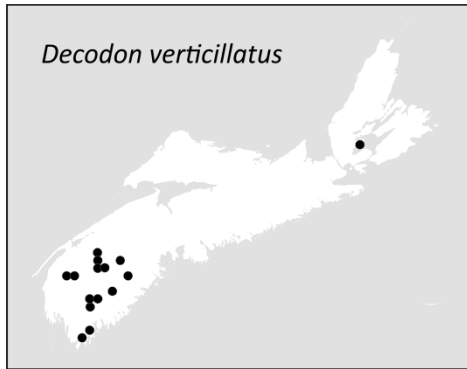
Flowers during July and August.

Sphagnous margins of ponds or lakes.

Rare: Shelburne County and Digby County; Kejimikujik National Park.

Ranges from NS to ON, south to TX and FL.

Photo by David Mazerolle



## ***Lythrum* L.**

### **loosestrife**

Cosmopolitan in distribution, the loosestrifes comprise about 30 species. A single troublesome ornamental is naturalized throughout Nova Scotia. Worldwide, they are shrubs or herbs; their leaves are opposite or whorled. Flowers are axillary or in terminal cymes. Flowers are six-merous, white to purple. Stamens or styles may be dimorphic or even trimorphic. Fruit is an enclosed capsule.

### ***Lythrum salicaria* L.**

#### **Purple Loosestrife; salicaire commune**



Photo by Sean Blaney

A tall perennial, plants are sparsely villous. Leaves are sessile and cordate at the base, reducing in size towards the apex of the plant. Flowers are borne in the axils of the reduced leaves forming a showy terminal inflorescence of magenta flowers.

Flowers throughout the summer.

Low ground of ditches, meadows, fields, wetlands, highway verges. Opportunistic in wetlands of modified hydrology, ie. drained and ditched and therefore indicates disturbance. It has not invaded any meaningful native and undisturbed wetlands.





*Photo by Sean Blaney*

Throughout the province and actively spreading. Control measures are being studied.

Spread across North America with the exception of GA, FL, LA and AZ.

Of concern and banned as a noxious weed in many jurisdictions.

A small population of ***Lythrum hyssopifolia*** (Hyssop Loosestrife) was recently discovered growing in a shallow puddle in Port Williams, Kings Co. It is not known if this plant still persists at this location.

## Malvaceae mallow family

A large family, it includes prized ornamentals such as hibiscus and the textile cotton. Nova Scotia has but two genera of the 75 known. Ours are escaped garden flowers and weedy ruderals. The hollyhock, a much-loved flower, is cultivated locally. Typical of the more than 1000 species, are flowers with numerous stamens, united to form a tube around the pistil. Petals are large and showy, delicate in texture.

### Key

Leaves cordate and merely toothed, not lobed; ovules (seeds) 2 or more per carpel.

*Abutilon*

Leaves serrated, variously palmately divided; ovules (seeds) 1 per carpel.

*Malva*

## ***Abutilon* Miller**

### **velvet-leaf**

A warm-temperate genus, we have a single species out of more than 100, in NS. Ours is an adventive in sandy soils of gardens and fallow fields. Broadly cordate leaves are densely white tomentose, alternating along the stems. Yellow flowers are axillary.

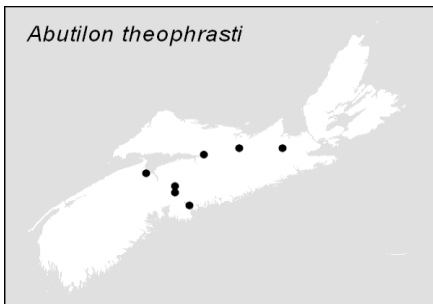
### ***Abutilon theophrasti* Medik.**

**Indian Mallow, Velvet-leaf or India Hemp; abutilon de Theophraste**



*Photo by Martin Thomas*

Plants are tall annuals, reaching 1.5m in height. Very large leaves exceed 18cm in length, softly tomentose; the hairs are stellate. Petioles are equal in length to the blades. Leaves are held stiffly erect in daylight, softly drooping by evening. Flowers may be 2.5cm wide. Carpels commonly number 15, with recurved beaks. Plant has an unpleasant odour if crushed.



*Abutilon theophrasti*

Flowers from July to October.

Fallow fields, waste ground, in sandy soils.

Recently reported from Grand Pré, Wolfville and Halifax.

Ranges throughout suitable habitat in North America.  
Introduced from India.

## ***Malva* L.**

### **mallows**

Flowers have distinctive pistils containing a ring of single-seeded carpels, 10–20 in number.

Key to species

A. Leaves 5–7 palmate lobes, cleft halfway or more; flowers large and showy,  
solitary or terminally crowded.

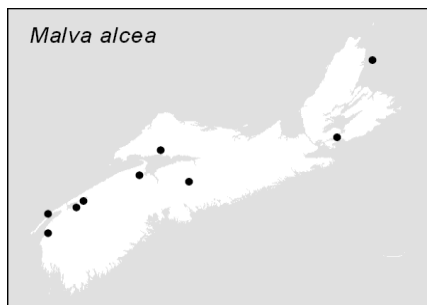
B

- B. Calyx subtended by lanceolate or linear bracts; bracts lightly pubescent; leaves twice palmate, deeply cleft. *Malva moschata*
- bb. Calyx subtended by ovate bracts; bracts densely pubescent with stellate hairs; leaves shallowly lobed or coarsely toothed. *M. alcea*
- aa. Leaves nearly round, coarsely serrate, shallowly lobate; flowers axillary, small. C
- C. Plants erect, 1–2m tall; leaves shallowly palmate. D
- D. Bracts ovate-obovate; corolla reddish purple, to 1.5cm long;. *M. sylvestris*
- dd. Bracts narrowly lanceolate to linear; corolla to 1cm long, blue or white. *M. verticillata*
- cc. Plants prostrate to arcuate; leaves nearly round, cordate at the base; lobes if present, very shallow. *M. neglecta*

***Malva alcea* L.**  
mauve alcée



Photo by Martin Thomas



Leaves are not so deeply cleft and not so ragged in appearance as those of *M. moschata*. Our plants tend to have more deeply-coloured flowers than those of other places.

An occasional escape from cultivation.

Scattered in St. Peter's, Richmond Co; Nine Mile River, Hants Co. Records too from Digby and Annapolis counties.

Ranges from NS to ON and south to IN and PA; SK. Originally introduced from Europe.

***Malva moschata* L.**

**Musk-mallow; mauve musquée**



*Photo by Martin Thomas*

Standing up to 1m in height, Musk-mallow has a single terminal flower or clusters, of up to seven white, pink or bluish flowers. The corolla is showy, with triangular petals. Calyx formed of ovate pointed sepals, subtended by linear or lanceolate bractlets. Calyx, pedicels and bractlets are often of varying degrees of hirsute. Leaves are variable in size and divisions.

Flowers late in June and July.

Roadsides, waste ground, old gardens in conspicuous patches.

Scattered throughout, although less frequent east of Halifax along the coast.

NL to MB, south to MO and NC; west coast. Introduced from Europe.

***Malva neglecta* Wallr.**

**(=*M. rotundifolia* L. auct. non.)**

**Dwarf Mallow; Cheeses; mauve négligée**

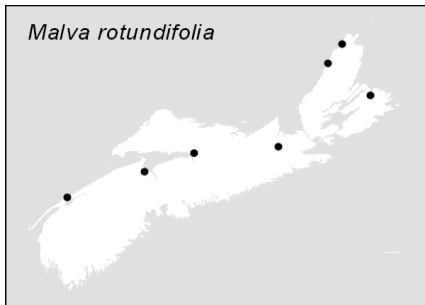


*Photo by Martin Thomas*

Kidney-shaped leaves on this weedy species are carried on long petioles and deeply notched at the base. Flowers are borne on very short pedicels, their carpels smooth.

Flowers from June through the summer until October.

Gardens, yards, waste areas where it forms mats.

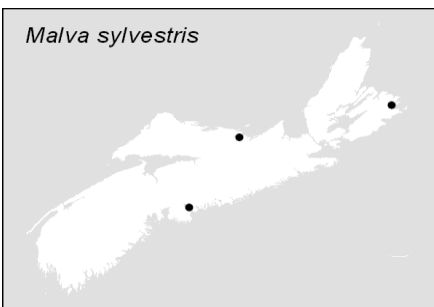


Becoming common and widespread on disturbed soils especially in the Annapolis Valley. Scattered elsewhere.

NL to AK, south to TX and GA. Introduced from northern Africa and Eurasia.

***Malva sylvestris* L.**

**High Mallow; mauve de bois**



Leaves with 3–7 lobes, often only three. Flowers produced in the leaf axils on short pedicels; usually purple.

Flowers from early summer until frost.

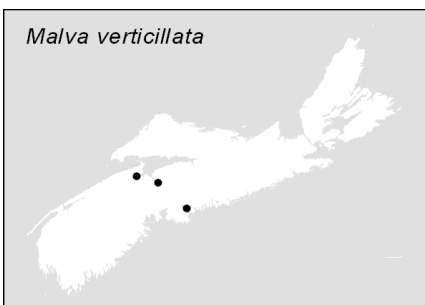
Waste soils, roadside.

So far only an urban weed, Sydney, Halifax and in Pictou County towns.

NS to BC, variously south to TX and NC. Introduced from Europe.

***Malva verticillata* L.**

**Whorled Mallow; mauve verticillée**



This species has its leaves both lobed and serrate. Flowers are reduced in size and carried in the leaf axils; their pedicels are very short.

Flowers July to September.

Local garden weed.

Collections from Windsor and Halifax are historic. Perhaps no longer persisting.

NS to AB and variously south to CA, NM and MD. Adventive



from Europe.

## Melastomataceae

### melastome family

Four hundred species are included in this family of primarily South American plants. A single species reaches Nova Scotia.

#### ***Rhexia* L.**

#### **Meadow-beauty**

Terminal cymes of showy flowers range in colour from white to pink and magenta. They are four-merous. Hypanthia are tubular at anthesis, becoming urceolate in fruit. The sepals are persistent. Anthers have a short fragile connective spur at their bases. Fruits are capsules. Leaves are sessile and cauline, mostly with three veins. They are also glandular. Twelve species are known, all eastern in North America.

#### ***Rhexia virginica* L.**

#### **Meadow Beauty; rhéxie de Virginie**



*Photo by David Mazerolle*

Simple and unbranching, the opposite leaves clasp the stem, which is puberulent. Leaves are strongly ribbed, bristly serrate and hirsute. Two very small leafy bracts subtend the peduncle. Flowers are magenta, bearing large yellow stamens surrounding a single pistil.

Flowers July and August.

Open lakeshores in peat or sand. A striking part of the coastal plain floral assemblage on lakeshores and in wet meadows on sand or peat.

Locally abundant in southwestern counties, to Annapolis and Lunenburg counties.

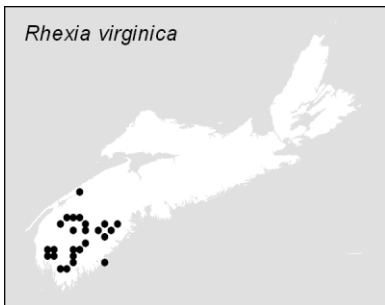


*Photo by Sean Blaney*

Disjunct populations in NS, ON and New England; south to GA and AL.



*Photo by Martin Thomas*



## Menyanthaceae

### buckbean family

These widespread species are associated with aquatic habitats. Their leaves are alternate and simple, or sometimes growing in threes. Flowers are perfect although sometimes functionally unisexual on dioecious plants. Corolla is sympetalous, with five lobes. Stamens are attached to the corolla, alternating with the lobes. Fruits may be capsules or berries.

#### Key to genera

Leaves with 3 leaflets; emergent; flowers borne in a raceme.

*Menyanthes*

Leaves simple, floating; flowers arranged in an umbel.

*Nymphoides*

### ***Menyanthes* L.**

#### **Buckbean**

This is a monotypic genus, circumboreal in range. Leaflets are borne in threes atop a long petiole, sheathing at the base. Flowers are carried on a scape loosely arranged in a raceme, subtended by bracts. Calyx is deeply cleft, its lobes are hirsute. The corolla is distylic.

#### ***Menyanthes trifoliata* L.**

##### **Buckbean; trèfle d'eau**



*Photo by David Mazerolle*

Leaves are of a leathery texture. Whitish flowers ascend in an erect raceme, scape arising from the base of the plant. Corolla is pubescent within.

Flowers in June.

Emergent from stagnant pools and bogs. Often dominant.

Common at Truro, Kentville, Amherst, to northern Cape



Photo by Sean Blaney

Breton. Less frequent southward and known from Sable Island.

NL to AK, south to CA, NM, and NC.

## ***Nymphoides* Seguiet floating heart**

Truly aquatic, there are 20 species of these herbs worldwide. Our single native species is dioecious. Leaves either arise directly from a rhizome on long floating petioles, or on petioles arising at the base of the inflorescence. Calyx is lobed, the five segments oblong. The corolla is also cleft into five pubescent lobes. There may be a yellow gland at the base of each lobe.

### Key to species

Fertile stem with a pair of leaves at the summit subtending the umbel;  
calyx >8mm long; flowers yellow.

*Nymphoides peltata*

Fertile stems with a single leaf at the summit arising at the base of the  
umbel; calyx <8mm long; flowers white or creamy.

*N. cordata*

***Nymphoides cordata* (Ell.) Fern.**

**Floating Heart; faux nymphéa à feuilles cordées**



Photo by Ross Hall

Floating leaves ovate to cordate on long petioles attached at the base of the notch on the lower surface. The tuft of roots floating below the leaves should separate them from water lilies. Flowers are very small and white.

Flowers in July and August.

Quiet waters of lakes and ponds. Often large patches.

Common throughout although more abundant in the southwest.

NF to ON, south to MD; disjunct from NC to FL and LA.



Photo by Sean Blaney

***Nymphoides peltata* (Gmel.) Kuntze**

**Yellow Floating Heart; faux nymphéa pelté**



Photo by Rebecca Douglas

Leaves are similar to the previous species although somewhat larger, forming dense mats over the water's surface. Flowers are subtended by a pair of leaves, the stems even extending above an umbel producing secondary inflorescences. Flowers are bright yellow and larger than those of the native species.

Flowers appear from July to September throughout its range.





Photo by Rebecca Douglas

Brown-water lakes where competition is low from other aquatics. According to the Global Invasive Species Database: "This species can become extremely invasive (pioneer character) in shallow, slow-moving swamps, rivers, lakes and ponds." It may be that in Nova Scotia it is an indicator plant of polluted and eutrophic lakes as it thrives in the nutrient-rich conditions of that habitat.

So far it is only known from Little Albro Lake, Dartmouth, where it thrives.

Ranges so far from NS; QC to ON south through Appalachian Piedmont to TX; west coast. Introduced as an ornamental from Europe.

## **Molluginaceae**

### **carpet-weed family**

Comprising 13 genera with 100 species, the carpet-weeds are small herbaceous plants with tiny flowers. The inflorescence is an open cyme or the flowers are axillary and singly borne. Most are perfect and hypogynous; sepals number 4–5. The petals may be absent; if present they are minute. There are 2–5 carpels; locules are equal. Dry fruit is subtended by a persistent calyx. Leaves are alternate or opposite, even whorled, smooth on the margins.

### ***Mollugo* L.**

#### **Carpet-weed**

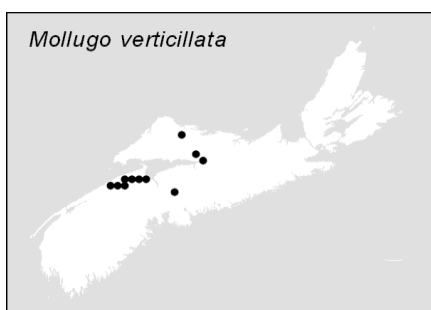
Our single species is a smooth, sprawling annual, with whorled leaves. Flowers have 3–4 stamens but no petals. Freely branching, plants form tangled, prostrate mats.

***Mollugo verticillata* L.**

**Indian Chickweed; Carpetweed; mollugine verticillée**



Photo by Sean Blaney



*Mollugo verticillata*

As above, with lanceolate leaves on very short petioles or sessile. Flowers 2–5, pale green, carried on short pedicels from the leaf nodes. Numerous seeds produced in each carpel.

Flowers June to November

Its habitat includes sandy river banks, roadsides or cultivated soils. Old railyards.

Collected from Waterville, Kings Co., in 1929. Reported from Mount Thom and Truro, further eastward. Most recently collected from roadsides in the Kingston/Greenwood area; Berwick and Cambridge in Kings Co. and from Pugwash River, Cumberland Co.

FL to TX and Mexico; migrating north to ON, NB and NS; BC.

## Myricaceae

### bayberry family

The 50 species of small trees and shrubs comprising the bayberries are all aromatic and wind-pollinated. Catkins are unisexual, comprising numerous tiny flowers. Flowers lack a perianth and often arise in axils of leafy bracts. Staminate catkins have flowers with 2–8 stamens. The ovaries each have a pair of carpels with two styles connate at the base. Fruit may be an achene, drupe or small nut. Simple leaves are arranged alternately along the stem. Distally, their margins may have a few teeth. Lower leaf surfaces are covered with shining resin dots. Our three species are low, freely-branching shrubs that bear nodulated roots. These house nitrogen-fixing actinomycetes.

#### Key to genera

A. Leaves deeply, pinnately lobed, resembling fern fronds; bracts subtending the ovary 9, forming a burr-like fruit.

*Comptonia*

aa. Leaves merely toothed; bracts subtending the ovary 2–4, deciduous in fruit, so

B

fruit not burr-like.

B. Flowers appearing before the leaves, at the summit; fruit a nutlet with 2 winged bracts.

*Myrica*

bb. Flowers appearing after the leaves expand, on the lower portions of the twigs, below the leaves; fruit globose and covered with white or gray wax.

*Morella*

## ***Comptonia* L'Hér.**

### **Sweetfern**

A monotypic genus, this colonial shrub spreads vegetatively by rhizomes. Pistillate catkins are subtended by bracts and bracteoles, persisting after maturity. Leaves are stipulate and pinnately lobed, rather than merely toothed.

## ***Comptonia peregrina* (L.) Coult.**

### **Sweetfern; comptonie voyageuse**



*Photo by Marian Munro*

Leaves alternate and up to 10cm long, 1cm wide. Their margins are notched or lobed and slightly revolute. Petioles present or not. Olive-green staminate catkins measure to 3.5cm long. These are borne distally on the previous year's growth. Pistillate catkins of flowers are dark red, carried below the staminate ones. Fruit 1–2cm wide.

Catkins mature in May.

Adapted to infertile sandy or barren soil and full sun, associated with pines and wire birch habitat, and also colonizing in blueberry fields not properly managed by burning.

Common in Kings and Cumberland Counties, southwestward. Infrequent in Cape Breton.



Photo by Ross Hall

NS to ON, south to KY and GA.

## ***Morella* Lour.**

### **Bayberries**

Slow-growing dioecious colonial shrubs, with only a single species reaching NS. Typified by the glossy green leaves and best known for the pungent aroma. The waxy white fruits may be distilled to produce the familiar bayberry scent used in candles.

### ***Morella pensylvanica* (Mirb.) Kartesz (*Myrica p.* Mirb.)**

#### **Bayberry; cirier dr Pensylvanie**



Photo by Marian Munro

A colonial species with glossy green oblanceolate leaves, the margins have a few round teeth at the summit. More robust than the following shrub, it may reach 2–2.5m in height. Staminate and pistillate catkins are borne directly on last year's wood. The tiny pistillate catkins are only 1cm long. Fruits are globose nutlets borne in small clusters, attracting several songbird species. Entire plant is fragrant.



*Photo by Martin Thomas*

Flowers in June, later than sweet gale. Usually associated with coastal habitats in NS, in bogs, barrens or heavier soils.

Abundant in southwestern NS, scattered elsewhere.

NF to ON, south to NC.

## ***Myrica* L.**

Aromatic shrubs or trees, of the 50 worldwide species we have only a single species. Species are dioecious, with the fruit a nutlet.

### ***Myrica gale* L.**

#### **Sweet Gale**



*Photo by Sean Blaney*

A compact shrub, to 1.5m in height, generally it is freely-branching. Leaves are oblanceolate, 3–6cm long, nearly sessile and with their margins serrated only distally. Upper and lower surfaces may be finely or sparsely pubescent. Pistillate catkins are ovoid, 10–12mm long.

An early-flowering shrub, April to early June.





*Photo by David Mazerolle*

Fens, marshes and various riparian settings in acidic waters.

Common throughout.

NL to AK, south to OR; east coast south to NC and TN;  
Eurasia.



## Nymphaeaceae

### Water-lily Family

All are aquatic herbs with large floating leaves arising directly from the rhizome. Petioles attach at the top of a deep sinus. Buoyancy is provided by numerous cavities on the petioles as well as the long peduncles. Flowers are perfect and regular, 4–6 sepals subtending many petals. Fruit is a follicle or berry. Many ornamentals are found in the family. Birds and mammals feed upon the seeds and rhizomes.

#### Key to genera

Flowers yellow; leaves longer than wide; pinnately veined. *Nuphar*

Flowers white or pink; leaves round; leaves palmately veined. *Nymphaea*

### ***Nuphar* Sm.**

#### **pond-lilies**

Fifteen species comprise the pond-lilies, mostly north-temperate in distribution. Sepals 5–6 (in our species) resemble the much smaller and more numerous petals. Our single species has three subspecies.

#### Key to the subspecies of *Nuphar lutea*

A. Sinus less than half the length of the midvein; anthers longer than the filaments; disk green or yellow. *ssp. variegata*

aa. Sinus half the length of the midvein or more; anthers shorter than the filaments; disk red. B

B. Sinus 2/3 or more the length of midvein; fruit without persistent stamens; petals also deciduous. *ssp. pumila*

bb. Sinus about the length of the midvein; decaying petals and stamens persistent. *ssp. rubrodisca*

***Nuphar lutea* ssp. *pumila* (Timm) EO Beal**  
**Small Pond-lily; petit nénuphar jaune**

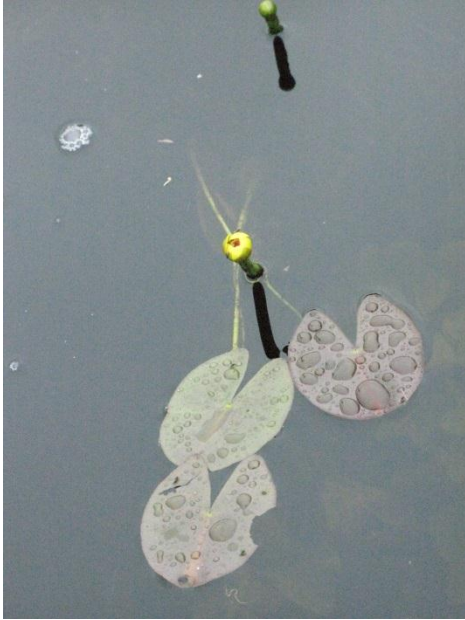


Photo by Sean Blaney

Smallest of the three subspecies, the flowers are no more than 2cm across. The leaves arise on lightly pubescent petioles; their sinuses extend about 2/3 the length of the midvein. Petioles are flattened on the upper surface.

Flowers in August.

Ponds and gently flowing streams; lakeshores and gypsum sinks.

Throughout the province but most common from Kings and Cumberland counties to Antigonish. Only a few Atlantic collections.

NS to MB, south to IL and NJ.

### ***Nuphar lutea* ssp. *rubrodisca* (Morong) Hellquist & Wiersema**

#### **Yellow Pond-lily; nénuphar à disque rouge**



Photo by Sean Blaney

Intermediate to the other subspecies, its leaves measure 7–20cm in length. The sinus is only about half the length of midrib. Yellow flowers are larger than those of *ssp. pumila*, exceeding 3cm across.

Flowers July to September.

Lakeshores and slow-moving streams. From Yarmouth to Pictou counties, infrequent on the Atlantic coast side.

NS to ON, south to MN and NJ.



Photo by David Mazerolle

***Nuphar lutea ssp. variegata* (Durand) EO Beal**

**Cow-lily; grand nénuphar jaune**



*Photo by Sean Blaney*

A robust subspecies, cow-lily is the largest form. Leaves may reach 26cm in length, on petioles 1cm in dia. Sinus is shallow, relative to leaf length. Flowers 4–5cm wide.

Flowers from July to August.

Characteristic of bog pools, Stillwater lakes and quiet streams. Appears emergent in mucky ephemeral pools. Rhizomes are valuable food source for muskrat and beaver of this and the following species.

Common throughout and on Sable Island.

NL to AK south to ID, KS, and NJ.

***Nymphaea* L.**

**Water-lily**

Of 30 species found worldwide, only one is native to NS although several may be expected due to the popularity of water gardening. Leaves are floating on long petioles, each with four air cavities, increasing their buoyancy. Four green sepals surround the many petals, ranging from pink to white.

***Nymphaea odorata* Aiton**

**Water-lily; nymphéa odorant**



*Photo by Sean Blaney*

Leaves are nearly round and palmately veined. Sinus forms at sharp angles to the leaf base. Flowers white or pink, measure nearly 12cm across, of elliptic or oblong petals.

From June to September.

Limited to quiet streams, lakes and shallow muddy ponds.

Common throughout, although less frequent northward.



Photo by Ross Hall

NF to AK, south to FL and CA.

## Oleaceae

### olive family

Shrubs or trees, the 600 species included in the olive family all have opposite leaves. Flowers are regular, although they may be perfect or unisexual. Calyx when present is four-merous. Corolla lobes also number four, although the corolla may be absent or the petals distinct. In sympetalous species the stamens, 2–4, are borne on the tube. The ovary is superior, divided into a pair of locules. Fruits are of several types. A prized oil is produced by the olive (*Olea europaea*). Some of our common ornamental shrubs are included in this family, such as lilac.

### *Fraxinus* L.

#### ashes

Trees of the northern hemisphere, there are 65 species in total. All bear their flowers in tight racemes or panicles. Generally they are unisexual; the calyx vestigial or absent. Our species have the corolla absent. Stamens number a single pair. Fruit is a samara, with one seed. Ash is one of our few trees bearing compound leaves.

#### Key to species

- |   |                           |
|---|---------------------------|
| A. Leaves with papillae below.  | <i>Fraxinus americana</i> |
| aa Leaves without papillae below.   | B                         |
| B. Leaflets sessile; samara winged to the base; buds blue-black.                              | C                         |
| C. Leaf rachis tomentose at the base of the leaflets; brown tomentum below along the midvein. | <i>F. nigra</i>           |
| cc. Leaf rachis glabrous or at most puberulent; brown tomentum absent.                        | <i>F. excelsior</i>       |
| bb. Leaflets petiolate; samara not winged to the base; buds brown.                            | <i>F. pensylvanica</i>    |

***Fraxinus americana* L.**  
**White Ash; frêne blanc**



*Photo by Ross Hall*



*Photo by Ross Hall*

The White Ash reaches 40m in height, its trunk clad in deeply furrowed bark, the grooves arranged in a diamond pattern. Leaflets 5–9, glaucous below. Calyx persistent in fruit.

Flowers in late May.

Open forests, often on intervalles or lowlands.

Frequent throughout NS and sometimes common.

Ranges from NS to ON, south to FL and TX.

White Ash was frequently used for small tool handles as in hammers and axes.





Photo by Martin Thomas

***Fraxinus excelsior* L.**

**European Ash; frêne commun**

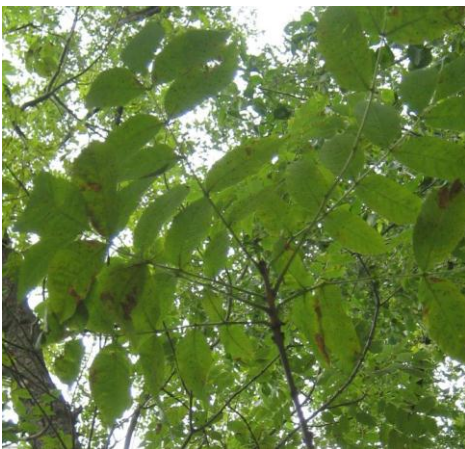


Photo by Marian Munro

A large tree with a spreading canopy, it was once popular as a shade tree. Its leaves have the rachis mostly smooth and the terminal leaflet is generally less than 10cm long, less than 3cm wide. This contrasts to those of *F. nigra*, which are larger. The leaflets are sessile, lanceolate and serrate. The calyx is absent or soon deciduous.

Once planted and vigorous in growth, escaping to roadsides and sometimes persisting at old home sites.

Scattered throughout the province.

NS to ON, south to KY. Introduced from Eurasia.

***Fraxinus nigra* Marsh.**

**Black Ash; frêne noir; wisqoq**





*Photo by Sean Blaney*

A small tree bearing yellow bark. Leaflets sessile, 7–11 in number and lanceolate in outline; they are pubescent below at the base of the midrib. Calyx is deciduous in fruit.

Flowers during May and June.

Typical habitat includes poorly drained soils and swampy woods.

Known from Digby to northern Cape Breton, scattered along the northern side, rare elsewhere.

Ranges from NF to MB south to VA and KY.

This tree is of significance to the Mi'kmaq communities, for basket-making.



*Photo by Sean Blaney*



*Photo by Beth Cameron*



***Fraxinus pensylvanica* Marsh.**  
**Green Ash; frêne rouge**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

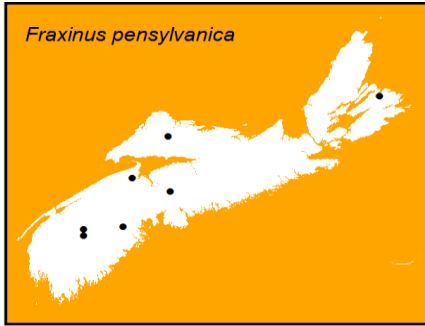
Reaching 25m in height, it also bears lanceolate leaflets. It is separated from our other native species by the presence of winged petioles attaching leaflets to the rachis.

Flowers in May.

Grows on poorly drained soils around lakes and ponds in ravines, etc.

Collected from Lunenburg, Kings and Hants counties.

Ranges from NS west to AB and south to UT, TX and FL.



*Syringa vulgaris*, the **Common Lilac** is sometimes seen, persisting near old homesteads. Its fragrant white to purple flowers are familiar to most, appearing late May and June.

## Onagraceae

### evening-primrose family

Mostly this is a family of herbs, distributed throughout the Americas, and best developed in the western US. All have simple leaves and perfect flowers; the hypanthium extends beyond the ovary. Our species have the petals and sepals two- or four-merous. Sepals are reflexed at anthesis and equal in number to the stamens and carpels. Alternate stamens may be unequal in size. Carpels are united, forming a compound ovary. Fruit is generally a capsule, although some have berries or nuts.

#### Keys to genera

- |   |                  |
|---|------------------|
| A. Flowers 2-merous; leaves all opposite; petals minute.  | <i>Circaea</i>   |
| aa. Flowers generally 4-merous; leaves mostly alternate; petals various.                            | B                |
| B. Sepals persistent; no free hypanthium; petals absent.  | <i>Ludwigia</i>  |
| bb. Sepals deciduous; hypanthium prolonged beyond the ovary; petals present.                        | C                |
| C. Seeds with a tuft of hairs distally; petals not yellow.  | D                |
| D. Inflorescence a terminal raceme; leaves alternate.   | <i>Chamerion</i> |
| dd. Inflorescence of solitary flowers arising from leaf axils or if a raceme, then leaves opposite. | <i>Epilobium</i> |
| cc. Seeds not tufted with hairs; petals yellow.   | <i>Oenothera</i> |

## **Chamerion Raf.**

### **fireweeds**

The fireweeds have recently been separated from *Epilobium*, based in part on floral features. Flowers are generally showy, arranged in terminal racemes. Leaves are lanceolate and alternate along the stem. Basal leaves are absent. Two North American species have been described, which include several subspecies.

#### ***Chamerion angustifolium* (L.) Holub** **(=*Epilobium angustifolium* L.)**

**Fireweed; Large Willow-herb; épilobe à feuilles étroites**



*Photo by Andy Dean*



*Photo by Ross Hall*

Tall and coarse, this plant bears alternate lanceolate leaves on short petioles. The showy pink to purple flowers are arranged in a terminal raceme. Petals are pointed rather than notched. Capsule is dehiscent, each seed bears a tuft of silky white hairs (coma). White-flowered forms and those with reddish sepals have also been reported. Two ssp. are reported from NS, although our material requires examination to separate them. Ssp. *circumvagum* (Mosquin) Hoch and ssp. *angustifolium*.

Flowers mid-July to August.

Conspicuous in colonies, on cleared land, after a fire or on edges of thickets and forests.

Common throughout.

Greenland to AK, south to CA, NM and NC; Eurasia.



***Circaea* L.**  
**enchanter's nightshade**

Perennial herbs, they are best developed in arctic and north-temperate regions, seven species in total. The cauline leaves are opposite. Flowers are two-merous, arranged in terminal racemes, subtended by leafy bracts. Fruits are tiny round indehiscent capsules with hooked bristles.

Key to species

Open flowers widely spaced in the inflorescence; fruit with 2 locules.

*Circaea lutetiana*

Open flowers clustered at the apex; fruit with a single locule.

*C. alpina*

***Circaea alpina* L.**  
**Small Enchanter's Nightshade**



Photo by Sean Blaney

A compact delicate plant, forming large patches where found. The leaves are ovate, toothed and paired along the stem. Basal leaves are absent. The lowermost pair is reduced in size, relative to the upper leaves. The terminal inflorescence is subtended by a series of small leafy bracts. White flowers are borne on slender pedicels, alternately arranged from the axis.

Flowers mid-June to September.



Photo by Sean Blaney

Usually in mossy wet soil beneath mixed conifers, dripping ravines, streamsides and even swamps.

Common throughout the province.

NL to AK, south to CA, AZ and NC.



***Circaea canadensis* (L.) Hill.**

**(=*C. lutetiana* L.)**

**Large Enchanter's Nightshade; circée du Canada**



*Photo by Sean Blaney*

A more robust species, with larger leaves, shallowly toothed along the margins and glaucous beneath. Flowers are widely spaced and borne on reflexed pedicels. Plants are sometimes branched. Our plants are ssp. *canadensis* L.

Flowers from July to September.

Grows in fertile soils as those found in intervals, or other alluvial wooded sites.

Scattered from Kings and Cumberland counties northward.

Ranges from NS to MB, south to LA and GA. Asia.

A vigorously spreading hybrid between our two species has been collected from the central region and northward. Its few terminal flowers are borne in a cyme and are sterile. It is intermediate between the parent species. Known as *C. X intermedia* Ehrh. The hybrid ranges from NS to MB, south to NC and SD.

***Epilobium* L.**

**willow-herb**

Both temperate and arctic, the willow-herbs span both hemispheres, 200 species in all. Their terminal flowers are four-merous and they may be solitary or arranged in racemes. Generally pink, they may also be purple or white. Ovary is extremely long and slender and the hypanthium may extend beyond it, mimicking a calyx tube. Capsule is linear and dehiscent, each of four valves containing many tiny seeds. Coma (silky tuft of hairs) is present. Leaves are opposite or alternate, always simple.

# Key to species

A. Stigmata four-parted.	<i>Epilobium hirsutum</i>
aa. Stigmata undivided.	B
B. Leaves entire, inrolled, <1cm wide; pubescence on stems not restricted to lines from leaf bases.	C
C. Plant villous.	<i>E. strictum</i>
cc. Plant with appressed pubescence.	D
D. Leaves nearly smooth on the upper surface.	<i>E. palustre</i>
dd. Leaves puberulent on the upper surface.	<i>E. leptophyllum</i>
bb. Leaves toothed and flat, >1cm wide; pubescence on stems in lines from leaf bases.	E
E. Plants arising from a turion.	<i>E. ciliatum</i> , ssp. <i>glandulosum</i>
ee. Plants without a turion.	F
F. Stems reclining or erect, <40cm, simple above; with short rhizomes, arising from axillary buds.	<i>E. hornemannii</i>
ff. Stem erect to 1m, freely branching; plants without rhizomes.	G
G. Corolla nearly white; seeds short beaked.	<i>E. ciliatum</i> ssp. <i>ciliatum</i>
gg. Corolla brown; seeds beakless.	<i>E. coloratum</i>

## *Epilobium ciliatum* Raf.

(now includes *E. glandulosum* Lehm.)

### Willow-herb



Photo by Martin Thomas

Highly variable, with early plants unbranched and reddish, while late-seasonal plants may be much more robust and entirely green. The lanceolate leaves are opposite and serrate. We have both ssp. *ciliatum* and ssp. *glandulosum* (Lehm.) Hoch & PH Raven. The latter ranges here from Yarmouth and Shelburne north along the Bay of Fundy to Cape Breton.

Flowers in July and August.



Photo by Martin Thomas

Wet soils, springy areas, seeps, cliffs and even coastal.

Common throughout.

Ranges from NF to AK, south to Gulf of Mexico. Absent only in the extreme southeast.

***Epilobium coloratum* Biehler.**  
**épilobe coloré**



Photo by Martin Thomas

A freely branching species, often difficult to separate from the previous species. The lanceolate leaves are carried on short petioles, with serrate margins. Seeds are black; the coma is cinnamon coloured, although it may be brown or grayish.

Flowers from July through October.

Low grounds and seepy soils.

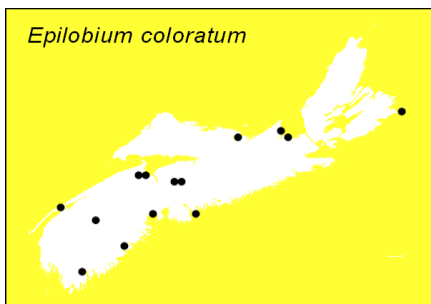
Scattered from Digby to Guysborough counties.

NF to ON, south to TX and GA.

YELLOW-listed in NS.



Photo by Martin Thomas



***Epilobium hirsutum* L.**

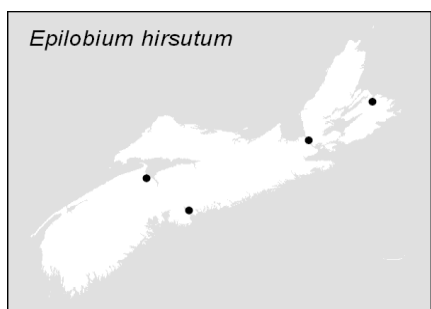
**épilobe hirsute**



*Photo by Martin Thomas*



*Photo by Martin Thomas*



Leaves are sessile, opposite on the stems and lanceolate with serrate margins. Plants produce few flowers, with their petals notched rather than pointed. Pink or purple in colour.

Flowers from July through September.

Fallow fields, roadside thickets, meadows.

An introduction collected historically from Wolfville and area, Halifax and Yarmouth. Recently found at Greenwich, Falmouth and Port Hastings. Also observed on the outskirts of Sydney.

NS to ON, south to KY; west coast. European.

***Epilobium hornemannii* Reichenb.**

**épilobe de Hornemann**



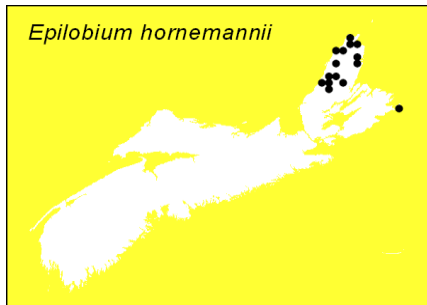
Photo by David Mazerolle

A slender plant, it has its few branches often decumbent. Terminal flowers are borne on long slender pedicels arising from the upper pair of leaves. One collection of var. *lactiflorum* (Hausskn.) D. Löve is also reported.

Flowers July and August.

Damp areas, along seeps and streams.

Northern Cape Breton.



Arctic North America, south to NY in the east; CA and NM in the west.

YELLOW-listed.

A single specimen of *Epilobium lactiflorum* Hausskn. should be examined to see if it belongs here or is a white-flowered form of another species. (ACAD) It is not reported from Maritime Canada.

***Epilobium leptophyllum* Raf.**

**Bog Willow-herb; épilobe leptophylle**





Photo by David Mazerolle

A leafy freely branching species, the leaves are narrowly lanceolate. Upper part of the stems and top surface of the leaves are densely pubescent. Carpels are glandular.

Flowers from July to September.

Frequents meadows, bogs, swales, swamps and margins of lakes or streams.

Scattered to common throughout.

Ranges from NS to AK, south to CA, NM and NC.

***Epilobium palustre* L.**  
**épilobe palustre**



Photo by Sean Blaney

A slender species with few branches, its leaves are nearly linear and smooth on their margins and strongly ascending. Generally smaller towards the apex, they range from 1–4mm wide and 10–30mm long. One or more flowers are borne at the apex surrounded by leaves. Several varieties are included here.

Flowers from July through August.

Bogs and other peatlands.

Scattered throughout Nova Scotia, but characteristic of the Atlantic side.

Ranges from NF to AK, south to CA, NM and PA.

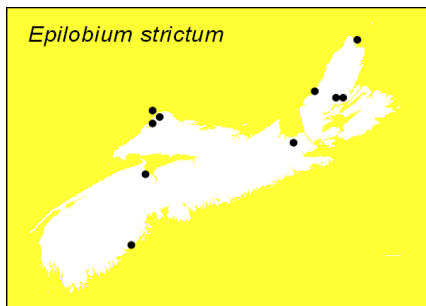
***Epilobium strictum* Muhl.**  
**épilobe dressé**



*Photo by Sean Blaney*



*Photo by David Mazerolle*



Slender and sparsely branched, this species is downy on the stems. Pink flowers are solitary or few at or near the top of the plant. Leaves are lanceolate and sometimes acute.

Flowers July to September.

Bogs and other peatlands.

Scattered throughout Cape Breton, infrequent elsewhere.

NS to ON, south to VA and IL.

YELLOW-listed.

***Ludwigia* L.**  
**water-primrose**

Best developed in tropical America, a single species reaches Nova Scotia. Flowers are typically 4–5-merous; the hypanthium is not prolonged. Sepals are persistent. Flowers are sessile from the leaf axils. Fruit is a dehiscent capsule splitting longitudinally.

***Ludwigia palustris* (L.) Ell.**  
**Water-purslane; ludwigie palustre**



*Photo by David Mazerolle*



*Photo by David Mazerolle*

Ours is a prostrate, creeping plant, wholly or partially submerged or emergent. The leaves are opposite and cauline, ovate and entire. It freely roots from the nodes. It is frequently overlooked.

Flowers from late June until September.

Shores, ditches, shallows.

Common throughout northern NS and infrequent along the Atlantic side.

NS to ON, south to TX and FL; west coast; Eurasia.



Photo by Sean Blaney

## ***Oenothera* L.**

### **evening-primrose**

About 80 species make up this genus. Recent studies have divided the North American species into three genera. Flowers are terminal, solitary or in spikes or racemes. They are four-merous, but for the eight stamens. Hypanthium is tubular, extending beyond the ovary, deciduous in fruit. Ours have yellow showy petals and narrow alternate leaves.

#### Key to species

- A. Ovary and fruit round in cross-section; fruit with 4 blunt angles; B  
stamens equal in length.
  - B. Claws on sepals free at the base; end of sepal a small lobe *Oenothera parviflora*  
or ridge.
  - bb. Claws on sepals convergent but not connate, strictly terminal. C
    - C. Stems and calyces merely pubescent or hirsute. D
      - D. Flowers to 5cm across. *O. biennis*
      - dd. Flowers >5cm across. *O. grandiflora*
    - cc. Calyx and capsule densely hirsute or villous. *O. villosa*
- aa. Ovary and fruit 4-angled or with 4 narrow wings; fruit sharply angled; E  
alternate stamens unequal in length.
  - E. Petals to 3cm long. *O. fruticosa*
  - ee. Petals <1.0cm long. *O. perennis*

***Oenothera biennis* L.**

**Evening-primrose; onagri bisannuelle**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

A coarse, erect species, densely pubescent on the stems and unopened flowers. Leaves are elliptical, cuneate at the base. Usually the fragrant flowers open at dusk.

Flowers June through until November.

Grows in dry open soil as found roadside.

Common throughout.

Throughout North America, but introduced in Nova Scotia.



***Oenothera fruticosa* L.**

**Narrow-leaved Evening-primrose**



*Photo by Martin Thomas*

Not as robust as the previous species; the inflorescence forming half of its height. Flowers are erect. Leaves are lanceolate and the stem is glabrous. Ours is ssp. *glauca* (Michx.) Straley.

Flowers from June to August.

Old field habitat, edges of thickets and roadsides. Dry, open soil.

Scattered from Yarmouth to Northumberland Strait.

NS to MB, south to OK and FL.

***Oenothera grandiflora* Ait.**

**Large-flowered Evening-primrose; onagre à grandes fleurs**

It is nearly identical to *O. biennis* but for the large flowers, the petals spanning 10cm across.

Flowers in summer.

Roadsides, dry soils. Garden escape.

One long-established population in NS at Plympton, Digby Co., where it has been thriving for more than 100 years. Also a Cumberland Co. site.

FL and AL, northward to QC and NS. Introduced from further south.

***Oenothera parviflora* L.**  
**(incl. var. *sabulonensis* Fern.)**

**Small-flowered Evening-primrose; onagre parviflore**



*Photo by Sean Blaney*

Leaves are narrowly oblanceolate and bearing small terminal flowers, separating it from *O. biennis*.

Flowers July to September.

Grows on talus, dry calcareous gravels and sands.

A common species in coastal habitats in eastern NS and spreading along roadsides. Less frequent westward, to Cumberland Co.

Across Canada and south to SC and MO.



*Photo by David Mazerolle*

***Oenothera perennis* L.**  
**Sundrops; onagri vivace**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

A smaller more compact plant than other species of the genus. The inflorescence is nodding and occupies at least half the height of the stem, in fruit. Leaves are narrowly lanceolate, sometime appearing petiolate.

Flowers July to September.

Light sandy soils.

Common throughout, although less frequent along the Atlantic coast.

NL to MB, south to MS and GA. BC.

### ***Oenothera villosa* Thunb.**

#### **Hairy Evening-primrose; onagri velue**

It bears dense pubescence on the calyces, ovaries and capsules, the hairs villous or hirsute. Ours is the typical subspecies.

Probably flowering from June to October.

Similar habitats to *Oenothera biennis*.

Several widely scattered localities are recorded: Yarmouth, Starrs Point, Kings Co. and Cooks Cove, Guysborough Co. Perhaps more frequent and merely overlooked.

NS to NT; BC; south to CA, TX and GA.

## Orobanchaceae

### broom-rape family

In total there are 150 species of these holoparasitic or hemiparasitic herbs worldwide, with only three species in three genera reaching Nova Scotia. All are fleshy root parasites here and none contain chlorophyll. They are usually white to brown in colour, their leaves are reduced to mere scales. The flowers are hypogynous, their petals united and unequal in size, the corolla bilabiate and persistent after anthesis. Stamens number four, inserted in pairs alternating with the lobes of the corolla. The fifth stamen is absent or a staminode. Calyx has 3–5 lobes, persistent in fruit. Fruit is a bivalved capsule with many seeds.

#### Key to genera

- |  |                   |
|--|-------------------|
| A. Stems freely branching; flowers dimorphic.                  | <i>Epifagus</i>   |
| aa. Stems simple, or with few branches; flowers not dimorphic. | B                 |
| B. Calyx deeply cleft above and below, or nearly regular.      | <i>Conopholis</i> |
| bb. Calyx deeply divided on the lower side only.               | <i>Orobanche</i>  |

### ***Conopholis* Wallr.**

#### **Squaw-root**

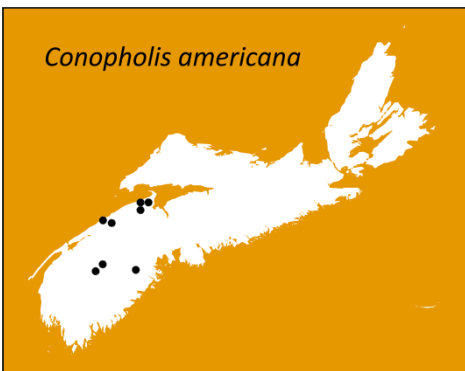
A North American genus, it includes only two species. Its simple stem is obscured by overlapping leaf scales. Flowers are crowded in a terminal spike, each subtended by a bract, smaller than the leaf scales. Bracts are tubular, split longitudinally on the lower surface. Corolla is also tubular, recurved and bilabiate. The upper lobe is entire and straight, while the lower lobe is recurved. Stamens and style are equal in length to the corolla.

#### ***Conopholis americana* (L.) Wallr.**

**Cancer-root; conopholis d'Amérique**



Photo by Alain Belliveau



This plant parasitizes trees, particularly oak. The simple stems are hidden by the overlapping scales, which are fleshy, reaching 2cm in length. Flowers are terminal, tightly clustered in a spike.

Flowers from April to July.

Associated with oaks and other deciduous species.

Reported only from the western half of the province.

Ranges from NS; QC to MB, south to FL and MS.

STATUS: ORANGE-listed in NS.

## ***Epifagus* Nutt.**

### **beech-drops**

A monotypic genus, it is typically short in stature and freely branching, the stems bearing alternate leaf scales. Flowers are borne singly on slender pedicels arising from the axils and arranged in a large loose panicle. Upper flowers are large and tubular, functionally staminate. The lower flowers are pistillate, subtended by a cuplike calyx. The corolla does not open, but the developing ovary bursts the terminal lid. Corolla and stamens are about equal in length.



***Epifagus virginiana* (L.) Bart.**

**Beech-drops; épifage de Virginie**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

Stems are dry, rarely more than 50cm tall and often persistent through the winter. Long branches bear a few alternate leaf-scales. Flowers are loosely arranged in a panicle, extending down at least the top two-thirds of the plant. Lower flowers are about 5mm long, while the upper ones are about 10mm long.

Flowers from August to October.

Associated with mixed deciduous forests where beech is common.

Especially common from Annapolis to northern Cape Breton.

Ranges from NS to ON, south to TX and FL.

***Orobanche* L**  
**broom-rape**

A cosmopolitan genus numbering 100 species at least. Flowers are solitary or borne in racemes or spikes. Ours has a campanulate calyx, cleft into five lobes. The recurved corolla tube is longer than its lobes.

***Orobanche uniflora* L.**

**Broom-rape; orobanche uniflore**



*Photo by Martin Thomas*

Not host-specific, this parasite is short, rarely taller than 5 cm. The stems are mostly naked, or marked by a few leaf scales. The pedicels are long, to 20cm, bearing a single violet flower, subtended by bulbous involucre.

Flowers June and July.

Various host trees and shrubs, alder thickets on sand plains, intervalles and roadsides.

Scattered throughout.

Ranges from NF to AK, south to the Gulf of Mexico. Absent from MB.



*Photo by Martin Thomas*

## Oxalidaceae

### wood-sorrel family

Nearly cosmopolitan, 900 species are known, in 7–8 genera. Leaves are compound and mostly basal, often divided into three leaflets or alternate along the stem. The inflorescence is a cyme or umbel, or solitary. Five-merous, each flower is perfect and regular. Petals are distinct and the stamens borne in two whorls. Outer stamens may be glandular at the base. The ovary has five locules, each with at least two ovules. Fruit is a septate capsule.

### *Oxalis* L.

#### wood-sorrels

Most of the family is included here. Stamens are arranged in two series, the outer whorl is shorter. Leaves are divided into three obcordate leaflets. Most are perennial.

#### Key to species

- |   |                       |
|---|-----------------------|
| A. Leafy stem absent; leaves basal; flowers white to purple.                          | <i>Oxalis montana</i> |
| aa. Petals with a leafy stem; leaves alternate; flowers yellow.                       | B                     |
| B. Plants rhizomatous; stipules lacking; hairs on the stem jointed and blunt.         | <i>O. stricta</i>     |
| bb. Plants stoloniferous; stipules prominent; hairs on the stem not jointed, pointed. | C                     |
| C. Stem ascending or reclining, not creeping; seeds with white ridges.                | <i>O. dillenii</i>    |
| cc. Stem creeping and rooting; seeds brown.   | <i>O. corniculata</i> |

### *Oxalis corniculata* L.

#### Creeping Wood-sorrel; oxalide cornue



Photo by Martin Thomas

Its creeping stems bear puberulent estipulate petioles.. Leaves may be purplish and are small, about 4–21mm wide. Yellow petals may be marked with nectar guides.

Flowers as early as April, often until November.

Waste soils and gardens, near greenhouses. An introduced plant with low invasive potential.

So far reported from Truro, Wolfville, and Kentville.

Known from most provinces and states. Introduced in Canada.

***Oxalis dillenii* Jacq.**  
**oxalide du Dillenius**



*Photo by Jean and Sean Timpa*



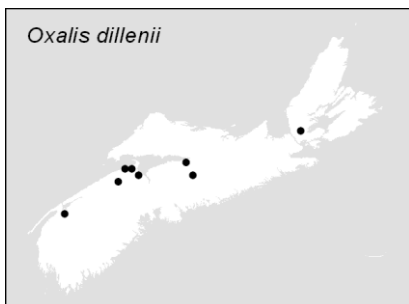
*Photo by Jean and Sean Timpa*

Forming colonial mats, this species is less common than *O. stricta*, and its capsules are much more exerted, extending to 2.5cm. Stems range from green to dark-brown, bearing appressed pubescence. Inflorescence is an umbel of 1–5 flowers. Pedicels in fruit, are descending, but the capsules are held erect. The white markings across the capsules require a hand-lens to see.

Fallow ground and in clearings.

Northern in NS, from Annapolis County to Antigonish Co.

NS to AB, southward. Absent from MB. Introduced here.



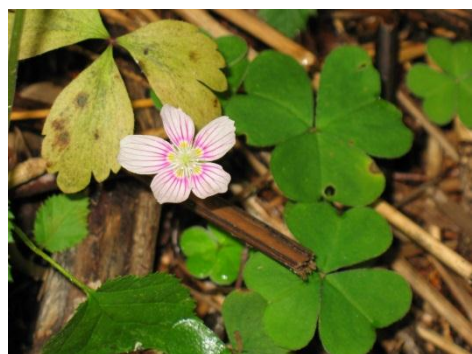
***Oxalis montana* Raf.**

**(*O. acetosella* auct. non L.)**

**Wood-sorrel; oxalide de montagne**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Leaves are all basal and long-petiolate, the petioles villous. Leaflets are three, broadly obcordate. Solitary flowers arise on long slender peduncles, softly puberulent and extending well above the leaves. Petals are white, bearing faint violet nectar guides, slightly mucronate. Peduncles bear a pair of tiny bracts midway along their length.

Flowers from early June through July.

Damp, mossy woods, banks, treed swamps and in seepy ravines.

Common throughout.

Ranges from NF to ON, south to TN and GA.



***Oxalis stricta* L.**

**Yellow Wood-sorrel; oxalide d'Europe**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

Purplish stems may be ascending or reclining, but never creeping. Arising from a pubescent rhizome, the plants may reach 40cm in height. Leaves are borne in irregular whorls, their petioles at most puberulent. Inflorescence is solitary and terminal, the flowers arranged in a cyme. Capsules 8–12mm, glabrous or softly hairy.

Flowers from May until frost.

Tolerates a wide variety of habitats, where the soil is open and disturbed.

Common throughout.

Cosmopolitan, and probably native to this continent. Introduced into Canada.

## Papaveraceae

### Poppy Family

Mostly herbaceous, only three of 25 genera reach Nova Scotia. They are typified by the acrid latex contained within, which may be variously coloured. Leaves are alternate and lobed, or toothed. Regular flowers are usually showy, comprising 2–3 sepals, enclosing many stamens and up to 12 petals. They are singly carried atop a peduncle. Fruit is a unilocular capsule, further divided into as many as 20 valves.

#### Key to species

- A. Petals >8; cauline leaves absent, basal leaf 1; native perennial.
- aa. Petals 4 or 6; cauline leaves present; introduced annual or biennial.
  - B. Inflorescence an umbel; flowers yellow, small.
  - bb. Inflorescence a single flower, usually red, purple or white.

*Sanguinaria*

B

*Chelidonium*

*Papaver*

## ***Chelidonium* L.**

### **Celandine**

A monotypic genus, originating in Asia, the plants contain a saffron-coloured latex, desirable as a stain or dye. Plants are branching, a feature not common amongst the poppy genera.

### ***Chelidonium majus* L.**

#### **Celandine, Swallow-wort; grande chélidoine**



*Photo by Ross Hall*



*Photo by Ross Hall*

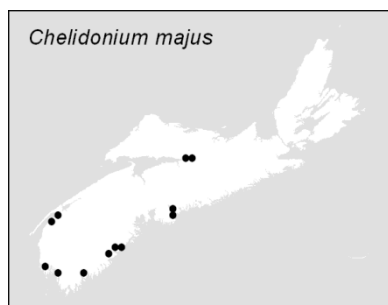
A tall plant, reaching 80cm, it releases an orange latex when bruised. Leaves are pinnately divided, nearly to the midrib. Lobes are ovate and broadly toothed. Small yellow flowers are borne in an umbel producing slender capsules 3–5cm long.

Summer flowering, July and August.

Disturbed soils and old gardens.

Naturalized about towns and settlements: Point Pleasant Park and various gardens in Halifax. Southern counties; Truro.

Elsewhere it is found from NS to MB, variously south to GA; western. Introduced from Europe as a source of dye.



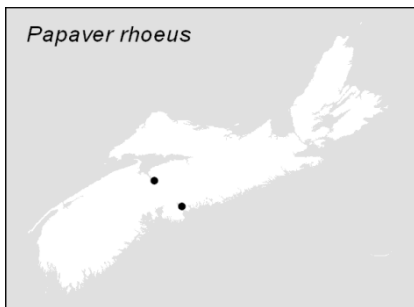
***Papaver* L.**

**Poppies**

Treasured ornamentals, the poppies have been naturalised on all continents, but for South America. None are native to Nova Scotia, but occasionally several will persist casually. Single flowers grace tall slender peduncles. Usually red or salmon, there are four petals.

***Papaver rhoeas* L.**

**Corn Poppy; Shirley Poppy; grand coquelicot**



Flowers have a bright red corolla with dark centres. Plants appear to be bristly. Leaves and stem are glaucous.

Summer-flowering.

Persists on disturbed and compact soil.

Collections from Amherst, Pictou, Sydney and Halifax. Reported from near ports in the northern counties.

Widely distributed across North America after introduction from Europe.

Very occasionally the yellow-flowered California Poppy, *Eschscholzia californica* Chamisso is seen, as at Cheticamp. They are introduced from the American southwest.

***Sanguinaria* L.**

**Bloodroot**

Another monotypic genus, this one is limited to North America. Bloodroot is both perennial and colonial. Its graceful dark-green leaves embrace a single delicate white flower, a fleeting beauty in early spring. The thick rhizomes exude an acrid latex, approaching the colour of blood. Leaves are palmately lobed and widely crenate, arising on long petioles.

***Sanguinaria canadensis* L.**

**Bloodroot; sanguinaire du Canada**



*Photo by Eugene Quigley*



*Photo by Sean Blaney*

Leaves persist throughout the summer, forming a lacy green carpet. They are round and deeply cleft, with scalloped margins. White flowers produce a capsule, 3–5cm long.

Look for flowers in early May.

Streamside or on alluvial terraces, in the shade, just above high water.

Rare in Kings and Hants counties. Common in Colchester Co.; scattered from Cumberland County to Cape Breton.

NS to MB, south to FL and TX.

## **Plantaginaceae**

### **plantain family**

The three genera comprising this herbaceous family, are typified by having simple leaves, either basal or cauline, and oppositely arranged. Their veins are mostly parallel. Flowers are perfect, regular and four-merous. Calyx is sometimes irregular. Stamens reduced to 1–3, alternating with lobes of the corolla. Fruits may be capsules, achenes or nuts.

#### **Key to genera**

Flowers solitary or in threes; fruit indehiscent, single seeded.

*Littorella*

Flowers arranged in spikes or heads, numerous; fruit a capsule of 2 or more seeds.

*Plantago*

## ***Littorella* P. Bergius**

Limited to the Americas and Europe, *Littorella* includes only three species. A single aquatic herb is found in Nova Scotia. A stemless plant, the leaves arise directly from the base arranged in a whorl. Unisexual flowers are clustered in threes, their scape arising from the base. The central flower is staminate, on a long pedicel. It also bears a tiny bract midway along its length. Pistillate flowers are sessile. Achenes are enclosed by a persistent calyx.

### ***Littorella uniflora* (L.) Asch. (=*Littorella americana* Fern.)**



*Photos by Sean Blaney*

An aquatic plant, it rarely exceeds 5cm in height. Flowers are borne on long peduncles, slightly shorter than the leaves. Leaves are succulent and linear.

Flowers mid-July until mid-September.

Usually in lakes, rooting on the gravelly or sandy substrate in sheltered locations. Occasionally seen exposed.

Most frequently collected in southern Cape Breton, although it has been found scattered about the mainland.

Ranges from NF to ON, south to MN and NY.

## ***Plantago* L. plantains**

Cosmopolitan, the plantains number 200 species, with six reaching Nova Scotia. Ours are herbaceous, annual or perennial, all are acaulescent but one. Flowers are sessile, borne in the axils of bracts, but



carried in spikes or heads on long scapes. Calyx is divided into two pairs of sepals, each pair differing from the other. Corollas are long-persistent. Capsules are circumscissile.

#### Key to species

- |   |                          |
|---|--------------------------|
| A. Leaves cauline and opposite; flower heads axillary on long peduncles.            | <i>Plantago psyllium</i> |
| aa. Leaves basal; flowers terminal on long scapes.                                  | B                        |
| B. Bracts and sepals with long distinct pubescence.                                 | <i>P. aristata</i>       |
| bb. Bracts and sepals glabrous, or puberulent.                                      | C                        |
| C. Plants maritime; leaves linear and succulent; corolla tube pubescent externally. | <i>P. maritima</i>       |
| cc. Plants not maritime; leaves wide, not linear; corolla tube glabrous.            | D                        |
| D. Bracts and sepals with faint keels; seeds 2–4.                                   | <i>P. lanceolata</i>     |
| dd. Bracts and sepals prominently keeled, with raised nerves; seeds 4–30.           | E                        |
| E. Fruit dehiscent near the middle; bracts ovate.                                   | <i>P. major</i>          |
| ee. Fruit dehiscent well below the middle; bracts narrowly deltate.                 | <i>P. rugelli</i>        |

#### ***Plantago aristata* Michx.** **Buckhorn; plantain aristé**

A short-lived annual, this species is marked by almost linear leaves. It differs from *P. maritima* in not being restricted to coastal habitats. Corollas are smooth on the exterior. Linear bracts within the inflorescence soon become bristly, another distinctive character unique to this species.

Flowers from June through November.

Dry open substrate in disturbed and weedy sites.

So far known only from Halifax, although there are no extant collections.

Introduced in Canada. Extends from NS; ON, south to TX and FL; YT and along the west coast.

***Plantago lanceolata* L.**

**Ribgrass; Narrow-leaved Plantain; plantain lancéolé**



*Photo by Andy Dean*

Leaves are oblanceolate or narrowly so, nearly 30cm in length. Flower spikes are borne on long scapes exceeding the height of the leaves. Pubescence is variable but usually present. Spikes are short, no more than 3cm long and 1cm wide.

Flowers from May through October.

Usually seen in fallow fields and roadsides.

Common throughout the province.

Across Canada and southward; introduced from Europe.



*Photo by Sean Blaney*

***Plantago major* L.**

**Common Plantain; Englishman's Footprint; plantain majeur**



Photo by Marian Munro

Leaves arranged in a basal rosette, each leaf is broadly elliptic, abruptly tapered to a fleshy petiole. Succulent, the leaves are also marked by strong veins. Flowers are borne in 2–5 spikes, covered in tightly packed flowers. Capsules are 2–4mm long, ellipsoid and circumscissile. Plants are more or less puberulent.

Flowering May until killing frost late in November.

Compacted soils and disturbed sites as in lawns and along paths and roads.

Very common throughout.

European introduction and found throughout the continent but for the high Arctic.

### ***Plantago maritima* L.**

#### **Seashore Plantain; Goose Tongue; plantain maritime**



Photo by Martin Thomas

A perennial species, this plantain has narrow linear leaves. The flowers are terminal on the scapes, exceeding the leaves in height. Frequently, the inflorescence is interrupted at the base. Corolla tubes bear hairs. Ours is referenced as var. *juncoides* (Lam.) A. Gray.

Flowers June to September.



*Photo by Marian Munro*

Salt marshes, dykelands, cliffs and rock crevices in the salt-spray zone above the water; tidal flats.

Very common around the entire coast.

Greenland to AK; south to CA and VA; South America and Eurasia.

***Plantago psyllium* L.**  
**plantain des sables**

A short-lived annual, it has a sticky texture. Coarsely pubescent it bears linear cauline leaves.

Flowers from July to October.

Usually in fallow soils and disturbed sites as along roads.

Once-collected in Halifax (1950). A recent collection was made from Amherst, near the train station.

Introduced to North America from Eurasia. NS; QC to ON, south to MO and NC; west coast.

***Plantago rugelli* Decne**  
**plantain de Rugel**



*Photo by David Mazerolle*

Resembling *P. major* in most respects, but the leaves are a lighter green and borne on reddish petioles in this plant. Capsules are ovoid and 3–6mm long, dehiscent near the base.

Flowers in July and August.

A perennial weed in compacted soils such as lawns, pastures and along roads and paths.

Scattered and less frequent than *P. major*: Kings, Halifax and Colchester counties.

Ranges from NS to ON, south to MT, TX and FL. Introduced into Canada from south.

## **Plumbaginaceae**

### **leadwort Family**

Nova Scotia has a single species of about 400 described worldwide. Regular flowers are five-merous and hypogynous. The calyx is dry and usually persistent. The calyx tube is noticeably ribbed, the lobes membranous. Flowers are arranged in a corymb; producing dry single-seeded fruits.

***Limonium* Miller**  
**sea lavender**

Cosmopolitan in range, the genus includes about 200 species. Our native species is a perennial herb as are several popular garden perennials cultivated here.

Leaves are ovate or lanceolate, arising from a deep taproot. Inflorescence is a large corymb; flowers bundled in threes and subtended by two or three dry bracts. Colours range from pink to mauve and even bluish. *Limonium* is often included in the European *Statice*.



***Limonium carolinianum* (Walter) Britton**

**Sea Lavender; Marsh Rosemary; limonium de Caroline**



*Photo by Sean Blaney*

Spatulate or lanceolate leaves are borne on long petioles. Corymb sits atop a long slender scape. Pubescence is variable on the calyx. The former varieties based on this character are no longer recognized.

Flowers from mid-July until September.

A characteristic species of saltmarshes and coastal flats. Considered pioneer.

Common around the head of the Bay of Fundy and in northern Cape Breton. Scattered elsewhere.

NL to QC, south along the coast to FL and TX.



*Photo by Martin Thomas*

**Podostemaceae**  
**riverweed family**

Aquatic herbs, they number about 200 species, all preferring flowing streams with rocky streambeds. Leaves and stems appear largely undifferentiated and thalloid. The aerial flowers and fruits are

produced only as water levels drop. Perfect flowers are reduced; sepals are usually vestigial. Fruit is a capsule with many seeds within its carpels.

## ***Podostemum* Michx.**

### **Riverweed**

Seventeen species are reported, mostly of the American tropics. A single species is known from Nova Scotia, but of limited distribution. Plants are attached to rocks by basal disks. Leaves are alternate, to 10cm in length., dilated basally forming stipules. Naked sessile flowers are carried in the leaf axils.

## ***Podostemum ceratophyllum* Michx.**

### **Threadfoot**



*Photo by David Mazerolle*



*Photo by Sean Blaney*

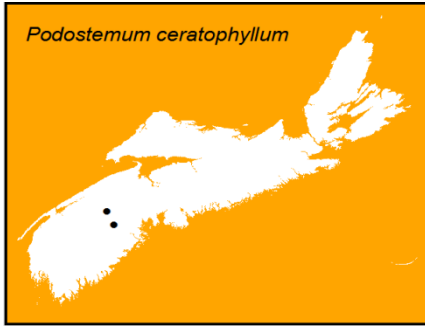
It is a small olive green, wiry plant. It resembles seaweed with its filiform habit.

Flowers from July to September.

Underwater on rocks in fast-flowing freshwater.

Known only from the LaHave River, above and below New Germany.

Ranges from NS west to ON, south to ND, OK and GA.



## Polemoniaceae

### phlox family

Most diverse in western North America, NS has but three escapes from cultivation of the 300 plus species described. Herbaceous plants, they have perfect, hypogynous flowers. Corolla is sympetalous, five-merous, the lobes sometimes unequal in size. The inserted stamens alternate with the lobes. Tube is sometimes ribbed, alternating with translucent patches. Style is terminal; stigmata number three. Fruits are capsules.

#### Key to genera

Leaves opposite; corolla lobes >1cm wide; garden escape.

*Phlox*

Leaves alternate; corolla lobes <1cm wide; railroad introduction.

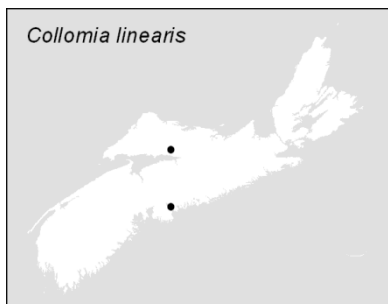
*Collomia*

### ***Collomia* Nutt.**

Western in distribution, 13 species have been described in total. The single introduction to Nova Scotia has alternate, entire leaves. The flowers are terminal on the stems. Calyx is of a papery texture and has greenish pointed lobes. Corolla is tubular, pink or blue and greatly exceeding the calyx. Stamens are unequal in length. Seeds are gelatinous when wet.

#### ***Collomia linearis* Nutt.**

**Tiny Trumpets; collomia à feuilles linéaires**



A slender plant, the leaves are narrowly lanceolate. Tiny flowers are clustered and subtended by a whorl of leafy bracts, extending beyond the corolla.

Flowers from June until August.

Railway beds and banks.

Known from railbed north of Truro and Halifax.

NS to AK, south to NC, AZ and CA. Possibly introduced in the east.

## ***Phlox* L.**

### **sweet William; Phlox**

Plants of northern Asia and North America, there are upwards of 60 species known. They are perennials for the most part, with opposite, entire leaves. Flowers are arranged in cymes, or borne singly. Calyx tube is ribbed, the flat areas nearly translucent. Capsule is dehiscent. Corolla is also tubular, or salverform. Some stamens are inserted, others exerted. Hybrids are common as are cultivated species.

#### Key to species

Corolla lobes notched at the tip.

*Phlox subulata*

Corolla lobes entire, sometimes wavy across the terminal edge.

*P. paniculata*

### ***Phlox paniculata* L.**

#### **Garden Phlox; phlox paniculé**



*Photos by Martin Thomas*

Tall and leafy, these sweetly fragrant flowers are borne in a terminal cyme on bright green stems. The opposite leaves are ovate.

Flowers from July through October.

Old gardens and compost piles, probably not persisting.

Occasionally collected from Cape Breton to Digby Co.

Ranges from NF to ON, south to OK and the Gulf States.



### ***Phlox subulata* L.**

**Moss-pink; phlox mousse**



*Photo by Marian Munro*

A matted perennial, its stems form creeping mats bearing tiny linear leaves. Flowers are brightly coloured shades of pink, borne in branching inflorescences. Sepals are grey pubescent and the petals bear small notches distally.

Flowers as early as April to early July.

A garden escape in lawns and roadsides. Persisting after planting.

Occasionally escaping from Kings to Halifax and Colchester Co.



NS to MB south to the Gulf States; introduced in the east.

## **Polygalaceae**

### **milkwort family**

Cosmopolitan in scope, there are about 750 species worldwide; two reach Nova Scotia. Ours are herbs with alternate or whorled leaves and clustered flowers, aggregated into racemes. Sepals number five, in two whorls. Outer three sepals are small, while the inner two are larger, resembling petals. Three petals are united to form a corolla tube. Lowermost petals are keeled, with a ciliate crest. Seeds are covered by a thick aril.

### ***Polygala* L.**

#### **milkworts**

As above.

Key to species

Biennial, arising from a thickened root, freely branching from the base;  
leaves 2–7mm wide; cleistogamous flowers present.

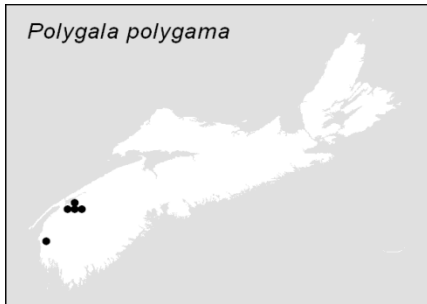
*Polygala polygama*

Annual; stem solitary from a small root; leaves 1.5mm wide;  
cleistogamous flowers absent.

*P. sanguinea*

***Polygala polygama* Walt.**

**Bitter Milkwort; polygala polygame**



Most of the branches arising from the base, where they may be finely pubescent. Leaves are linear or oblanceolate, margins entire.

Flowers from June to September.

Grows in dry, open soil.

Uncommon in Annapolis and Digby counties.

Ranges from NS to ON, south to TX and FL. Its conservation status remains undetermined at this time.

***Polygala sanguinea* L.**

**Blood Milkwort; *polygala sanguin***



*Photo by David Mazerolle*

An erect plant, sparingly branched at the top. Slender elliptic leaves arise along the stem. The inflorescence is a tight cylinder, 1–2cm long, of magenta or rose-pink flowers. It is annual in habit.

Flowering from late June into October.

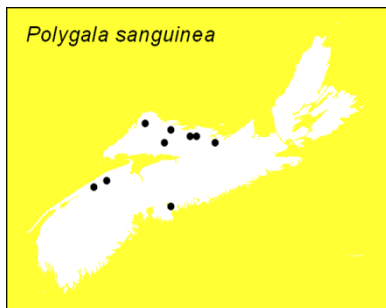
Prefers acidic or run-out soil as found in fallow fields or brushlands,



Photo by Chris Hawkins

Collected from Annapolis to Halifax and Cumberland counties. Documented from Shearwater and Burnside, Halifax Co.; also recorded from Pictou, Colchester, Cumberland and Kings counties. Populations are usually scant.

Ranges from NS to ON, south to NM and GA.



## Polygonaceae buckwheat Family

A mainly northern temperate family consisting of nearly 1000 species. In Nova Scotia, the Polygonaceae can be recognized immediately by the presence of an "ocrea" sheath around the stem at nodes of annual and perennial herbs. The ocrea may be papery or even ciliate or lacerate and it enhances the swollen appearance of the nodes which give the family its name: Polygonaceae = 'many knees'.

Leaves are generally alternate, less likely whorled or opposite. Inflorescence is terminal or axillary and sometimes subtended by an involucre. Greenish insignificant flowers are unisexual or perfect. Calyx and corolla are often not differentiated. Rather there is a whorl of 2–6 connate tepals, forming a small floral tube. Fruits are achenes. Rhubarb and Buckwheat are cultivated plants from this family.

Key to genera

A. Achenes with wings, extending beyond the perianth; limited northern distribution.	<i>Oxyria</i>
aa. Achenes lenticular or trigonous, not winged, enclosed by perianth; wide-ranging.	B
B. Tepals 6, in 2 series of 3, inner ones enlarged in fruit, or if other, with bitter-tasting leaves.	<i>Rumex</i>
bb. Tepals in a single series of 5, nearly equal in size in fruit.	C
C. Achene enclosed by the perianth.	<i>Polygonum</i>
cc. Achene not enclosed and extending beyond the perianth.	<i>Fagopyrum</i>

***Fagopyrum* Mill.  
buckwheat**

Erect plants that produce alternate, broadly deltate leaves. Trigonal achenes are strongly exerted from the perianth. The two introductions are annuals of Asian origin that do not persist outside of arable fields and are scarcely reported apart from crop production in recent decades.

Key to species

Flowers tightly packed in compact terminal raceme; tepals white; achenes shining and smooth on the edges. *Fagopyrum esculentum*

Flowers loosely arranged in a protracted raceme; tepals green; achenes dull, rugose on the angles. *F. tataricum*

***Fagopyrum esculentum* Moench  
Buckwheat; sarrasin commun**

Broadly deltate leaves are cordate at the base. Inflorescence is a tightly clustered raceme.

Frequents waste ground as around old house and garden sites, railyards and fields where it was cultivated.

Occasionally seen in the Annapolis Valley and elsewhere.

A widespread introduction from Asia, nearly throughout North America.

***Fagopyrum tataricum* (L.) Gaertn.  
sarrasin de Tartarie**

Similar to the previous species, but generally it has a more lax inflorescence. Flowers are not tightly clustered.

It is similar to Buckwheat in habitat, probably introduced with seed and grain. Not persisting long.

Rarely adventive in northeastern North America.

## ***Oxyria* Hill. Mountain Sorrel**

A monotypic genus, it has perfect flowers, comprising two series of tepals. Plants are perennial, arising from stout roots. Leaves are long-petiolate, cordate at the bases and kidney-shaped.

### ***Oxyria digyna* (L.) Hill. Mountain sorrel; oxyrie de montagne**



*Photo by David Mazerolle*

It is a compact little plant of very limited distribution in Nova Scotia. Leaves are nearly round. Inflorescence is terminal and branching above the leaves. The flowers form a crowded compact raceme.

Flowering from June to August.

Dripping cliffs and rocky scree.

An arctic-alpine species, restricted to Inverness County.

In the east, ranging from NF to AK, south to NS and NH; in the west south to TX.

STATUS: ORANGE-listed for NS.



*Photo by David Mazerolle*





## ***Polygonum* L.**

### **knotweed**

Temperate species, they are cosmopolitan in distribution, totalling about 200 species; almost half of the Nova Scotian knotweeds are introductions. Flowers are small and the corolla is absent. The calyx has 4–6 lobes. Stamens number 3–8. Fruit is a lenticular or trigonous achene. For ease in identification, keys to sections are followed by keys to species.

#### Keys to SECTIONS

- |  |              |
|--|--------------|
| A. Plants large and fibrous at the base; several meters tall; leaves have a sinus at their base.                           | PLEUROPTERUS |
| aa. Plant not fibrous at the base; <1m tall; leaves without a sinus at the base, or if sinus present, the plant is a vine. | B            |
| B. Stem twining or trailing; outer sepals winged or keeled.  | TINARIA      |
| bb. Stem prostrate or erect but not a climber; outer sepals without wings or keels.  | C            |
| C. Stem clinging, with recurved prickles on the angles; leaves sagittate or hastate.                                       | ECHINOCAULON |
| cc. Stems smooth; leaves linear or narrowly lanceolate.  |              |
| D. Flowers axillary.   | POLYGONUM    |
| dd. Flowers terminal in spikes or racemes.   | E            |
| E. Leaves mostly basal; stem upright, unbranched; with a single, dense raceme.   | BISTORTA     |
| ee. Leaves cauline; stem branching; flowers in numerous panicles.  | PERSICARIA   |

#### **SECTION BISTORTA**

These are alpine perennials; the two Nova Scotian representatives include a Eurasian adventive and a native species. Leaves are strictly basal. The inflorescence is a showy pink, single panicle of small flowers.

Key to species

Inflorescence includes florets and bulbils.

*Polygonum viviparum*

Inflorescence without bulbils.

*P. bistorta*

***Polygonum bistorta* L.  
renouée bistorte**

Leaves are broadly lanceolate borne on slender petioles, from the base of the plant. The showy inflorescence is large, with pink flowers.

Flowers in May and June.

Localized in waste ground, fields, meadows and cultivated land. Exotic.

Formerly known from Truro, in Victoria Park, where it was flourishing at several stations and also along Leppers Brook to the railway.

Known from NF; NS, ME, VT and MA in the east; NT to AK in the west.

***Polygonum viviparum*  
Alpine Bistort; renouée vivipare**



Photo by David Mazerolle

A stiffly erect plant, it has firm lustrous leaves, their lower surfaces glabrous or minutely pilose. Flowers are borne in an erect spike, with the lower florets replaced by bulbils (small plantlets). Upper florets are sterile, pink to white.

Damp slopes, gravels or rock.

A single locality known in NS: collected from St. Peter's area of Richmond Co.

Elsewhere limited to NF to AK, south to AZ, MI and VT; Eurasia.

STATUS: ORANGE-listed.

Two native vines are included here. Both have recurved prickles on the stem angles. Leaves are sagittate or hastate at the base.

Key to species

Leaves with basal lobes pointing downward; peduncle smooth;  
achenes triangular.

*Polygonum sagittatum*

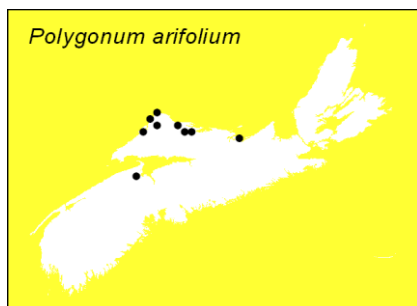
Leaves with the basal lobes flaring outward; peduncle glandular;  
achenes lenticular.

*P. arifolium*

***Polygonum arifolium* L.**  
**renouée à feuilles d'arum**



Photo by David Mazerolle



With wide leaves resembling an arrowhead in outline, they may reach 15cm wide and 20cm in length. They are finely pubescent beneath with stellate hairs. Flowers are pink. A distinctive plant, rarely encountered.

Rich swamps subject to long duration of inundation; swamps range from alder thickets to black ash stands.

Collected from Kings, Annapolis, Colchester, Cumberland and Pictou counties.

Ranges from NS to ON, variously south to GA and LA; WA.

***Polygonum sagittatum* L.**  
**Tear-thumb; renouée sagittée**



Photo by Alain Belliveau



Photo by Sean Blaney

A distinctive plant as well, it is often felt before seen! Its lanceolate leaves are narrow, tapering distally to a point. They are incised at the base to form two lobes, pointing downward and not flaring. Its stems are armed with recurved barbs. Flower spikes are of white flowers, terminal on the stem.

Flowers July to October.

Fertile soils as along streams or even ditches.

Very common throughout.

NF to MB, south TX and FL; OR.

## SECTION PERSICARIA

Erect plants, they have axillary or terminal racemes, either compacted or interrupted. Achenes are lenticular or three-sided. Leaves are borne on short petioles or sessile.

### Key to species

- |  |                            |
|--|----------------------------|
| A. Perennial from rhizomes or stolons.                   | B                          |
| B. Racemes terminal; solitary or in pairs.               | <i>Polygonum amphibium</i> |
| bb. Racemes terminal, or axillary; several to many.      | C                          |
| C. Ocreae entire or nearly so, without a bristly fringe. | <i>P. polystachyum</i>     |
| cc. Ocreae ending above in a fringe of bristles.         | D                          |
| D. Perianth not glandular.                               | <i>P. hydropiperoides</i>  |
| dd. Perianth glandular.                                  | E                          |
| E. Racemes compact; leaves 2–3.5cm wide.                 | <i>P. robustius</i>        |

	ee. Racemes interrupted; leaves <2cm wide.	<i>P. punctatum</i>
aa. Annuals, from a taproot.		F
F. Ocreae entire, not fringed.		G
G. Outer sepals strongly 3-nerved in fruit; each nerve ending in a fork.		<i>P. lapathifolium</i>
gg. Outer sepals only faintly nerved, not regularly forked.		<i>P. pensylvanicum</i>
ff. Ocreae fringed with bristles.		H
H. Perianth not glandular.		<i>P. persicaria</i>
hh. Perianth strongly glandular.		I
I. Sepals 4; achenes dull, tepals usually pink-tipped; ochrea of inflorescences often swollen		<i>P. hydropiper</i>
ii. Sepals 5; achenes shiny; tepals not pink-tipped; ochrea of inflorescence not swollen		<i>P. punctatum</i>

***Polygonum amphibium* L.**

(=*P. natans* (Michx.) Eat.; *P. coccineum* Muhl.)

**Water Smartweed; renouée stipulée**

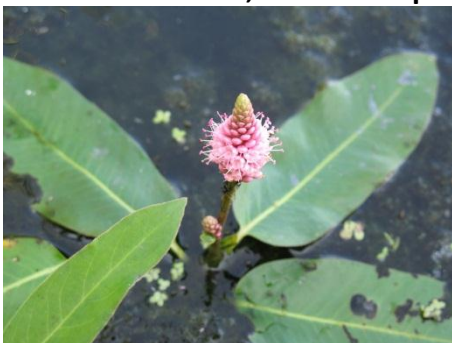


Photo by David Mazerolle

A dioecious species, it has two varieties, of terrestrial and aquatic habitats.

Key to varieties

Terrestrial plant, lanceolate leaves; ochreae with spreading green margins.      *var. stipulaceum*

Aquatic or floating; leaves elliptic; ochreae without spreading border.      *var. emersum*



The deep pink flower clusters are distinctive, reaching 2 cm on short pedicels from the upper axils.

Flowers throughout the summer. Plants of *var. stipulaceum* N. Coleman frequent the muddy edges of ponds and *Typha* marshes, from Queens Co. northward. *Var. emersum* Michx. emerges in shallow waters of ponds, lakes and even slow-flowing streams. More common northward, but found from Annapolis and Cumberland counties north.



Photo by Sean Blaney

NF to AK, south to SC, TX and CA; Eurasia.

***Polygonum hydropiper* L.**

**Water-pepper; Smartweed; renouée poivre-d'eau**



Photo by Sean Blaney

A freely-branching erect and weedy species, it has narrowly lanceolate leaves. The terminal inflorescence is slender, of pale flowers. The sepals are dotted with dark glands. Achenes are rugose. The plant has a sharp, peppery taste.

Ranging from dried out depressions on arable land to ditches and marshes; a plant of disturbed habitat.

Common throughout the province and most of North America. Introduced.

***Polygonum hydropiperoides* Michx.**

**(*P. hydropiperoides* var. *psilostachyum* H. St. John)**

**Mild Water-pepper; renouée faux-poivre-d'eau**



Photo by Sean Blaney

Perennial and sprawling in habit, this species bears spikes of showy reddish pink flowers, 5–7cm tall, often drooping. Ochreae are crowned by a row of bristles. The calyx is not glandular.

Hybridizes with *P. robustius*, forming a plant with very thick stems and nodes, elliptic leaves and spikes of flowers. Collected from Graywood Annapolis Co.

Flowers from July to October.



Photo by David Mazerolle

Grows at edges of rivers, lakes and even beaches, often in masses.

Common in southwestern NS to Annapolis and Lunenburg counties. Uncommon to scattered northward to Cumberland County and east to Guysborough Co.

In the east, NS to ON, FL and TX; western range is limited to coastal regions south to NM South America.

***Polygonum lapathifolium* L.**

(includes *P. lapathifolium* var. *salicifolium* Sibth.; *P. l.* var. *prostratum* Wimm.)

renouée à feuilles de patience



Photo by Sean Blaney

An erect species, it may be branched or unbranched. Flowers are pale, arranged in one or more terminal racemes, borne on smooth or glandular peduncles. Leaves are lanceolate, sometimes tomentose beneath.

Found in a variety of habitats: streamside, lacustrine beaches, or cultivated land.

Scattered throughout the province.

Throughout the continent and Greenland, except for Nunavut; Eurasia.



Photo by David Mazerolle

***Polygonum pensylvanicum* L.**

Pinkweed; renouée de Pennsylvanie



Photos by Sean Blaney



With clusters of large pink flowers, this weedy species is quite showy, occurring as it does, in masses. The multiple inflorescences are carried upon glandular peduncles. The leaves are lanceolate.

Frequently seen in roadside ditches, edges of cultivated fields and along dyked marshes.

Generally northern, from Annapolis and Queens to Cape Breton counties.

Ranges from NF to MB, south to OR, TX and FL; AK.

***Polygonum persicaria* L.**

**Lady's Thumb; renouée persicaire**



Also bearing lanceolate leaves, this species is often marked with dark blotches on the upper surfaces of the leaves. Ochreas have a row of stiff hairs and the stems are sometimes reddish. The flowers are crowded in the inflorescence which is carried on an eglandular peduncle.

Flowers from June to October.

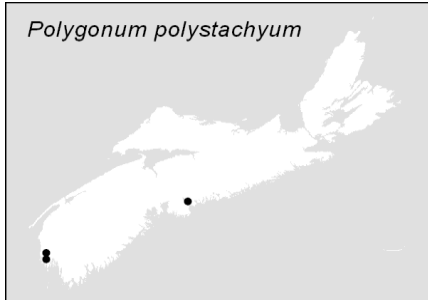
Photo by Sean Blaney

Found in a variety of habitats, such as fields, in gardens, although it has been collected as *Polygonum puritanorum*, an entity now subsumed, on sandy lakeshores.

Throughout the continent. A European introduction.

***Polygonum polystachyum* Wall.**

**Kashmir Plume; renouée à épis nombreux**



With shrubby reddish stems, it also has very long narrowly-acuminate lanceolate leaves, truncate at the base. They are distinctively marked with veins.

An Asian ornamental perennial, it sometimes escapes beyond the garden limits. Apt to be seen more frequently in urban areas.

Halifax and Yarmouth collections, but unknown if the populations are still persisting.

NS; MA; BC to CA. Introduced from eastern Asia and considered invasive on the west coast.



Photos by Martin Thomas





***Polygonum punctatum* Ell.**

(includes var. *confertiflorum* (Meisn.) Fassett and var. *parvum* Vict. & Rousseau)

**Water Smartweed; renouée ponctuée**



Photos by Sean Blaney

A perennial species, it is often rooting from the nodes, especially at the base. Long leaves are broadly lanceolate. Flowers are carried in narrow panicles, that are much-interrupted near the base. Achenes are smooth and shiny, unlike those of *P. hydropiper*, which it resembles.

Marshes and shores of streams or generally wet areas.

Common throughout the province.

NS to BC, south to CA and FL. Absent from AB and NV, NM.



***Polygonum robustius* (Small) Fern.  
renouée robuste**



Photo by Sean Blaney

Highly colonial, it forms large masses of plants to 1m in height. It produces white showy flowers.

A coastal plain species, it favours wet mud, often emerging in shallow water.

From Yarmouth Co., north to Antigonish and Inverness counties.





Photo by David Mazerolle

Ranges from NS to ON and variously south to FL and TX.

## SECTION PLEUROPTERIS

Distinctive perennials in their size and tenacity, these plants may reach several metres in height. The stems are erect and stout. Flower clusters are axillary, the florets have an enlarged calyx, winged in fruit. Two species have been cultivated in Nova Scotia, and are now difficult to eradicate from established populations.

Key to species

Leaves round, wedge-shaped at the base, mature leaf blades mostly < 15cm long. *Polygonum cuspidatum*

Leaves ovate and cordate, leaf blades usually > 15cm long. *P. sachalinense*

### ***Polygonum cuspidatum* Sieb. & Zucc.** **Japanese Knotweed; renouée du Japon**



Photo by Sean Blaney

Reaching several metres in height, the internodes are hollow, segmented like bamboo. Leaves are cordate to ovate and squared or cuneate at the base. The drooping panicles are axillary, with profuse whitish florets.

Once established, this perennial is hard to eradicate although clones can be reduced by shading (e.g. tree cover) and eliminated by frequent mowing.



Photo by Martin Thomas

Flowers from August to September.

Grows along roadsides, in neglected paved areas and in fallow land; it is also cultivated as an ornamental hedge.

Throughout the province in large colonies.

Widespread introduction, from Asia.

***Polygonum sachalinense* F. W. Schmidt**  
**Giant Knotweed; renouée de Sakhaline**



Photo by Marian Munro

Nearly shrublike in its robustness, it has very large, ovate leaves with distinctive venation. Base of the leaf is cordate, with adjacent veins meeting distally. Like the previous species, there are many panicles of small white flowers drooping from the axils.

Flowering August to September.

Ornamental occasionally escaping.

Yarmouth to Cape Breton.

NS to ON, south to TN and NC; west coast. Asian origin.

Forms a hybrid with *P. cuspidatum* known as *P. X bohemicum* (J. Chrtek & Chrtkovß) Zika & Jacobson.

Pubescence on the veins is intermediate as is the shape of leaf base.



Photo by Sean Blaney  
*P. x bohemicum*

## SECTION POLYGONUM

Annuals, these species have only a single flower or a few in sheaths of distal leaves, borne on short pedicels. Achenes are three-sided, and usually required to confirm species. Some are heterophyllous, meaning that upper leaves of plant are several times smaller than lower leaves. (key after Hinds)

### Key to species

- A. Leaves heterophyllous, mature achenes with 3 +/- equal concave sides. B
  - B. Achenes striate papillose, flowers over most of the stem, leaves lanceolate to ovate, pedicels shorter than ocrea. *P. aviculare*
  - B. Achenes smooth and shiny to somewhat roughened--but surface dots not disrupting the shiny surface, flowers distributed over upper half of stems, leaves narrowly elliptic, pedicels projecting from ocrea. *P. ramosissimum*  
(var. *ramosissimum*)
- aa. Leaves homophyllous, mature achene various. C
  - C. Achenes smooth, rarely slightly papillate D
    - D. Outer perianth lobes in fruit, conspicuously boat-shaped. E
      - E. Leaves lanceolate or linear, 5-12 times as long as broad. *P. ramosissimum*  
(var. *ramosissimum*)
      - ee. Leaves oblong, ovate or obovate, 2-4 times as long as broad. *P. fowleri*
    - dd. Outer perianth lobes in fruit not boat-shaped. *P. oxyspermum*
  - cc. Achenes papillate. F
    - F. Outer perianth lobes in fruit, conspicuously boat-shaped. G
      - G. Leaves lanceolate to linear, 5-12 times as long as broad. *P. ramosissimum*  
(var. *prolificum*)
      - gg. Leaves oblong, obovate or ovate, 2-4 times as long as broad. H
        - H. Fruiting perianth divided less than 1/3 to base, achene papillae more or less even over surface. *P. achoreum*
        - hh. Fruiting perianth cut down 1/2 or more to base; achenes mostly striate papillose. *P. buxiforme*
    - ff. Outer perianth lobes in fruit, not boat shaped. I
      - I. Fruiting perianth divided slightly more than 1/2 to base; leaves oblong to ovate <5X as long as wide *P. arenastrum*
      - ii. Fruiting perianth divided 2/3 to 3/4 to base, leaves linear to lanceolate, >5x as long as wide. *P. bellardii*

***Polygonum achoreum* S. F. Blake**  
**renouée coriace**



*Photo by Sean Blaney*

Initially growing erect, this plant soon becomes decumbent, with recurved branches. Perianth is yellow-green, forming a constriction above the achene, whose colour ranges from yellow to tan. Late-season achenes are often darker.

Flowers from July to September.

Typical plant of the halophytic communities: salt marshes and beaches.

Reported from the Annapolis Royal and Annapolis River area, but no extant collections.

Very common across Canada from NS to AK, south to OR, CO and WVA.

***Polygonum arenastrum* Boreau**  
**renouée à petits fruits**



*Photos by Martin Thomas*

A prostrate species, it is freely branching, producing small ovate homophyllous leaves. The pale pink perianth is divided to about midway, with the segments not overlapped. Similar to *P. aviculare*, it can be separated on the basis of the leaves not being dimorphic. The achene shape should separate it from *P. buxiforme*. Additionally the ocreae become brown rather than silver.

A weed of disturbed and compacted soils.





Very common throughout, although not often collected!

Ubiquitous throughout the continent and introduced.

***Polygonum aviculare* L.**  
**renouée des oiseaux**



*Photo by Sean Blaney*

Another prostrate, spreading plant, it bears its tiny flowers in the leaf axils. Heterophyllous, the sessile leaves are lanceolate or elliptic and much smaller on the branches, than the large pointed leaves on the stem. Very common weed species.

Flowers June to November.

Disturbed soils in dooryards, roadsides and rail lines, where competition from other species is lessened.



*Photo by Sean Blaney*

Common throughout NS.

Cosmopolitan in North America.



***Polygonum bellardii* All.**

**(*P. neglectum* Besser; *P. franktonii* Wolff and McNeill)**

**renouée négligée**

With its long narrowly linear to elliptic leaves, it can be separated from *P. arenastrum*. Of weedy habit, it is a sprawling freely branching species. Perianth is deeply divided, its segments overlapping. Internodes are noticeably long.

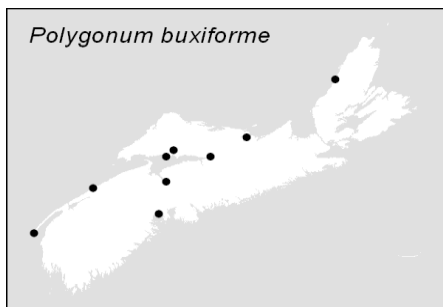
Disturbed areas of compacted soils.

Collected from Inverness Co. and central NS and Yarmouth Co.

Considered native in Canada's temperate regions and introduced across northern US south to CA, AR, DC.

***Polygonum buxiforme* Small**

**renouée faux-buis**



Resembles *P. arenastrum*, but it is limited to native habitats, especially those with saline soils. Plants are glaucous; sheaths are silvery. It produces achenes with three concave sides.

In NS, favours sandy soils at the coast.

Collections from the Fundy shore, Inverness Co. and St. Margarets Bay region on the Atlantic side.

A temperate species, especially common across the prairie provinces, and northern US.

***Polygonum fowleri* B. L. Robinson**  
**renouée de Fowler**



Photo by Sean Blaney

A fleshy species, its ovate or elliptic leaves are glaucous and bluish, with a reddish cast. Rugose achenes are enclosed by the hooded tips of the calyx. The perianth in fruit is divided three-quarters of its length and sports white to pinkish margins.

Flowers mid-July to September.

Uncommon in native habitats along gravelly or sandy seashores.

Scattered from the head of the Bay of Fundy to Yarmouth Co. and Cape Breton, excluding Sable Island.

Labrador to ME and west to Hudson and James Bay regions; AK to OR; eastern Asia.

***Polygonum oxyspermum* C.A. Meyer & Bunge**  
**renouée à fruits pointus**

A prostrate species, glaucous in appearance, freely branching, it has petal-like white sepals. It is distinctly homophyllous, unlike *P. aviculare* which it resembles.

Frequents damp sands and gravels on the coast.

Two subspecies are currently recognized. Ssp. *raii* (Bab.) DA Webb & Chater is separated from ssp. *oxyspermum* on ocreal and achene differences. The typical ssp. has terminally deciduous ocreae with prominent persistent veins. The achenes are more or less smooth and without tubercles. Ssp. *raii* has the achenes roughened and sometimes tubercled; the ocreae are scarcely veined and nearly all deciduous.

Collected from Shelburne and Queens counties, east to Strait of Canso; Bras d'Or Lakes to northern Cape Breton.

The typical ssp. is found only in Nova Scotia. Ssp. *raii* occurs in NF, PEI, NS and QC. Both are European introductions.

***Polygonum ramosissimum* Michx.**

**(*P. exertum* Small)**

**Bushy Knotweed; renouée à fleurs jaunes**



Photo by Sean Blaney

A spindly plant, it is erect with long lanceolate leaves and pedicellate flowers, which distinguish it from others in the section.

Two varieties are now acknowledged: var. *ramosissimum* has heterophyllous leaves, while var. *prolificum* Small has all leaves the same and the plants are smaller in stature.

Both are plants of saline habitats as at the edges of saltmarshes.

The typical variety is common along the inner Bay of Fundy and along the Northumberland Strait, but uncommon elsewhere. There are no extant collections of the smaller variety in NS herbaria.

Ranges from NS to AK, south to CA, TX and SC.



Photo by Sean Blaney

## SECTION TINIARIA

This section contains distinctive plants of the genus, as they are vines or twining plants with cordate leaves. At maturity the outer sepals are winged or keeled.

Key to species

A. Calyx widely winged in fruit.

*Polygonum scandens*

aa. Calyx keeled but not strongly winged in fruit.

B

B. Ocrea fringed at the base with recurved hairs; seeds smooth and shining.

*P. cilinode*

bb. Ocrea not fringed at the base; seeds rugose and minutely striate.

*P. convolvulus*

***Polygonum cilinode* Michx.**

**(*Tiniaria cilinodis* (Michx.) Small; *Bilderdykia cilinodis* (Michx.) Greene)**

**renouée à noeuds ciliés**



Photo by Martin Thomas



Photo by Sean Blaney

A perennial species, its ochreas have recurved pubescence. Cordate leaves are twining. The sepals are keeled or winged at maturity.

Flowers June to August.

Thickets and clearings, edges of ditches and cultivated fields.

Scattered throughout NS.

NF to SK, south to GA.

***Polygonum convolvulus* L.**

**Wild Buckwheat; renouée liseron**



Photo by Martin Thomas

Similar to the previous species, it has no pubescence on the ochreae. Often the stems are reddish and the leaves may be arrow-shaped or merely cordate. Achenes are dull and striate. Flowers form in loose clusters within the inflorescence.

May to November flowers.

Commonly seen as a weed of gardens, fields and disturbed





Photo by Martin Thomas

soils.

Common throughout NS.

Widespread and persistent. Naturalized from Europe.

### ***Polygonum scandens* L.**

#### **Climbing False Buckwheat; renouée grimpante**



Photo by Sean Blaney

Leaves are deltate, the bases cordate and their basal lobes slender,. Flowers arise in whorls along the stem. Calyx is broadly winged in fruit. Achenes are smooth and shiny.

Flowers late, mid-August to October.

Grows on low ground in riparian zones, becoming luxuriant after trees are cleared.

Uncommon and local, from Digby to Richmond counties on the northern side of the province.

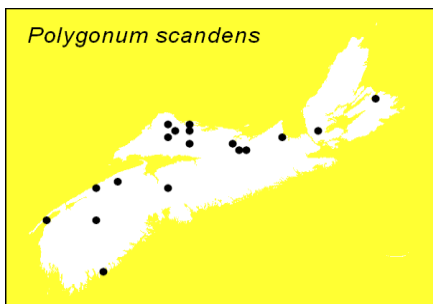
NS to AB, south to FL and TX.

STATUS: YELLOW-listed in NS.



Photo by David Mazerolle





## ***Rumex* L.**

### **Dock, Sorrel**

Nearly worldwide, this genus includes about 200 species. Usually they have rather large inflorescences, of densely whorled clusters of tiny flowers arranged in paniculate racemes. Flowers have a perianth of two series of three tepals, six stamens and three styles. At maturity the inner tepals (called valves) may exhibit an enlarged midrib — an appendage known as a tubercle. Achenes are trigonous.

#### Key to species

- A. Leaves hastate or sagittate; strongly sour taste. B
  - B. Basal leaf lobes flaring outward; plants small and slender; valves equal to or smaller than the achene; plant <40cm tall. *Rumex acetosella*
  - bb. Basal leaf lobes flaring downward; valves may be larger than the achene; plant to 1m. *R. acetosa*
- aa. Leaves not lobed at the base, tapering at the base or with a sinus. C
  - C. Stem with leafy branches arising from the leaf axils; leaves thick and pale. D
    - D. Plants erect, not limited to seashores; width of tubercles <1/2 width of valves; valves much longer than tubercles. *R. salicifolius*
    - dd. Plants prostrate and freely branching, limited to seashores; width of tubercle >1/2 width of the valve; valves barely longer than the tubercle. *R. pallidus*
  - cc. Stems erect, usually without axillary branches; leaves green, not pale. E
    - E. Valves without tubercles or with one very tiny one. F
      - F. Basal leaves very large, nearly round, with deep broad sinus at the base. *R. alpinus*
      - ff. Basal leaves lanceolate. G
        - G. Valves broader than long or round, one may have small grain; pedicels in fruit may have swollen joint midway. *R. longifolius*

gg. Valves round to cordate, longer than wide, never with tubercle; pedicels without swollen joint.	<i>R. occidentalis</i>
ee. Valves with 1–3 distinct tubercles.	H
H. Valves not toothed.	I
I. Leaves broad, flat; veins right-angles to midrib and distinct halfway to the margin; pedicel with a slight swelling.	<i>R. orbiculatus</i>
ii. Leaves lanceolate, curled and wavy on the margins; veins oblique, forked; pedicel with distinct joint.	<i>R. crispus</i>
hh. Valves in fruit plainly toothed.	J
J. Teeth of the valves shallow; plants tall, common weeds.	<i>R. obtusifolius</i>
jj. Teeth of the valves bristle-like; plants small annual to biennialsof brackish and maritime stations	K
K. Tubercles (the grains within the valves of the inner tepals) straw coloured, almost as wide as inner tepals; inner tepal teeth about equal to width of tepal.	<i>R. persicarioides</i> <i>var persicaroides</i>
kk. Tubercles brown or reddish, much narrower (ca. 0.5 times) than width inner tepal; inner tepal teeth normally 1.5-2.5 times as long as width of tepal.	<i>R. persicaroides</i> <i>var fueginus</i>

***Rumex acetosa* L.**

**Garden Sorrel; Sourdock; grande oseille**



Photo by Martin Thomas

Its clusters of long-petioled arrowhead-shaped leaves are distinctive. Tepals extend beyond the globose achene. Conspicuous in its height, it is sometimes a troublesome weed.

Flowers early June.

Fields and meadows and disturbed soils.

Naturalized and often abundant, this species is found throughout the settled areas of the province.

Local in eastern North America, west to AK, south to OR, WY and OH. Introduced from Eurasia.



Photo by David Mazerolle

Two subspecies are recognized from NS. *Ssp. thrysiflora* has been collected from Ingonish area. The authors of FNA feel that the typical subspecies are often mislabelled. This variety has a pyramidal and freely-branching panicle not seen in *ssp. acetosa*. Its inner tepals are smaller than those of the typical plants. More study is required of our material to place them properly in these *ssp*.

### ***Rumex acetosella* L.**

#### **Sheep Sorrel; petite oseille**



Photo by Martin Thomas

Familiar to most, this tidy little plant has distinctive arrow-shaped leaves, their flared lobes pointing outwards. Appearing in large colonies the tiny flowers provide a reddish haze. There may be a whorl of reduced leaves at the base of the branching pedicels. These are linear rather than hastate, like the basal leaves. Achenes nearly fill the valves.

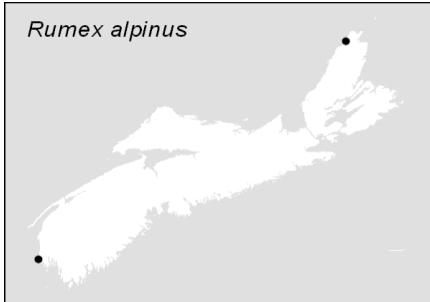
Flowers June to October.

A troublesome, rhizomatous weed of gardens and arable land; it also occurs on roadsides, burnt land, barrens and wherever competition is reduced by disturbance. It is usually indicative of acidic soils of poor fertility.

Very common throughout.

Throughout the continent, except for NU and NT.  
Introduced.

***Rumex alpinus* L.**  
**patience alpine**



A tall, erect species, it produces cordate basal leaves, carried on long petioles. Achenes are also cordate or round. There are no visible tubercles. It somewhat resembles rhubarb.

Flowers in the summer, June to August.

Old fields, disturbed soils.

Two collections are extant, Rockville Yarmouth Co. and Red River, Inverness Co. Reported to be introduced into Pictou Co.

Limited to NS, VT and southern ME. Introduced from Europe.

***Rumex aquaticus* L.**  
**(*R. fenestatus* Greene; *R. occidentalis* S. Wats.)**  
**patience occidentale**



Photo by Sean Blaney

Another tall, coarse species, this one has large tapering leaves with a sinus at the base. The inflorescence is slender and loose, with many tiny achenes carried on unjointed pedicels. There is no visible tubercle. Ours is referenced to var. *fenestratus* (Greene) Dorn.

Flowers during August and September.

Found in wet soils, wetlands and shores.

Scattered about.

NF to AK, south to CA, TX and NJ.

***Rumex crispus* L.**

**Curled Dock; patience crépue**



*Photo by David Mazerolle*

A tall plant, it bears coarse wavy leaves, their margins inrolled at maturity. Leaf bases are strongly cuneate. Achenes have plump tubercles within cordate valves. Pedicels swollen towards the base.

Often seen as single plants or small clusters about fields, roadsides, waste ground around habitation.

Common throughout.

Throughout the continent, from Europe.

Known to hybridize with *R. longifolius* and *R. obtusifolius* within the province.



*Photo by Alain Belliveau*

***Rumex longifolius* DC**

**patience à feuilles longues**





*Photo by Sean Blaney*

Another tall and coarse species, this one however has broadly lanceolate leaves. Stems are reddish, rather thick and deeply ridged. The crowded inflorescence produces many round achenes.

Flowers from June to October.

Fields, waste ground, cultivated areas, even damp hollows behind coastal beaches.

Scattered to infrequent in the province.

NF to AK, south of the Great Lakes to IL and NY. Introduced from western Europe.



*Photo by Sean Blaney*

***Rumex obtusifolius* L.**

(incl. var. *sylvestris* (Lam.) Koch.

**Blunt-leaved Dock; patience à feuilles obtuses**



Photo by Martin Thomas

The large leaves are cordate at the base, narrowing at the tip and sparsely toothed on the margins. It bears a diffuse inflorescence, freely branched. The achenes have slightly toothed valves; the grains are oval.

Flowers from June to September.

Roadsides, waste places, fields.

Common throughout the province.

Ranges from NF to BC, south to FL and CA, but absent from the prairies. European native and naturalized here.

Known to hybridize with *R. longifolius* in NS.



Photo by Sean Blaney

***Rumex orbiculatus* A. Gray**

**Water Dock; patience orbiculaire**



Another broad-leaved species, this one has striking prominent venation. Leaf bases are cuneate and the margins are irregular. Narrowly lanceolate leaves are interspersed with flowers throughout the inflorescence. Achenes are strongly striate, with irregular margins. Tubercle, long and narrow.

A species of wet soils, paludal, lacustrine or riparian habitats and sometimes found in swamps a cat-tail marshes.

Photo by Sean Blaney



Photo by Sean Blaney

Scattered to common throughout.

Ranges from NF to BC, south to PA and NE.

Hybrids reported from northern Inverness Co., with *R. longifolius*.

The former var. *borealis* Rech has now been recognized as *R. britannica* auct. non L. Its presence/status in NS is still undetermined although there is one collection from Hunting Point, Kings Co. at ACAD.

***Rumex pallidus* Bigel.**

**Sea-beach Dock; patience pâle**



Photo by David Mazerolle

Superficially, this species resembles *R. crispus*. However its leaves are flat and glaucous. A species of beaches, its growth habit is not erect, rather sprawling and prostrate. The achenes have the tubercles nearly the height and width of the valves.

Flowers throughout the summer.

Associated with coastal beaches, sandy, gravelly or rocky.

Yarmouth and Shelburne counties to northern Cape Breton, coastally. Rare along the Strait of Canso and in the Bras d'Or Lake region.

NF to MB, south to NY; Eurasia.



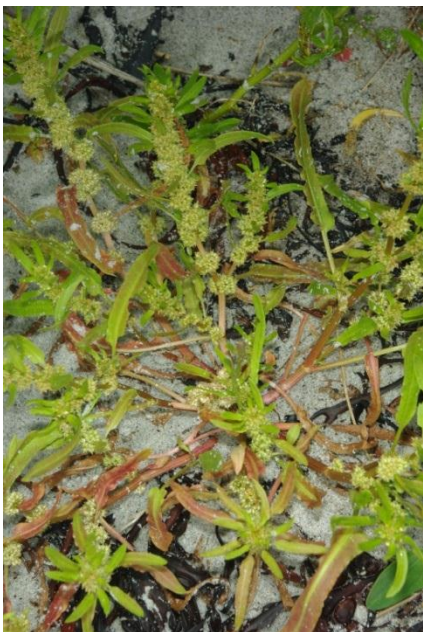


Photo by Martin Thomas

***Rumex persicarioides* L.**  
**American Golden Dock**



Photo by David Mazerolle

This is an annual or biennial of saltmarshes and barrachois. The species has been separated from the European *Rumex maritimus* and our populations are treated in Flora Nova Angliae (Haines, 2011) as part of *Rumex persicarioides*.

Two varieties are present in Eastern North America, the more common is *R. persicarioides* var. *fueginus* which we describe below. Variety *persicarioides* is rarer and noted as less weedy in New England (Haines, 2011). The status of *Rumex persicarioides* var. *persicarioides* in Nova Scotia remains to be determined.

***Rumex persicarioides* var. *fueginus* (Phil.) A. Haines**



Photo by David Mazerolle

Narrowly lanceolate leaves with irregularly toothed margins mark this species. The achenes are nearly sessile, tightly clustered around the stems. Valves bear long bristles the tubercle is lanceolate.

Flowers are golden, from July to October.

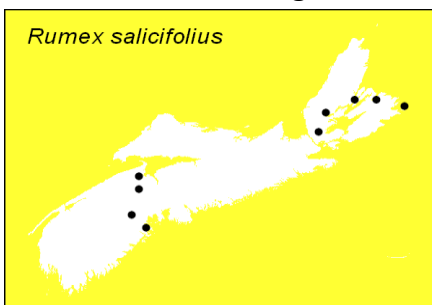
In open, organic coastal microsites, particularly of saltmarshes and barrachois

Infrequently found around the coast from Amherst and Advocate to Queens Co. Abundant on Sable Island; scattered in western Cape Breton.

Taxon previously treated as *Rumex maritimus* var *fueginus*; Flora North America separates this native species from the European, *Rumex maritimus*.

Ranges from the Anticosti Island to Long Island, NY along the coastal plain, scattered westward to CA and AK; Andean South America; Eurasia.

***Rumex salicifolius* JA Weinm.  
(*R. triangulivalvis* (Danser.) Rech. f.)  
patience à valves triangulaires**



A tall perennial, it may reach 1m or more, from a taproot. Leaves are long and narrowly elliptic. Valves are thick and triangular in outline. Our plants belong to var. *mexicanus* (Meisn.) CL. Hitchc. This variety is erect and slender compared to the typical form found elsewhere.

Associated with beaches or riparian meadows.

Reported from a few localities only: Sweets Corner, Hants Co., Cornwallis River, Kentville, Kings Co. and the River Inhabitants, Inverness Co.

Ranges from NS to northern BC, south to CA, TX and KY; Eurasia.



## Portulacaceae

### Purslane Family

Generally western in North America, there are 500 species worldwide, with only three in Nova Scotia. Small herbs, they are defined by have perfect flowers subtended by two sepals. The stamens vary in number from 3–11. Fruit is a hinged capsule.

#### Key to genera

- |   |                  |
|---|------------------|
| A. Introduced plant of disturbed soils; leaves wedge-shaped; flowers yellow; seeds small and numerous.                            | <i>Portulaca</i> |
| aa. Native plants of undisturbed habitats; leaves not wedge-shaped; flowers white; seeds fewer, 2–6.                              | B                |
| B. Flowers minute, white; seeds 2–3; leaves many, opposite; roots fibrous.  | <i>Montia</i>    |
| bb. Flowers showy 1–2cm across, white with pink nectar guides; seeds 3–6; leaves a single opposite pair; plant from a deep tuber. | <i>Claytonia</i> |

### *Claytonia* L. spring-beauty

A genus of 28 North American species; only one is native to Nova Scotia. Usually perennial, they arise from a corm or fleshy taproot. Petals are white suffused with pink; plants appear in very early spring.

#### *Claytonia caroliniana* Michx. Spring Beauty; claytonie de Caroline



Unbranching and weakly erect stems arise from the deep taproot, which some relish as an edible. The stems bear a single pair of lanceolate or elliptic opposite leaves, each on a short petiole. Drooping pedicels form a terminal raceme. Flowers are white suffused with pink and marked by dark nectar guides.

Photo by Martin Thomas



Photo by Martin Thomas

One of our eagerly awaited spring ephemerals, flowering May 15 to early June.

Preferred habitat is deep fertile soil beneath deciduous forest.

Annapolis and Cumberland counties, to northern Cape Breton. Common at Cape Split, in the Cobequids and eastward on the mainland. Local in the western half of the province.

NF to ON, variously south to KS, AL and GA.

## ***Montia* L.**

Arctic-alpine, this is a genus of wetland or aquatic habitats. North America has nine species, with one infrequently seen in NS. It is separated from *Claytonia* on the basis of leaf and ovule numbers, size of the flowers and habitats.

### ***Montia fontana* L.**

**Blinks; Annual Water Minerslettuce; montie des sources**



Annual in habit, it is a small species to 30cm, freely-branching and rooting from the leaf nodes. Leaves are opposite. Pedicels borne singly or paired from the leaf axils. Petals number five, white and forming a corolla tube, split on one side.

Flowers June-September.

Seepy slopes and rills, wet or brackish shores.

Northwest Arm Halifax (1883), Brier Island, Digby Co.; Port Hawkesbury, Inverness Co. Abundant on the east side of Burke Brook, Advocate, Cumberland Co.

Ranges from NF to AK, south in the east to ME; VA; west coast to CA; Greenland..

Photo by June Swift



Photo by June Swift

STATUS: ORANGE-listed in NS



## ***Portulaca* L.**

### **Purslane**

Generally a genus of warm areas, only one of 100 worldwide reaches NS as an invader of disturbed soils. Succulent annuals, they usually have alternate leaves, crowded distally to form an involucre around the inflorescence.

### ***Portulaca oleracea* L.**

**Common Purslane; pourpier potager**



A prostrate species, its tangled branches arise from a fleshy stem. Leaves are clavate on a short petiole, rarely exceeding 3cm in length. Flowers are tiny, pale yellow, opening only in full sun.

Flowers June to November.

Photo by Martin Thomas

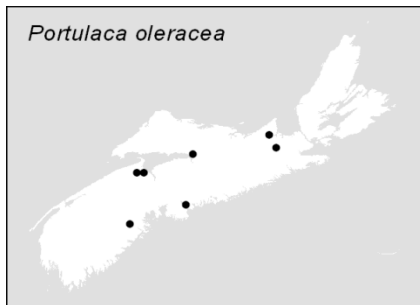


Photo by Martin Thomas

Common and troublesome in gardens, especially in full-sun. Shade-intolerant.

Widespread throughout the Annapolis Valley, spreading to lighter soils elsewhere. Difficult to eliminate once established.

Throughout the continent; native to southern Asia.



## Primulaceae primrose family

Primarily Asian, there are about 1000 annuals and perennials in this family. Many with showy flowers have been cultivated for our northern gardens. Flowers are regular and five-merous, the ovary superior or nearly so. Petals, if present, are united to form a short corolla tube. Stamens oppose each lobe of the corolla. Fruit are capsules. Stipules are absent and the leaves are simple.

### Key to genera

- |   |                            |
|---|----------------------------|
| A. Leaves in basal rosette; flowers arranged in a terminal umbel on naked scapes. | <i>Primula</i>             |
| aa. Leaves cauline; flowers only occasionally in umbels.                          | B                          |
| B. Leaves alternate.  | C                          |
| C. Flowers solitary, axillary; sessile.   | <i>Anagallis</i> , in part |
| cc. Flowers in pairs, axillary; on long slender pedicels.                         | <i>Samolus</i>             |
| bb. Leaves opposite or whorled.   | D                          |
| D. Flowers yellow.  | <i>Lysimachia</i>          |
| dd. Flowers scarlet, pinkish to white.  | E                          |
| E. Leaves in a single whorl at the top of the stem.                               | <i>Trientalis</i>          |

ee. Leaves in numerous whorls or merely opposite.

F

F. Plants erect; leaves succulent; flowers 3mm wide; petals absent; coastal.

*Glaux*

ff. Plants trailing; leaves not succulent; flowers >1cm wide; petals present; not restricted to coastal zone.

*Anagallis*, in part

## ***Anagallis* L. pimpernel**

A widespread genus of 25 species, only two species are found in Nova Scotia. Flowers are axillary on long pedicels. Capsule is circumscissile.

Key to species

Leaves alternate, flowers sessile; plants erect.

*Anagallis minima*

Leaves opposite; flowers on nodding slender pedicels; plants trailing.

*A. arvensis*

### ***Anagallis arvensis* L.**

#### **Common Pimpernel; mouron rouge**



*Photo by Martin Thomas*

A slender plant, it bears diffuse branches. Sessile leaves are elliptic or ovate. Flowers are carried in pairs on slender drooping pedicels. The scarlet corollas open only in sunshine, closing on cloudy days. Our plants belong to ssp. *arvensis*.

Flowers in late summer until autumn.





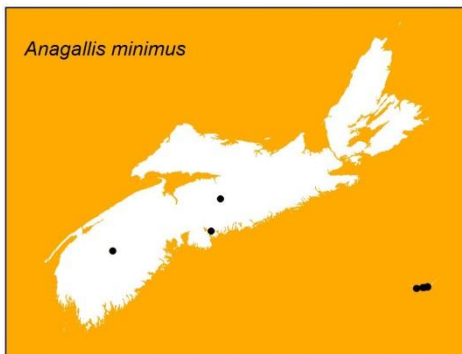
Photo by David Mazerolle

Grows in sandy soils, in waste places and beaches, railway lines.

Collected from Digby Co. north to Pictou and Antigonish counties and Lunenburg Co.

NF to BC, variously south to CA and FL. Naturalized from Europe.

***Anagallis minima* (L.) Krause**  
**(=*Centunculus minimus* L.)**  
**Chaffweed; mouron nain**



A dwarf plant, freely branching, it bears tiny pink solitary flowers in its leaf axils. Leaves are sessile and lanceolate.

Flowers in summer to early fall.

Frequents dry stony, compacted soil of waste asphalt and roadsides and muddy shores.

Found on Sable Island, Shubenacadie, and at Shearwater currently.

BC to SK, south to CA, TX and FL; NS is the only eastern Canadian population.

STATUS: Orange-listed.

***Glaux* L.**  
**sea-milkwort**

Monotypic and widespread, the plants are obligate halophytes. Small succulent perennials they bear flowers in the leaf axils. Corollas are absent. Calyx is campanulate and five-merous. Sepals are petaloid, and may range from red to white in colour. Leaves are sessile and opposite.

***Glaux maritima* L.**  
**Sea-milkwort; glaux maritime**



*Photo by Martin Thomas*



*Photo by David Mazerolle*

Stems are erect, branched or not and sometimes reclining. Sessile leaves are oblong and may be reduced to scales at the base of the plant. Flowers are pink, their stamens alternating with the sepals.

Flowers mid-June to late July.

Saltmarshes and beaches, dykelands.

Common around the coast and abundant where found.

NF to AK, south to CA, NM and VA; Eurasia.

***Lysimachia* L.**  
**loosestrife**

Best developed in central Asia, there are 140 species in total. Our species all bear yellow flowers, their petals variously marked with dark spots and lines. Inflorescences may be racemes or panicles (axillary or terminal), or of solitary axillary flowers. Leaves are opposite or whorled.

Key to species

- A. Stamens separate. B
- B. Inflorescence a dense oval axillary cluster, each flower *Lysimachia thyrsiflora*  
 minute, 6-merous; petioles neither pubescent nor winged;  
 all stamens with anthers.
- bb. Flowers large, solitary, or several from upper leaf axils; flowers *L. ciliata*  
 with 5 sterile stamens between fertile ones; petioles narrowly winged,  
 edges ciliate.
- aa. Stamens with filaments connate to level with top of the ovary. C
- C. Plant densely glandular pubescent, exceeding 1m; petals unmarked. D
- D. Flowers in terminal leafy panicles; corolla lobes entire; *L. vulgaris*  
 calyx 4–6mm long, margins dark.
- dd. Flowers whorled in the axils of upper leaves; corolla *L. punctata*  
 lobes ciliate; calyx >7mm long, green.
- cc. Plant not glandular pubescent; petals marked with black or red E  
 striations; <1m tall.
- E. Plant erect; inflorescence a terminal raceme, 5–20cm tall. *L. terrestris*
- ee. Plant long-trailing; flowers large cuplike, scattered *L. nummularia*  
 in pairs or solitary in the leaf axils.

***Lysimachia ciliata* L.**

**Fringed Loosestrife; lysimaque cillée**



*Photo by Martin Thomas*

An erect plant, it bears opposite leaves from smooth stems, which branch at the top. Leaves are lanceolate or ovate. Flowers arranged in whorls on long slender pedicels arising from the leaf axils. Calyx lobes are lanceolate; corolla lobes may reach 1.5cm long.

Flowers late in July.

Damp soils in low-lying areas, wet thickets, or intervalles.

Few southwestern localities, scattered northward to Halifax and Cumberland counties and to Antigonish area. Abundant where found.

NS to AK, south to OR, TX and FL.



Photo by Martin Thomas

***Lysimachia nummularia* L.**

**Moneywort; Creeping Jenny; lysimaque nummulaire**



Photo by Martin Thomas

Long-trailing stems bear opposite globose leaves on short petioles. Flowers are arranged in pairs or solitary on erect pedicels from the leaf axils. The pedicels are longer than the leaves. Corolla is subtended by ovate or triangular sepals. Petals are marked with red nectar guides.

Flowers in July.



Photo by Fritz McEvoy

Garden escape, naturalized in intervals, ditches and nearby meadows. Considered invasive in some American jurisdictions.

Occasionally encountered from Yarmouth northward. Probably found near most settlements.

NF to ON, south to CO, LA and GA; west coast. An early European introduction of Acadian origin.

***Lysimachia punctata* L.**

**Fringed Loosestrife; Large Yellow Loosestrife; lysimache ponctuée**



Leaves are lanceolate or ovate and carried in whorls of 3–4. Flowers also borne in whorls arising from the upper leaf axils. Calyx lobes are 7–10mm long and evenly green. Corolla lobes have a row of glandular hairs on the margins.

Flowers during July and early august.



Roadsides, fields and meadows. Naturalized garden species.

Common around Truro and reported from elsewhere.

NF to ON; BC, variously south. Introduced from Europe.

*Photos by Martin Thomas*

***Lysimachia terrestris* (L.) BSP**  
**Loosestrife; lysimaque terrestre**





*Photo by Sean Blaney*

It is one of our most common and familiar yellow-flowered summer plants. Simple stems are erect, to 80cm tall. Leaves are sessile and narrowly lanceolate. Flowers are borne in a single terminal raceme on long slender pedicels, subtended by short bracts. Yellow corollas have dark nectar guides. Vegetative aerial bulblets may be seen late in the season in the leaf axils.

Flowers in July.

Wet soils in ditches, marshes, bogs and marshes.

Common throughout.

NF to MB, south to OK and GA, northwest coast.



*Photo by Sean Blaney*

### ***Lysimachia thyrsiflora* L.**

**Water Loosestrife; lysimaque thyrsiflore**



*Photo by David Mazerolle*

An erect plant, its stems are nearly bare towards the base of the plant. Leaves are long and narrowly lanceolate. The raceme is densely flowered, on long peduncles from the leaf axils. Stamens are greatly exerted and prominent.

Flowers from mid-June to July.



*Photo by Sean Blaney*

Associated with saturated soils and muck streamside, paludal or emerging from the shallows of lakes and ponds.

Common in Colchester Co., scattered northward to Cumberland and Antigonish counties, to northern Cape Breton. Also found in Halifax Co.

Elsewhere from NF to AK, south to MD and CA; Eurasia.

***Lysimachia vulgaris* L.**

**Garden Loosestrife; lysimaque commune**



*Photo by Sean Blaney*

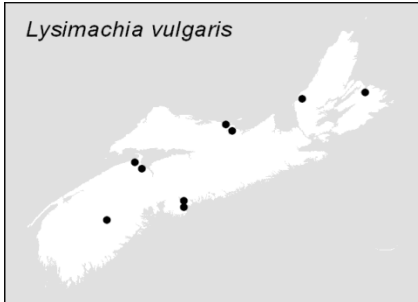
Erect plants, the simple or branching stems may reach 1 m in height. Lanceolate leaves are opposite, rarely whorled and very sparsely hirsute beneath. Flowers are pale yellow and numerous in freely-branching panicle. Calyx has its lobes less than 5mm long, conspicuously marked with dark green margins.

July to September flowers.

Frequents roadsides, thickets and wet soils in low-lying sites.

Occasionally escaped or persisting.

NS to ON, south to KY; BC to MT and OR Introduced from Europe.



***Primula* L.**  
**primrose**

Most diverse in the mountains of central Asia, Nova Scotia has two species, both of conservation concern. Basal leaves are arranged in small rosettes, from which a scape arises. Flowers are terminal, arranged in an umbel. Each flower has a campanulate five-lobed calyx. In our species, the calyx is shorter than the corolla tube.

Leaves farinose beneath, 2.5–10cm long; plant to 50cm tall; capsule 9–12mm long.

*Primula laurentiana*

Leaves smooth or only slightly mealy, 1–4cm long; plant < 20cm tall; capsule 5–8mm long.

*P. mistassinica*

***Primula laurentiana* Fern.**  
**Primrose; primevère laurentienne**



Photo by Marian Munro

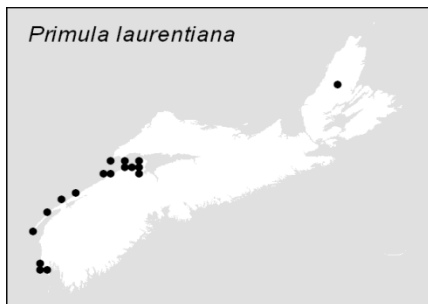
Beautiful pink to purple flowers clustered atop a scape to 50cm tall. Leaves are oblanceolate or spatulate, strongly farinose beneath, the powder white or yellow. Sepals may or may not be mealy.

Flowers from June to August.

Ledges, cliffs and meadows, especially in basaltic regions.

Scattered along the Bay of Fundy; Victoria Co.

Southern NL to ON, south to ME.



***Primula mistassinica* Michx.**  
**primevère du lac Mistassini**



Photo by Sean Blaney

Resembling the first species, but it is smaller in stature. Scape reaches only 20cm in height, bearing fewer flowers. Leaves are green, neither white nor yellow beneath.

Flowers May to August.

Springs, dripping cliffs and streambanks, crevices.





Locally prominent along a sandstone bank of the Salmon River and at Upper Stewiacke, Colchester Co.; scattered in northern Cape Breton.

Elsewhere from NL to AK, south to BC, IL and NY.

STATUS: YELLOW-listed.

## ***Samolus* L.** **water-pimpernel**

Cosmopolitan in scope, the genus is small with only 10 species. Leaves are variously shaped, with entire margins. White flowers are arranged in racemes, either terminal or axillary. Calyx is campanulate, its five lobes deltate and shorter than the corolla tube. Corolla is also five-merous; stamens deeply inserted into the tube. Fruit a round capsule dehiscent, showing five valves.

### ***Samolus valerandi* L.** **(=*S. parviflorus* Raf.)**

**Brookweed; Water-pimpernel; samole à petites fleurs**



*Photo by Sean Blaney*

A slender plant, it has simple or branched stems. Leaves in the basal rosette are ovate to oblanceolate. Cauline leaves are oblong. White flowers are minute, 2–3mm wide. Racemes are loose. Ours is ssp. *parviflorus* (Raf.) Hultén.

Flowers July to September

Stream beds, freshwater, tidal marshes – highly flooded stations in muck to gravel substrate.

Not common, from the Tusket River, Yarmouth Co. to Bridgewater; Northumberland coastal plain.

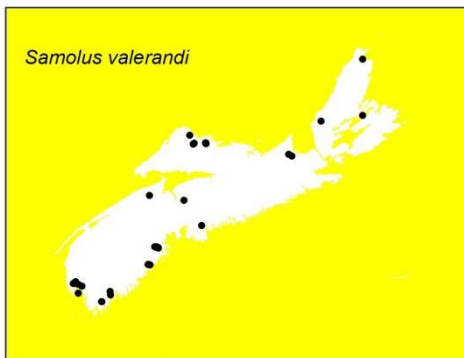
Ranges from NS to ON, south to TX and FL; WA to NM.





STATUS:YELLOW-listed.

Photo by Sean Blaney



## ***Trientalis* L.** **starflower**

Three north-temperate perennial species have been described, only one of which occurs here. Flowers are seven-merous. Sepals are almost separate subtending a short corolla tube, with ovate to deltate petals. Stamens are inserted at the base of the corolla. Capsules have five valves, bearing many seeds. Leaves are produced in a whorl at the top of the rhizomatous plant.

### ***Trientalis borealis* Raf.** **Starflower; trientale boréale**



Photo by Martin Thomas



Stems are erect with a single whorl of leaves at the top. Leaves number 5–9, attenuate and lanceolate. Flowers are few and starlike on delicate slender pedicels arising from the whorl. Both features allow easy determination of this species. The eastern plants are ssp. *borealis*.

Flowers May to August.

Found in both coniferous and deciduous forests and peaty soils elsewhere. A pioneer forest species.

Common throughout and easily recognized.

NL to SK, south to GA.

Photo by David Mazerolle

## Ranunculaceae buttercup family

Larkspur, Columbine, Clematis and Anemone are common showy garden favourites belonging to this family. Mostly herbaceous, 2500 species have been described, organized in 51–88 genera. Flowers are regular, except in the Larkspur and Monkshood, where sepals resemble petals in form and colour. Petals may be present or absent. Stamens are numerous; pistils 1–many, developing fruit of various forms. The stamens may be modified into a staminode, producing nectar in some species. It may be large and showy as in the Columbine or inconspicuous. Leaves are alternate and compound, with some exceptions. Several are woody and some are even vines.

### Key to the species

- |  |                   |
|--|-------------------|
| A. Plant a vine or climbing by clasping petioles.  | <i>Clematis</i>   |
| aa. Plant herbaceous, not climbing.  | B                 |
| B. Leaves simple, shallowly lobed or serrate.  | C                 |
| C. Leaves mostly 0.5–5cm wide; cauline leaves reduced; fruit an achene, many per plant. (Buttercups, in part). | <i>Ranunculus</i> |
| cc. Leaves kidney-shaped, 5–20cm wide; fruit a follicle, with many seeds.                                      | <i>Caltha</i>     |
| bb. Leaves compound, or deeply lobed.  | D                 |

D. Leaves all basal; plant <10cm tall.	E
E. Leaves trilobed, cut half or two-thirds to their bases, margins smooth; flowers blue; sepals minute; rare species.	<i>Hepatica</i>
ee. Leaves with 3 leaflets, toothed; flowers white, sepals absent; common in a variety of habitats.	<i>Coptis</i>
dd. Leaves both basal and cauline, or merely cauline; plant >10cm tall.	F
F. Cauline leaves 2–3, opposite or whorled; flowers 1–several, white; pedicels long; sepals petaloid.	<i>Anemone</i>
ff. Cauline leaves alternate, >3; flowers many, panicle; yellow, pink, or purple; petals present.	G
G. Leaves deeply cleft, or palmately compound and only once-divided. (Buttercups in part)	<i>Ranunculus</i>
gg. Leaves large, in 3s, with 3 large leaflets; divided again 1–2 times.	H
H. Leaves sessile, or nearly so; flowers unisexual; petals absent.	<i>Thalictrum</i>
hh. Leaves on long petioles; flowers perfect; petals present.	I
I. Leaves mostly basal, those on the stem reduced; distally serrulate or lobed; fruit of 5 follicles; flowers few, large, long-spurred.	<i>Aquilegia</i>
ii. Leaves, 1–2, cauline; much-divided, lobes long-pointed; fruit a berry; flowers small and crowded, racemes; petals not spurred.	<i>Actaea</i>

## ***Actaea* L.**

### **baneberry**

Perennial herbs, baneberries are woodland species, producing white petals and deciduous sepals that drop as the flower expands. The long peduncles carry racemes of flowers, producing red or white berries. Of the five circumboreal species, two are found in Nova Scotia. Both are toxic if eaten.

Key to species

Leaves pubescent beneath; fruit red, occasionally white, on slender pedicels.	<i>Actaea rubra</i>
---	---------------------

Leaves smooth, except for the veins fruit shiny, white, on short, thick pedicels.

*A. pachypoda*

***Actaea pachypoda* Elliot**

**(*A. alba* (L.) Miller)**

**White Baneberry; actée à gros pédicelles**



*Photo by Sean Blaney*

Leaves divided into 3–5 toothed leaflets, which are smooth above and below, except on the veins. Berries are white with 3–10 seeds, borne on short stout pedicels.

Flowers early, from late May to early June.

Grows in open woodland along the edges in loamy soils. Typical species of deciduous and intervalle forests.

Frequent from Annapolis and Cumberland counties to northern Cape Breton. Less common in southwestern NS and along the colder Atlantic coast.

Ranges from NS to ON, south to OK, LA and FL



*Photo by David Mazerolle*

***Actaea rubra* (Ait.) Willd.**

**Red Baneberry**



*Photo by Sean Blaney*



*Photo by Ross Hall*

This species also produces compound toothed leaves. Stems, leaves and petioles are pilose. Flattened red berries are terminally clustered on long slender pedicels. There are forms with pure white berries, historically designated as forma *neglecta* by Fernald. The fruit is poisonous.

May flower slightly earlier than the previous species, May 15 to early June.

Grows in deep fertile forest soils as typical in deciduous forests and streamside.

Most common from Annapolis Co. to northern Cape Breton. Absent or infrequent in southwestern counties and along the Atlantic's coast.

NL to AK, south to NJ and NM and CA.

***Anemone* L.**

**windflowers**

Worldwide there are about 100 species; Nova Scotia has only five, four of which are of conservation concern. Windflowers are typified by the absence of petals. Rather the sepals are petaloid and may be white, yellowish, red or bluish. Leaves are deeply cleft, once or twice-palmately compound and toothed. Plants and achenes may or may not be pubescent. Basal leaves may be present or absent.

**Key to species**

- A. Plant stout; achenes densely villous. B
  - B. Involucral leaves on petioles. *Anemone virginiana*
  - bb. Involucral leaves sessile. C
    - C. Plant with slender rhizomes; leaf segments shallowly cleft. *A. parviflora*
    - cc. Plant with a caudex; leaves deeply cleft at least twice. *A. multifida*



- aa. Plant slender; achenes hispid.  
D. Involucral leaves on petioles.  
dd. Involucral bracts sessile.

D

*A. quinquefolia*  
*A. canadensis*

***Anemone canadensis* L.**  
**anémone du Canada**

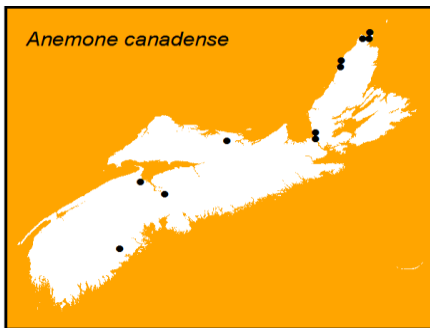


*Photo by Sean Blaney*

Leaves tripartite, each segment further deeply cleft and toothed. Upper leaves and bracts sessile, while the basal leaves are long-petiolate. Long peduncles bear single flowers, each to 4cm in width. Styles are long, prominent, straight or bent. Achenes formed in rounded head.

Flowers May to June.

In thickets, meadows and stony shores. Grows in alluvial soils in calcareous regions.



Cape Jack and Havre Boucher, Antigonish Co. Locally abundant in northern Cape Breton. Historically collected or reported from the Meander River, Hants Co. and in Queens Co. The Wolfville collection once grew behind an old greenhouse at Acadia University from a planting.

NS to YT, south to WVA and NM.

***Anemone multifida* Poiret**

Larger than the next species which it otherwise resembles, reaching 60cm tall from a caudex, Basal leaves borne on long petioles, deeply incised. Peduncles number 1–3. Sepals number 5–9 and may be white, yellow or red.

Flowers May to June.

On rocky habitats, with calcareous substrate.

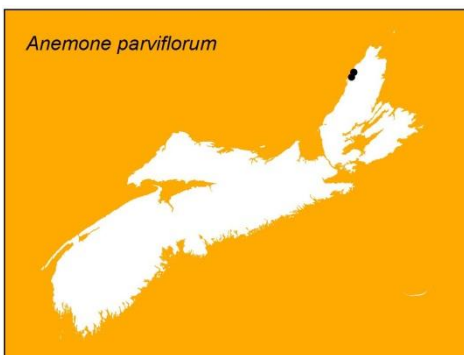
Known from a single locality in Cape Breton Highlands National Park, below the waterfall at Corney Brook gorge, south of French Lake, Inverness Co.

NF to AK, south to NY, MI, CA.

STATUS: ORANGE-listed in NS.

***Anemone parviflora* Michx.**

**Small-flowered Anemone; anémone à petites fleur**



Small in stature, barely reaching 30cm, it's a densely pubescent herb. Basal leaves are long-petiolate, deeply cleft several times. Involucral leaves resemble the basal leaves, but are sessile. Sepals 5–6, white or bluish. Style is straight. Fruit head about 1cm in length; achenes are densely villous.

Flowers June to August throughout its range.

In NS, along the gravelly bluff of wet limestone associated with waterfalls.

Collected north of Cheticamp in the 1920s and not seen again until the 1980s at Grand Falaise, 1km north of the entrance to Cape Breton Highlands National Park, Inverness Co.

Ranges from NL to AK, south to UT, ND and ON.

STATUS: ORANGE-listed.

***Anemone quinquefolia* L.**

**Wood Anemone**

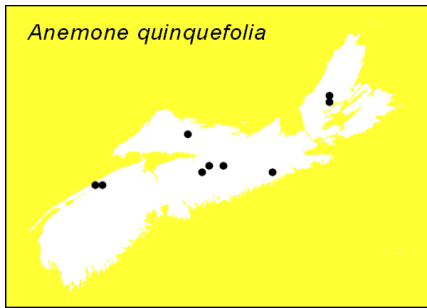


Leaves are few, those deeply-cleft and whorled, on petioles several cm long. Flowers solitary on slender peduncles.

Flowers late May to early June.

Found on wooded streamsides, terraces and intervals.

Photo by Sean Blaney



Rare and localized populations north of Bridgetown and Paradise, Annapolis County; Kingston, Kings Co.; Middle Stewiacke, Colchester Co. Somewhat frequent along the St. Andrews River and east of Shubenacadie in Colchester Co.; Wallace River, Cumberland Co. Elsewhere, north of Sherbrooke, Guysborough Co. and in southern Victoria Co.

NS to BC, south to NC and IA.

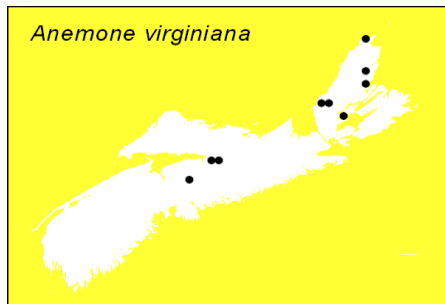
STATUS: YELLOW-listed.

### *Anemone virginiana* L.

#### Thimbleweed



Photo by Sean Blaney



Leaflets are cuneate and toothed, except across the base. Flowers and achenes are arranged in an oval head. Involucral bracts are sessile. Achenes are tomentose. Ours is var. *alba* A. Wood.

Flowers in early July.

Calcareous and slate ledges along streams. Intervales and thickets of same.

Reported from the Meander River and collected from the Herbert River, Hants Co. Occasional in Colchester and Pictou counties. Scattered at several localities in northern Cape Breton.

Species ranges from NF to BC, south to CO and GA.

## ***Aquilegia* L**

### **columbine**

In our province, Columbines are garden perennials, naturalizing in woodland or shady habitats. Northern plants, there are 70 species worldwide. Flowers are perfect and spurred, by an elongation of the base of the perianth. Sepals and petals five-merous, petals blue, mauve and pink. Recent hybrids are bicoloured with yellow or cream. Leaves are alternate and compound, the leaflets trilobed.

### ***Aquilegia vulgaris* L**

#### **Garden Columbine; ancolie vulgaire**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Basal leaves arise on long petioles, cleft into three toothed leaflets. Cauline leaves are sessile, or nearly so. Nodding flowers are large and showy, ranging from purple, blue, pink and even white.

Flowers to be expected from late May to early June.

Frequently seen in shady fertile sites as along roadsides and in fields, intervals, woodlands.

Throughout the province.

Widely established in North America. Introduced from Europe.

***Caltha* L.**

**marsh-marigold**

Perennials of wetlands or streamsides, there are only 15 species worldwide and all are poisonous. A single species is found in northern NS. Flowers are terminal and pedunculate; petals are absent. Sepals number 5–9; stamens are numerous. Cauline leaves arranged alternately and toothed or lobed, while the basal leaves are kidney-shaped and also toothed.

***Caltha palustris* L.**

**Marsh-marigold; populage des marais**



*Photo by Ross Hall*

A hollow stemmed perennial, it may reach 60cm in height. Leaves are rounded or kidney-shaped with a deep sinus at the base. They are serrate. Basal leaves borne on long petioles, decreasing in size upwards on the plant. Bright yellow flowers are conspicuous. Fruits are follicles, each with several seeds.

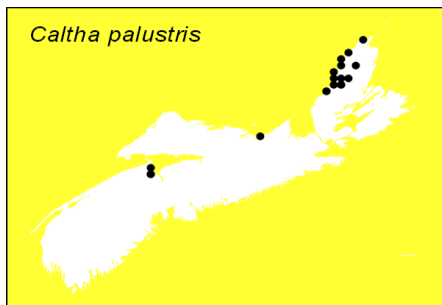
Flowers in early June.



*Photo by Ross Hall*

Grows in open or treed swamps, alder marshes and meadows.

Restricted to the Northumberland coastal plain: Mabou, Northeast Margaree, Margaree River, Terre Noir. St. Joseph-du-Moine, Cheticamp, Pleasant Bay area, all of Inverness County. North shore of Merigomish Island, Pictou County represents the only mainland collection to date. Collections in Kings Co. represent introductions.



Elsewhere ranges from NL to AK, south to CA, NE and NC; absent from the arid plains. Eurasia.



## ***Clematis* L.**

### **Clematis**

Over 300 species and numerous cultivars make up this cosmopolitan genus. Herbaceous or woody, they may be upright or vines, with simple or compound leaves. Petals are absent, instead the sepals are petaloid. Stamens and pistils numerous.

Ours are both vines.

#### Key

Sepals reddish violet; limited distribution.

*Clematis occidentalis*

Sepals white, yellow or green; widespread throughout.

*C. virginiana*

### ***Clematis occidentalis* (Hornem.) DC**

**(= *C. verticillaris* DC)**

**Purple Clematis; clématite verticillée**



*Photo by Ross Hall*

A woody vine, its flowers are mainly solitary, borne in the leaf axils. Sepals are reddish or violet.

So far as known, flowers earlier than our common species, May to June.

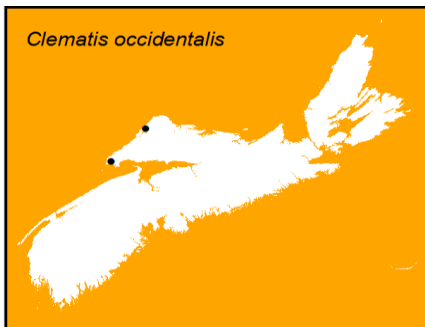
Found on rocky, calcareous slopes and in open forests.



Photo by Sean Blaney

Limited to Cumberland County, so far known only from Amherst Point Bird Sanctuary and Cape Chignecto Provincial Park.

NS to ON, south to IA and NC.



### ***Clematis virginiana* L.**

#### **Virgin's-bower; Clematis; clématite de Virginie**



Photo by Sean Blaney

Extending from 2–3m, it is best seen clamoring over shrubs and trees. Leaves are palmately divided with toothed leaflets. Flowers are white in compact panicles in leaf axils, equal to or exceeding the size of the leaves. One of only a few native NS vines.

Flowers during the first half of August.

Grows in stony habitat as on streamsides and in ravines.

Scattered throughout the province, especially common in northern counties and eastern NS.

NS to MB, south to TX and FL.



*Photo by Sean Blaney*

## ***Coptis* Salisb**

### **Gold-thread**

North American species are typified by having golden-yellow rhizomes that provide the vernacular name. Worldwide there are 10 species, limited to the north-temperate and arctic regions. Leaves are evergreen and basal, cleft into three toothed leaflets. Slender scapes bear single flowers, with white sepals. Petals are absent. Fruit is a follicle.

### ***Coptis trifolia* (L.) Salisb.**

#### **Gold-thread; savoyane**



*Photo by Beth Cameron*

Small tidy plants, they have basal leaves only. Leaflets are sessile, toothed and ovate to obovate. Single white flowers extend above the leaves. Follicles have long, persistent styles, about 13mm long. Plants arise from bright golden yellow roots.

Flowers from mid-May to early June.

Variety of habitats in acidic soil: swamps, bogs, coniferous forests.

Common throughout NS.

NL to AK, variously south to OR, MN and NC; Eurasia.



*Photo by Marian Munro*

## ***Hepatica* Mill.**

### **Hepatica**

Only four species comprise the genus, with but two in North America. Leaves have a basal sinus, the blades divided into three lobes. They are persistent over winter. Scapes are pubescent, each bearing a single flower.

### ***Hepatica nobilis* Mill., var. *obtusata* (Pursh) Steyererm.**

**(*H. americana* (DC) H. Hara)**

**Hepatica; hépatique d'Amérique**



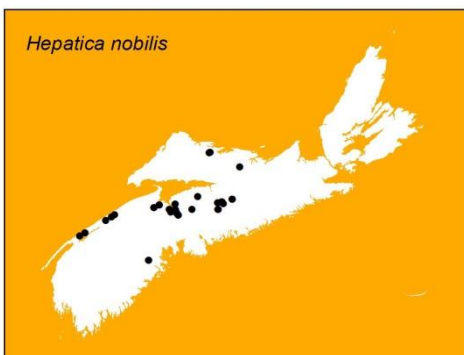
*Photo by Sean Blaney*

Flowers are mauve, pink or nearly white borne singly on villous scapes and appearing from the rusty rosettes of last year's leaves. Leaves are trilobed, the newly emerging ones densely villous. The pubescence turns rusty throughout the summer and persists.

One of our earliest spring flowers to bloom and one of our least common. Flowers in April.



Photo by Martin Thomas



Dry, mixed deciduous forests.

Local and rare at Bridgewater, New Minas, Windsor, Pictou, Stewiacke, Antigonish and at a couple of North Mountain sites. Recently discovered along the Cogmagun River, Hants Co. Long known from along the St. Andrews River. Populations at Wolfville and St. Croix appear to be extirpated.

Elsewhere, NS west to MB and southward to AR and FL.

STATUS: ORANGE-listed in NS.

## ***Ranunculus* L.**

### **Buttercups, Crowfoots**

Buttercups form a cosmopolitan genus counting 250 species. They are widely variable depending upon habitat. Regular flowers produced, with green or yellow sepals; petals are white or yellow (in ours). There are nectar grooves at the base of the corollas. Fruits are achenes. The sap of all is poisonous.

Key to species

- A. Leaves finely dissected; aquatic submerged; flowers white; achenes rugose. B
- B. Submerged leaves flaccid, petiolate above the stipule; *Ranunculus trichophyllus*  
        achenes beakless.
- bb. Submerged leaves stiff, retaining shape when removed from water; *R. longirostris*  
        leaves sessile or nearly so; achenes beaked.
- aa. Leaves entire, or lobed; neither truly aquatic nor limited to terrestrial sites; C  
    flowers yellowish; achenes not rugose.
- C. Plants of brackish soil; small; leaves basal and fleshy; rhizomatous. *R. cymbalaria*
- cc. Plants not of brackish soils; aquatic or terrestrial; rhizomes absent; D  
        leaves not succulent.



D. Leaves linear to broadly lanceolate; entire or nearly so; plants rooting at the nodes.	<i>R. flammula</i>
dd. Leaves round to elliptical, toothed; not rooting from nodes.	E
E. Plants tenuous; leaves round, radially cleft; flowers 1cm across; aquatic or on exposed sand flats.	<i>R. gmelini</i>
ee. Plants vigorous, erect or creeping; leaves not round nor floating, irregularly divided, or with rounded teeth; flowers >1cm wide.	F
F. Achene swollen; without a flattened margin; petals 1.5–4mm long.	G
G. Leaves palmate, deeply cut; of marshes and swamps.	<i>R. scleratus</i>
gg. Basal leaves round or reniform, crenate; lower cauline ones sometimes trilobed; deciduous woods.	<i>R. abortivus</i>
ff. Achene flat, with a winged border; petals >5mm long.	H
H. Flowers inconspicuous; petals <4mm; plants hirsute.	<i>R. recurvatus</i>
hh. Flowers showy; petals to 10mm; plants smooth or villous.	I
I. Leaflets sessile; style >1mm long.	<i>R. acris</i>
ii. Leaflets petiolate; style <1mm long.	J
J. Stems creeping; base not swollen.	<i>R. repens</i>
jj. Stems erect; base bulbous.	<i>R. bulbosus</i>

### ***Ranunculus abortivus* L.**

#### **Wood Buttercup; ranuncule abortive**



Basal leaves are reniform, their margins crenate and with a deep sinus at the top of the petiole. Cauline leaves are palmately divided and toothed. Leaflets narrow towards the top of the plant; their margins entire. Petioles and pedicels are villous.

Flowers in early May.

Grows in fertile loam on wooded hillsides and along intervals.

*Photo by Sean Blaney*



*Photo by Sean Blaney*

Found from Digby and Cumberland counties to northern Cape Breton.

Ranges from NL to AK, south to WA, NM and FL

### ***Ranunculus acris* L**

#### **Tall Buttercup; renoncule âcre**



*Photo by Martin Thomas*

A tall species, it may also be sprawling and has its branched stems pubescent. The palmate leaves are deeply and variously divided. Basal petioles are long, shortening distally up the plant. Large yellow flowers are showy; double-flowered forms have been reported.

May to August.

An opportunistic species and naturalized in a variety of habitats, but mostly in moist heavy soils.

Common throughout the province.

NF to AK, variously south to CA and GA. Introduced from Europe. Toxic to people and livestock if ingested.



Photo by Martin Thomas

***Ranunculus bulbosus* L.**

**Bulbous Buttercup; renoncule bulbeuse**



Photo by Sean Timpa



Photo by Sean Timpa

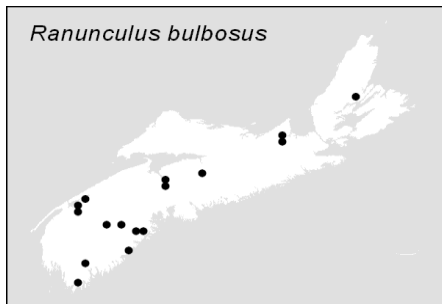
Base of the stem is swollen, erect and often not branched. Basal leaves are long-petiolate, leaflets in threes, further cleft. Cauline leaves are few, borne on short petioles. Solitary flower is yellow and showy, with distinctive nectar guides.

Flowers late May to June.

Open habitats such as fields, pastures, roadsides and even open woods.

Known from Shelburne County to Antigonish Co. and often common where found.

Ranges from NF to ON, south to GA and LA; west coast. Introduced from Europe.





***Ranunculus cymbalaria* Pursh**

**Seashore Buttercup; renoncule cymbalaire**



Photo by Catherine Pross



Photo by Sean Blaney

Leaves are mostly basal, nearly round and crenate distally. Petioles are no more than 5cm in length. Yellow flowers are few, carried on scapes about equal in length to the petioles. Rhizomes are distinctive in this species.

Flowers from May to October.

Typical saltmarsh species and found anywhere salt water intrudes. Dykelands, brackish pools and backwaters behind beaches.

Often abundant where found; coastal.

NL to AK, south to CA, TX and NJ; South America; Eurasia.

***Ranunculus ficaria*** has recently been collected from Wolfville area. There is a dense population in a roadside ditch along Hwy 1, at Lower Wolfville and a small population along stream in gully off of Oak Ave., Wolfville.

***Ranunculus flammula* L.**

**renoncule flammette**



Two varieties are found here:

Erect, becoming decumbent distally.	var. <i>flammula</i>
Creeping plant from slender rhizomes.	aa. var. <i>filiformis</i>

Var. *flammula* L. is a stout, mostly erect plant. Its only North American distribution is NS: Tusket, Yarmouth Co., in

*Var. filiformis*  
Photo by Sean Blaney



Photo by Sean Blaney

Kejimikujik National Park, Uniacke Lake, Hants Co; Truro and one Antigonish County location. Ranges from NF to PA

*Var. filiformis* (Michx.) DC is a small creeping variety, circumboreal in distribution. Flowers from July to September and is generally aquatic, associated with streamsides and lakeshores. Common from Annapolis to Cumberland counties to northern Cape Breton. Elsewhere may be found from NF to AK, south to CO and WVA and in Eurasia.

### ***Ranunculus gmelini* DC**

#### **Yellow Water-crowfoot; renoncule de Gmelin**



Photo by Beth Cameron

Leaves are usually submerged, with 3–5 lobes. Borne on long petioles, they are arranged alternately along the stem. Flowers are generally terminal. Stems may be long and spreading or short and bushy.

Summer flowers during July and August.

Frequents marshes, slow-moving streams, pools, ditches and ponds in alkaline areas in shallow water; may be seasonally stranded.

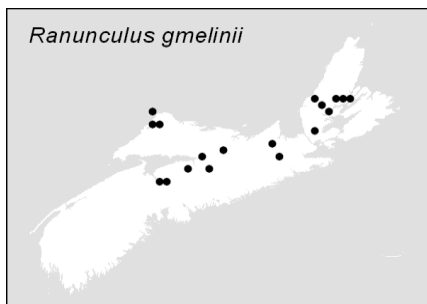


Photo by Beth Cameron

More northerly in NS: from Kentville and Truro to Amherst and Cape Breton.

Ranges from NF to AK, south to NE, NM and IL; Eurasia.

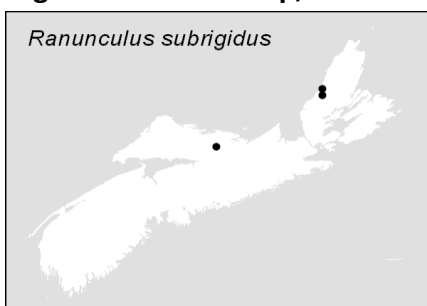




***Ranunculus longirostris* Godr.**

**(*R. subrigidus*)**

**Long-beaked Buttercup; renoncule à long bec**



Very similar to *R. trichophyllus* but for the achenes and leaves. When withdrawn from the water, this species is stiffer, retaining its shape. The leaves are round or subglobular and not flat, sessile above the stipules. Flowers are also white. The rugose achenes of this plant are beaked, whilst the other aquatic species has beakless achenes.

Flowers from June to September here.

More limited in habitat tolerances, restricted to calcareous or brackish water.

In NS reported from Cape Breton and Earltown area of Colchester Co.

Elsewhere from NS; MA to WA southward.

***Ranunculus recurvatus* Poir.**  
**renoncule à bec recourbé**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Sparingly branched and a sparsely villous species, its leaves arise on long petioles. They are divided into three toothed lobes, which may be round or reniform. Flowers are few and widely spaced. The achenes are flattened and bear a hooked beak, aggregated into a spherical head.

May to July flowers.

Grows in moist, fertile sites as along streams and in deciduous woodlands.

Not common but widespread from Annapolis and Cumberland counties to northern Cape Breton. Less frequent in the Atlantic coastal areas.

Elsewhere from NF to ON, south to FL and TX; WA.

***Ranunculus repens* L.**  
**Creeping Buttercup; renoncule rampante**



*Photo by David Mazerolle*

Always creeping in habit and sometimes rooting from the leaf nodes. Pubescence is variable. Leaves carried on long petioles, deeply divided into threes; each lobe is toothed. Flowers have overlapping yellow petals, arising on erect scapes. Former varieties are now included under the typical var. *repens*.

Flowers throughout the growing season from May to November.



Photo by Martin Thomas

Tolerant of shade or sun and often found in disturbed soils and also streamside, in forests and ditches.

Common throughout, and often a marker of former settlements.

Ranges from NF to AK and variously southward to the Gulf of Mexico. Introduced from Europe.

### ***Ranunculus scleratus* L.**

#### **Cursed Crowfoot**



Photo by Sean Blaney

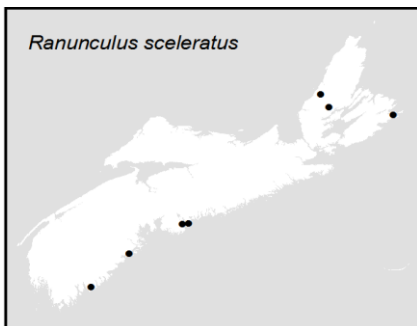
A variable species, it has either stems with many branches or if sparsely branched, the stems are hollow. Basal leaves are reniform and lobed, with the margins irregularly toothed. Cauline leaves are linear or palmately divided into linear leaflets. Flowers are often numerous in a short cylindrical head.

Flowers from May to August.

Associated with wetlands, both freshwater and saline.

Local and rare in NS: West Berlin, Queens Co.; Barrie Beach, Lunenburg Co.; McNabs Island and Eastern Passage, Halifax Co. and at Main-à-Dieu, Cape Breton Co.

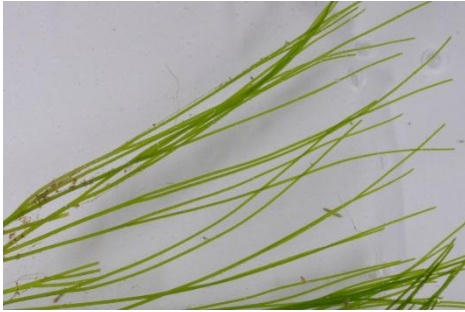
Eurasia and also throughout North America.



***Ranunculus trichophyllus* Chaix**

**White Water-crowfoot**

**(*R. aquatilis* L.)**



*Photo by Martin Thomas*

Stems are submerged; leaves are palmately split into threadlike leaflets, alternately arranged and well-spaced. Stipules are present. Flowers 1–1.5cm across, white, borne above the water surface.

We have two varieties: var. *eradicatus* (Laedst.) W. Drew has smooth receptacles and achenes. Uncommon here and northern. The typical variety is more common. It has the achenes and receptacle puberulent.

Summer flowering in July and August.

Submerged in slow-moving streams, lagoons and shallow ponds. Can even be found in permanent ditches.

Digby and Annapolis counties to northern Cape Breton. Not known on the Atlantic side.

Circumboreal, NF to AK, south to CA and NM and TN.



*Photo by Sean Blaney*

***Thalictrum* L.**

**Meadow-rue**

North-temperate perennials totaling about 50 species; NS has a single dioecious species. Petals are absent; sepals 4–5, quickly deciduous. Flowers are arranged in panicles. Fruit is an achene, variously veined or ribbed. Leaflets are delicate, distally trilobed and finely puberulent beneath.

***Thalictrum pubescens* Pursh**

**(*T. polygamum* Muhl.)**

**Meadow-rue; pigamon pubescent**





*Photo by Sean Blaney*

May reach 1.5m in height on a stout stem. Leaves are compound, 2–3 times divided. Leaflets are further lobed into three rounded segments distally. Inflorescence is a broad panicle, bearing many staminate or pistillate flowers.

One of our most conspicuous summer wildflowers, appearing in July to early August.

Found in marshes, meadows, ditches and wet thickets, intervale forests.

Common throughout.

Elsewhere found from NF to ON, south to GA and MS.



*Photo by Martin Thomas*

## **Resedaceae**

### **Mignonette family**

We have a single species of this Eurasian-African family of 55 species. All have hypogynous flowers borne in spikes or racemes. They are perfect but irregular. Petals and sepals number 4–8, with an enlarged central petal that is fringed dorsally. Carpels are 3–6, fused to form a superior ovary flanked by the stigmata. Leaves are alternate and sometimes lobed. All produce mustard oils.

### ***Reseda* L.**

#### **Mignonette**



Leaves are entire and floral parts four-merous. Petals are yellow and may be cleft. They are about 6mm wide, borne on short pedicels.

***Reseda luteola* L.**

**Dyer's-rocket; Yellow-weed; réséda jaunâtre**



*Photo by Sean Blaney*

A tall plant, it has lanceolate leaves. It bears a tall terminal spike of greenish-yellow flowers. The four petals are flattened at the base, and lobed.

Disturbed soils as along roadsides and fallow land.

Historically found at Point Pleasant Park, Halifax and in Windsor, Hants Co.

Adventive from Europe, it was once cultivated as a dye plant for its yellow colour.

## **Rhamnaceae**

### **buckthorn family**

Nova Scotia hosts only three species of the 900 found worldwide, in 55 genera. Shrubs or trees, they have simple leaves which may be alternate or opposite. Flowers are small and regular, 4–5-merous, producing a drupe in our species. Unisexual or perfect, they are perigynous. Stamens oppose the petals, both alternating with the sepals and equal in number to them. The fruit is inedible and may be toxic.

#### **Key to species**

Leaves alternate; petals 5; winter buds scaleless; never thorny.

*Frangula*

Leaves opposite or alternate; petals 4; winter buds with scales; thorns present or absent.

*Rhamnus*

### ***Frangula* Mill.**

*Frangula* is often included with *Rhamnus* as a subgenus. North America is home to seven species and a hybrid. Species are deciduous or evergreen throughout the temperate and subtropical regions. Leaves

are always alternate and often shiny; their veins strongly crimping the leaves and curving towards the apices. Shrubs have no spines. Some may become invasive outside of their range.

***Frangula alnus* Mill.**

**(=*Rhamnus frangula* L.)**

**Glossy Buckthorn; nerprun bourdaine**



*Photo by Sean Blaney*

This is a large shrub with glossy leaves, ovate, oblong or elliptic in outline. They are entire on the margins and bear 7–8 pairs of veins. Small white flowers develop into red berries, that ripen black and are dispersed by birds.

Flowers in June.

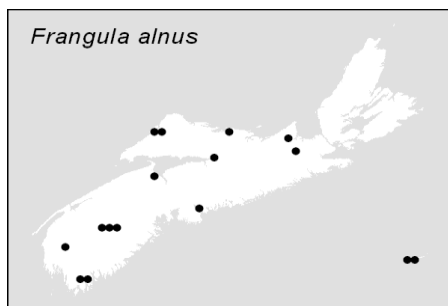
Grows along edges and in thickets. Found in cut-overs. It is invasive into swampy forests.



*Photo by Martin Thomas*

Scattered throughout the mainland, especially from Annapolis to Colchester and Cumberland Co. This species is highly invasive.

Ranges from NS to SK, variously south to TN. Introduced from Eurasia.



***Rhamnus* L.**  
**buckthorns**

Flowers greenish white, staminate or pistillate, arise from the leaf axils singly or in clusters. Staminate flowers may have a vestigial pistil and pistillate flowers may bear reduced stamens. Petals present or absent. Leaves distinctly veined, either palmate or pinnately arranged.

Key to species

Petals absent; sepals and stamens 5; seeds 3.

*Rhamnus alnifolia*

Petals present; sepals and stamens 4; seeds 2 or 4.

*R. cathartica*

***Rhamnus alnifolia* L'Hér.**

**Alder-leaved Buckthorn; nerprun à feuilles d'aulne**



Photo by David Mazerolle

Commonly, this shrub is less than 1m in height. The alternate leaves are acute and serrulate, ovate or lanceolate, bearing 4–5 pairs of veins.

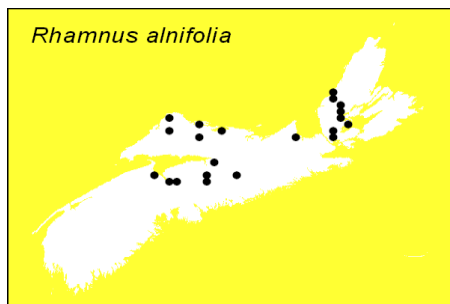
Flowers from mid-May to June.

Grows in wooded swamps or bogs, meadows or alluvial soils in the alkaline regions.

Scattered in Hants and Cumberland counties and in southern Inverness Co.

Elsewhere it ranges from NF to BC, south to CA and TN.

Of conservation concern, YELLOW-listed.



***Rhamnus cathartica* L.**

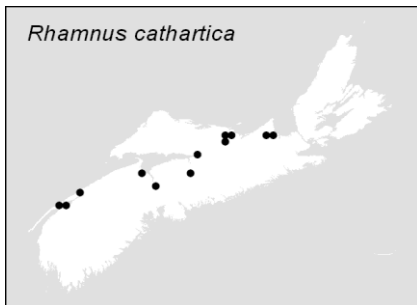
**Common Buckthorn; nerprun cathartique**



Photo by Martin Thomas



Photo by Sean Blaney



A shrub or small tree, this introduced species may bear thorns distally on new wood. Leaves are opposite and broadly elliptic; small sharp point at the apex. Veins are in 2–3 pairs, curving towards the tip. Margins are serrulate. Flowers bear yellowish-green petals.

Flowers late May to early June.

Fallow fields and open woods.

Formerly planted as a hedgerow, now escaped throughout the northern part of the province, from Digby to Antigonish.

Ranges from NS to AB, south to UT and NC; CA.

Introduced from Europe and bird-dispersed. Now being eradicated as a threat to cereal crops. It is an alternate host for crown rusts, fungal infections.

## Rosaceae

### rose family

Within this family's numerous (>3000 species of trees, shrubs and herbs) are the most important temperate fruits including apples and pears, peaches, plums, apricots, almonds, strawberries and raspberries. The family's namesake, *Rosa*, contains many economically important hybrids and species roses. Rose cultivars are numerous and among our most prestigious ornamentals.

Typically the leaves are alternate and stipulate, and may be simple or compound. Flowers are conspicuous and often showy, regular and perfect. Calyx is usually of five sepals united at the base to

form a hypanthium. Petals usually five and the stamens usually number five or five-merous, both attached to the margin of the hypanthium. Ovary is generally superior, except in the Pomoidea. Fruits are variable, with achenes, drupes, follicles or pomes, or even aggregated as in raspberries.

# Key to Genera

A. Leaves simple	B
B. Herbs	C
C. Petals absent; stamens 4.	<i>Alchemilla</i>
cc. Petals present; stamens numerous.	<i>Rubus</i> , in part
bb. Trees, shrubs or woody vines	D
D. Ovary 1.	E
E. Style 1; ovary superior; fruit a drupe, with a single seed.	<i>Prunus</i>
ee. Styles 2–5; ovary inferior; fruit a pome, or other small fruit with inferior ovary.	F
F. Flowers in racemes or numbering 4 or fewer; ovary and fruit with 10 locules; plants not armed with prickles nor thorns.	<i>Amelanchier</i>
ff. Flowers not in racemes; ovary and fruit with 2–5 locules; plants often armed.	G
G. Thorny trees or shrubs; carpels hard and seedlike.	<i>Crataegus</i>
gg. Thorny trees or unarmed shrubs; carpels leathery or papery, enclosing seeds.	H
H. Arboriform; fruit >1cm wide; thorny but not prickly; leaves without glands on midrib	I
I. Flowers pinkish; styles connate at the base; fruit not gritty.	<i>Malus</i>
ii. Flowers white; styles separate; fruit gritty.	<i>Pyrus</i>
hh. Shrubs; fruit <1cm wide, unarmed; upper surfaces of leaves with red glands on midrib.	<i>Photinia</i>
dd. Ovaries 2–many.	J
J. Ovaries <5; fruit a follicle; shrubs unarmed.	<i>Spiraea</i>
jj. Ovaries >5; fruit compound fleshy drupes, prickly or unarmed.	<i>Rubus</i>
aa. Leaves compound, dissected or lobed, with finer divisions.	K
K. Leaves palmately compound.	L
L. Styles filiform and persistent, elongated after flowering; cauline leaves differing from basal ones.	<i>Geum</i>
II. Styles not filiform nor so elongating; leaves of similar shape, but of variable size.	M
M. Plants prickly; fruit compound drupelets; bractlets absent.	<i>Rubus</i>
mm. Plants not prickly; fruit achenes; bractlets present alternating with the sepals.	N
N. Receptacle dry.	O

S



O. Flowers yellow; teeth of leaflets >5 and not terminal.	<i>Potentilla</i>
oo. Flowers white; leaflets with 3 (to 5) terminal teeth..	<i>Sibbaldiopsis</i>
nn. Receptacle fleshy.	<i>Fragaria</i>
kk. Leaves pinnately compound or dissected.	P
P. Herbs.	Q
Q. Petals absent; sepals 4; inflorescence a dense head or spike.	
qq. Petals and sepals 5; flowers of inflorescence so not clustered.	R
R. Hypanthium conical, with hooked prickles.	<i>Agrimonia</i>
rr. Hypanthium not conical, unarmed.	S
S. Pistils 5–15, ripening into a whorl of achenes.	<i>Filipendula</i>
ss. Pistils still more numerous, ripening into a head of achenes.	T
T. Styles inserted; straight.	U
tt. Styles exerted, jointed or feathery.	<i>Geum</i>
U. Leaflets 5; flowers in raceme, red.	<i>Comarum</i>
uu. Leaflets many (>9); flowers solitary, yellow.	<i>Argentina</i>
pp. Woody plants, including woody vines.	V
V. Carpels 2–5.	W
W. Carpels distinct, 5; ovary superior, dry and dehiscent in fruit.	<i>Sorbaria</i>
ww. Carpels 2–4, joined below; ovary partly inferior; fruit fleshy (pome).	<i>Sorbus</i>
vv. Carpels >5.	X
X. Unarmed shrub with crowded yellow flowers	<i>Dasiphora</i>
xx. Shrub prickly, flowers not yellow (except in garden roses).	Y
Y. Ovaries, achenes hidden inside round hypanthium.	<i>Rosa</i>
yy. Hypanthium flat or convex, ovaries are fleshy on flat-convex hypanthium.	<i>Rubus</i> , in part

## ***Agrimonia*** ***agrimony***

Northern in distribution, Nova Scotia has two native species and one European adventive. Inflorescence is a long interrupted spikelike raceme, subtended by a ragged bract. Pedicels are very short and subtended by trilobed bracts. Hypanthium is variable, conical to flat, but armed with hooked bristles. Sepals are spreading at flowering, later forming a beak on the fruit. Flowers are yellow, with 5–15 stamens and a pair of ovaries. Leaves are generally compound with three leaflets interspersed with small entire leaflets. Stipules are present, leaflike and dentate. Fruit is an achene. Key character in native species is the presence/absence of glandular hairs.

- A. Hypanthium strongly hirsute; introduced.  
 aa. Hypanthium smooth, glandular or puberulent only in the hypanthium furrows; native.  
     B. Axis of the inflorescence glandular, +/- pubescent.  
     bb. Axis of the inflorescence not glandular; densely pubescent, the hairs appressed.

*Agrimonia eupatoria*

B

*A. gryposepala*

*A. striata*

***Agrimonia eupatoria* L.**

**aigremoine eupatoire**

Leaves are strongly villous on the lower surfaces, including the veins.

Found as an adventive in waste areas and on disturbed soils.

Local, as at Upper Sackville, Halifax Co.

Local in NS; MA to OH, MN and IA; WY and CA. European.

***Agrimonia gryposepala* Wallr.**

**aigremoine à sépales crochus**



*Photo by Sean Blaney*

A tall perennial to 1.5m, it is sparingly branched. The greenish burr-like fruits and long interrupted spikes are distinctive. The axis of the inflorescence is usually glandular-pubescent. The outer furrows of the fruit are smooth, although there may be tiny sessile glands. Several rows of bristles are positioned at the top of the hypanthium.

Flowers July and August.

Thickets, streamsides, slopes, intervalles, generally in shade.

Digby and Cumberland counties to northern Cape Breton. Uncommon on the Atlantic side.

Ranges from NS to MB, south to WY, KS, LA and FL; BC to CA and NM.

***Agrimonia striata* Michx.**

**Agrimony; aigremoine striée**



Photo by Martin Thomas

Another tall perennial, differing from the other native species in having only appressed pubescence on the axis of the inflorescence but no glands. The furrows on the fruit are hirsute. Hooked bristles may be more stiffly ascending.

Also flowers July and August.

Roadsides, thickets and cleared woodlands. Wider tolerance for sun,

Common throughout, except in the Atlantic region, one record, in Queens Co.

Ranges across Canada, variously south to AZ, OK, and GA.

## ***Alchemilla* L.**

### **Lady's-mantle**

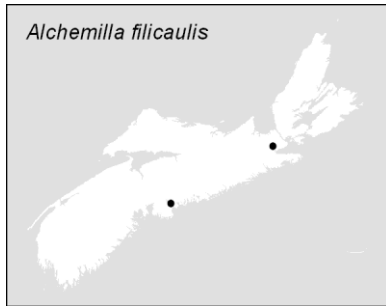
A genus of about 100 species, they are widespread in distribution and probably all introduced from Europe. Plants are weedy and apomictic (producing seed without fertilization). Leaves are 8–10cm wide, lobed and serrate, round in outline. Flowers are arranged in cymes, each greenish yellow flower is apetalous. The hypanthium encloses the achenes; stamens are inserted on its margin.

Key (McNeill, 1996)

- |   |                          |
|---|--------------------------|
| A. Bractlets on the calyx as long or longer than the hypanthium and equal to the sepals.  | <i>Alchemilla venosa</i> |
| aa. Bractlets on the calyx shorter than the hypanthium and sepals.  | B                        |
| B. Primary inflorescence branches glabrous.   | <i>A. filicaulis</i>     |
| bb. Primary inflorescence branches sparsely to densely pubescent.   | C                        |
| C. Upper leaf surfaces glabrous, may be pubescent on a few folds.   | <i>A. xanthochlora</i>   |
| cc. Upper leaf surfaces densely pubescent.  | D                        |
| D. Hypanthium attenuate at base, glabrous; stipules reddish, sometimes brownish; distal half of stem glabrous or lightly pubescent. | <i>A. gracilis</i>       |
| dd. Hypanthium rounded at the base, sparsely pubescent; stipules brown; distal half of the stem densely pubescent.                  | <i>A. monticola</i>      |

*Alchemilla arvensis* (L.) Scop. is now included in *Aphanes* but its occurrence in NS considered historic.

### ***Alchemilla filicaulis* Buser**



Leaves of this species are triangular in outline and divided into 7–10 serrated lobes. Leaf sinuses are open. Upper surfaces of the leaves are covered with dense, appressed pubescence. Ours is ssp. *vestita* (Buser) ME Bradshaw. It has both leaf surfaces densely pubescent as well as the flowers, while the pedicels are glabrous.

Tiny flowers bloom June to August.

Found on roadsides and pastures along the coast.

Occasionally reported. Older extant collections from Guysborough and Halifax counties.

Local from NF to QC, south to NS and MA. Adventive from Europe.

### ***Alchemilla gracilis* Opiz**

A slender species, its stems are sparsely to densely pubescent with spreading hairs. They may be sometimes glabrous terminally. Stipules are reddish. Flat leaf blades are often reniform, occasionally orbiculate, sometimes undulate, and divided into 7–9 lobes. Lower surfaces are pubescent and the upper surfaces densely pubescent throughout. The primary branches of the inflorescence are often sparsely hairy, sometimes densely so. The epicalyx bractlets are at least half the length of the sepals and always narrower. Hypanthia are glabrous.

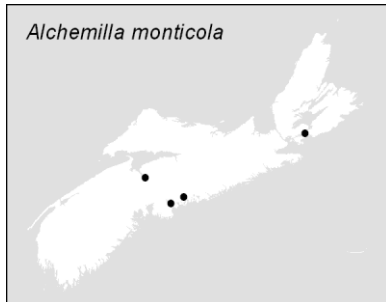
Flowering late May through to Sep.

Grows in moist meadows and open sandy soils.

An examination of NS material is required to ascertain its exact distribution.

Introduced to NS and QC; ME. Native to Europe.

***Alchemilla monticola* Opiz**  
**alchémille des montagnes**



Resembles *A. filicaulis* but for its smooth flowers. Leaf sinuses are nearly closed by the overlapping proximal lobes. Both the upper and lower surfaces are pubescent. Arising from glabrous pedicels, the tiny flowers, only 10–15mm tall, are finely pubescent.

Flowers from June to September.

Grows in grassy areas.

Very local: St. Peter's, Richmond Co., Windsor and Halifax.  
NF to ON south to WI and NY; AK.

***Alchemilla venosa* Jus.**  
**alchémille veinée**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

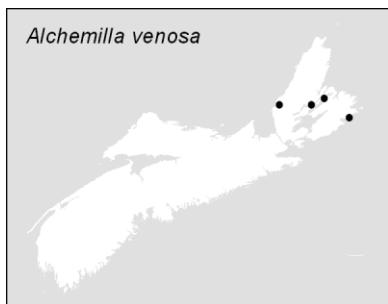
Smaller in stature, it only reaches 30cm in height. Its leaves appear peltate, although a sinus is present. Surfaces are glabrous and the margins are lobed and serrate. Flowers are 3mm wide and bright yellow when expanded. Flowers June to August.

Waste soils in dooryards and roadsides.

Escaped from cultivation in Inverness, Victoria and Cape Breton counties. Not yet reported from mainland NS.

NS and NF where it has been introduced from Europe.





***Alchemilla xanthochlora* Roth.**  
**alchémille vert jaunâtre**



*Photo by Marian Munro*

Perennial to 35 cm tall, its leaves are divided into seven serrate lobes. Most of the leaves are basal although several smaller cauline leaves may be present. Sinuses wide. Upper surfaces are smooth and do not wet. Water beads in the cup. Flowers are tiny, only 2–3mm wide.

Flowers throughout the summer until frost.

Moist soils near the coast in a variety of habitats.

Abundant from Digby around to Shelburne counties and scattered eastward near the coast.

Ranges from NS to New England and NY. Introduced.

***Amelanchier* Medicos**  
**serviceberries**

There are about 20 species of these north-temperate trees or shrubs. Hybrids are common, making identification to species difficult. Many triploids are even fertile. Leaves are simple and alternate, margins serrate. Flowers are arranged in racemes, terminal on the current year's branches, appearing just before or simultaneous with leaf-out. Petals, sepals and styles are five-merous. Stamens are inserted and usually 20 in number. Fruit is a pome, with 10 seeds. Local names for these plants include Indian Pear, Shadbush, Serviceberry, Juneberry. Saskatoonberry (*Amelanchier alnifolia*), a western species is cultivated for its tart fruit. Several of our wild species are choice edibles, but we enjoy stiff competition from the avian set.

Fruit production is often spoiled by infection by *Gymnosporangium* species, which cause orange rusts on fruits.

#### Key to species

- A. Flowers 1–4 on long pedicels in leafy clusters; ovary summit tomentose, tapering into the styles; leaves overlapping in bud. *Amelanchier bartramiana*
- aa. Flowers several to many in racemes; ovary convex to flat on top, smooth or pubescent; leaves folded together lengthwise in bud B
  - B. Petals 3–6 (–7)mm long; sometimes pollen-bearing; plants colonial, with many close stems up to 2(–3) m tall. *A. nantucketensis*
  - bb. Petals (6–)7–22mm long, not bearing pollen; plants colonial or not, 0.3–13m tall. C
    - C. Ovary tomentose at summit, tomentum may persist. D
      - D. Leaves tomentose beneath at flowering. *A. stolonifera*
      - dd. Leaves glabrous or nearly so at flowering. *A. sanguinea*
    - cc. Ovary glabrous or nearly so, at summit. E
      - E. Petals short, to 12mm racemes erect or ascending; sepals at fruiting spreading to reflexed. *A. canadensis*
      - ee. Petals >12mm long; racemes often drooping; sepals in fruit tightly reflexed F
        - F. Leaves at flowering much less than half-expanded, tomentose beneath; fruit dryish and tasteless. *A. arborea*
        - ff. Leaves about half-expanded at flowering; glabrous beneath with coppery colour; fruit juicy and sweet. *A. laevis*

#### ***Amelanchier arborea* (Michx. F.) Fern.**

**Shadbush; Bilberry; Wild Pear; amélanchier arbre**



Photo by Sean Blaney

Growing as a low shrub or a small tree, this species is one of our familiar flora roadside. Leaves are scarcely unfolded when the flowers emerge. They are tomentose beneath. On the flowering branches, the leaves tend to be finely serrate, with 5–10 teeth per cm. The open racemes of flowers are silky pubescent with the pedicels on the lower flowers 25mm long. White petals reach 10–20mm in length. Ovary is pubescent and the fruit is mealy, subtended by reflexed sepals.

Flowers in May.

Frequents edge habitats of fields and forests.  
Common throughout.

Ranges from NS to ON south to TX and FL.  
Hybrids are frequent: *A. X grandiflora* Rehd. is a hybrid between this and *A. laevis*, with lightly tomentose purplish leaves, when young. Its fruit are more succulent. *A. xwiegandii* Spach has the leaves on the flower branches with fewer serrations, 2–5 per cm.

### ***Amelanchier bartramiana* (Tausch) Roem.**

#### **Mountain Serviceberry; amélanchier de Bartram**



Photo by Sean Blaney

A shrub, it may reach several m in height. Serrate leaves are ovate to elliptic and glabrous; their bases are wedge-shaped. They are short-petiolate. Flowers are axillary, with 1–4 individuals per cluster. Petals are 6–9mm long. Ovaries are tomentose at the summit. Dark purple succulent fruit is oblong.

Flowers late May.

Associated with acidic poorly-drained soils as in thickets and bogs. Reported from Yarmouth and Digby counties and common from Kings and Cumberland counties to northern Cape Breton.

Ranges from NL to ON, south to MN and WVA.

Elsewhere forms a hybrid with *A. laevis*, named *A. xquintimartii* Lalonde.

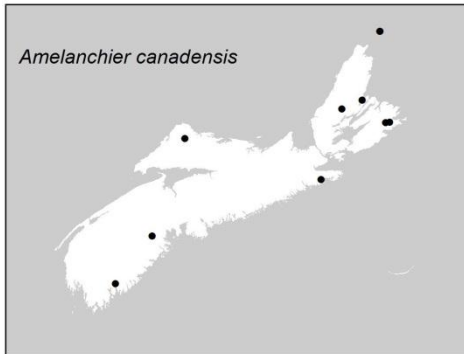
***Amelanchier canadensis* (L.) Medik**

(=*A. lucida* Fern.)

Shadbush; Wild Pear



Photo by Martin Thomas



A tall erect shrub, this species superficially resembles alder. Young leaves are densely tomentose. Flowers are borne in compact racemes, ascending or erect. Lower pedicels are 10–20mm long. Petals are short, <10mm long and at maturity, the sepals are also erect.

Flowers also in May.

A plant of edge habitat: forests, wetlands and barrens. Uncommon from Yarmouth to Halifax and Cumberland counties, east to Cape Breton Co.

Ranges from NS to ON, south to MS and GA.

May form a hybrid with *A. arborea*, named *A. X intermedia*, to be expected where both parents are found.

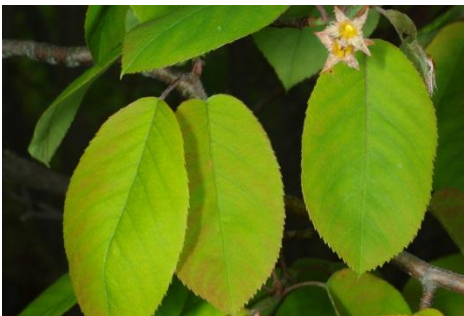


Photo by Martin Thomas

***Amelanchier laevis* Wieg.**

(=*A. arborea*, var. *laevis* (Wieg.) Ahles)

Smooth Serviceberry; amélanchier glabre



Photo by Martin Thomas

A tree or small shrub, the leaves are partially expanded at flowering, glabrous and reddish as they emerge. Flowers are arranged in open racemes, the lower pedicels may reach 5cm in length. Flowers have the petals 15mm long. Fruit is globose, subtended by reflexed sepals. One of our most common and conspicuous serviceberries.

Flowers in May.

Edges of forests and fields.

Common throughout the province.

Ranges from NL to ON, south to GA.

***Amelanchier nantucketensis* Bickn.**  
**Nantucket Shadbush**



This coastal plain species is a leafy, freely branching colonial species.. The leaves are entire or lobed but not divided into leaflets. Margins are serrate. Stems are spindly and do not exceed 3m in height. Flowers arranged 7–10 per inflorescence and are off-white. They have short spatulate petals, sometimes bearing pollen directly on the petal margins (andropetaly), 5–7mm in length. The dark reddish purple fruit are juicy and edible.

Found in disturbed habitats such as roadsides, fields, sand plains, riparian meadows and barrens.

Its NS distribution is limited to Cumberland, Shelburne and Halifax counties. (No collection for the Halifax Co. locality.

Elsewhere it is limited to the Atlantic coastal plain, from NS; south to New England and Maryland.

STATUS: Orange-listed.



Photos by Martin Thomas





***Amelanchier sanguinea* (Pursh) DC**  
 (= *A. fernaldii* Wieg.; *A. gaspensis* (Wieg.) Fern.)  
**St. Lawrence Serviceberry; amélanchier sanguin**



*Photo by Sean Blaney*

A dwarf shrub, it sometimes reaches 1m in height. The leaves are glabrous, ovate to widely lanceolate in outline. Their veins extend to the serrate margin. The inflorescence is also glabrous, the flowers carried on short pedicels to 3cm long. Flowers are subtended by reflexed or erect sepals. The ovary is smooth at the summit, forming succulent purplish black fruit.

Later flowering, early June to August.

Mainly calcareous areas, in bogs and barrens. Known from Shelburne, Lunenburg and Cumberland counties east to Guysborough and Cape Breton, including Saint Paul Island.

Ranges from NF to ON, south to AL and GA.

***Amelanchier stolonifera* Wirg.**  
 (= *A. spicata* (Lam.) K. Koch)  
**Dwarf Serviceberry; Bilberry; amélanchier en épis**



Similar to the preceding species, it is a dwarf, stoloniferous shrub, rarely reaching 1m. Leaves are more oblong, round and may be acute terminally. They are distinguished by being white-tomentose while young, soon becoming glabrous. Margins are finely serrate, the veins rejoining before reaching the margins. Flowers are paniculate, erect on pedicels of 1cm in length. Large black succulent fruit,

Photo by Martin Thomas

should separate this species from small *A. arborea* individuals.

Flowers in early June, later than *A. canadensis*.  
Frequents sandy, stony areas as on barrens and in boggy depressions.

Scattered in southwestern counties. Common across Annapolis and Kings counties and possibly northern Cape Breton.

Elsewhere NL to ON, south to SD, AL and GA.

## ***Argentina* Hill. Silverweed**

This small genus was recently removed from *Potentilla* and includes three or more species. Typically, the plants spread by creeping stems, rooting at the nodes. Unlike *Potentilla*, the flowers are solitary, axillary or terminal, but not in cymes. Ours have pinnately divided leaves, silvery tomentose beneath.

### Key to species

Leaflets flat, pubescence extending over the margins and loose;  
pedicels and petioles also pubescent.

*Argentina anserina*

Leaflets revolute, pubescence not extending over the margins; hairs tightly  
appressed; pedicels and petioles glabrous or nearly so.

*A. egedii*

***Argentina anserina* (L.) Rydb.**

**(=*Potentilla anserina* L.)**

**Silverweed; potentille ansérine**



A trailing, colonial species, the leaves are borne erect, 10–20cm long. There are 5–10 leaflets on each side of the axis increasing in size terminally. Sharply serrate on the margins, their undersurfaces are white-woolly or silvery. Flowers are borne on long peduncles arising from leaf axils, 1–2 bright yellow flowers. Achenes are distinctly furrowed.

Flowers from June to August.

Photo by Sean Blaney

Coastal species, on sandy beaches, dunes and marshes.  
May appear weedy about wharves.

Common around the entire coast. Infrequent inland.

Ranges across Canada to AK, south CA, NM and TN; Eurasia.

***Argentina egedii* (Wormskj.) Rydb.**

**(includes *P. anserina* var. *lanata* Boivin, var. *rolandii* Boivin)**

**potentille d'Egede**



Photo by Sean Blaney

It is very similar to the previous species, but for the revolute leaf margins. Silvery tomentum is tightly appressed on the lower leaf surfaces. The pedicels and petioles are only glabrescent. Ours is ssp. *groenlandica* (Tratt.) A. Löve.

Coastal sandy habitats.

Found from Seal Island, Yarmouth Co. north to Digby; Kings to Inverness counties.

Arctic Canada and Greenland, south to NY and MB.

***Comarum* L.**

A small and possibly monotypic genus, similarly separated from *Potentilla*. Differentiated by its freshwater marsh habitat and its woody decumbent stems. Striking purple flowers, produce an aggregate fleshy fruit.

***Comarum palustre* L.**

**(=*Potentilla palustris* (L.) Scop.)**

**Marsh Five-finger; comaret des marais**



Purple flowers form a compound fruit. Plants grow to 40cm producing robust stems with sheaths.

Flowers in July.

Muddy soils along streams and on terraces and marshes.

Photo by Ross Hall



Photo by Ross Hall

Not common in southwestern NS, scattered throughout central counties becoming more frequent northward.

Found from NL to AK, south to NJ, CO and CA; Eurasia.

## ***Crataegus* L.**

### **hawthorn**

Shrubs and small trees, the hawthorns total about 100 species of the Andean and north-temperate habitats. Hybrids are frequent. Typically they have stiff spines on the twigs and branches. Twigs are lustrous and slender; pith is small. Buds may be solitary, sessile and round, or ovate with about six scales. Leaves are simple and petiolate, toothed and usually lobed. Those on the flowering branches are usually less divided and of a different outline. Flowers are white or pink, in cymes. Calyx and corolla are five-merous with 5–25 stamens. Ovary is inferior, with 1–5 carpels. Fruits are small pomes, with 1–3 bony nutlets.

A difficult genus to ascertain species.

#### Key to species

- |  |                           |
|--|---------------------------|
| A. Veins of the leaves extending to the sinuses and points of lobes; flowers <12mm wide, nutlet 1.                         | <i>Crataegus monogyna</i> |
| aa. Veins only to the points of the lobe or larger teeth; flowers >13mm wide; nutlets >1.                                  | B                         |
| B. Nutlets rounded on the ends, deeply pitted on either side.  | <i>C. succulenta</i>      |
| bb. Nutlets not pitted, or with 2–5 grooves, pointed.  | C                         |
| C. Floral leaves tapering at the base and sometimes lobed.   | D                         |
| D. Floral leaves without lobes or nearly so; obovate or oblong.  | E                         |
| E. Leaves glossy above; nutlets 1–2 (3); fruit remaining hard and dry, 6–10mm in dia.; young branches reddish or brownish. | <i>C. crus-galli</i>      |
| ee. Leaves dull above; nutlets 3–5; fruit  | <i>C. punctata</i>        |

becoming succulent, 10–15mm in dia.,  
young branches pale ashy-gray.

dd. Floral leaves ovate or elliptic, lobed.

F

F. Leaves rounded to obtuse;  
nutlets not pitted.

*C. chrysocarpa*

ff. Leaves acuminate; nutlets  
shallowly pitted on inner surface.

*C. brainerdii*

cc. Floral leaves broad or rounded at the base,  
usually lobed or cleft.

G

G. Plants strongly pubescent; fruit pubescent  
at least at the ends; mature leaves pubescent  
beneath, at least along the veins; inflorescence  
tomentose.

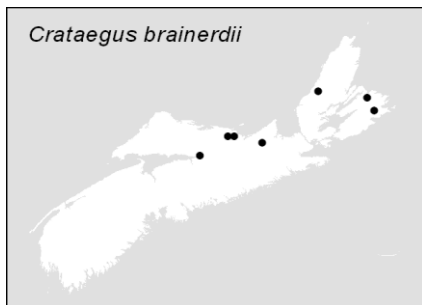
*C. mollis*

gg. Plants glabrous or glabrescent; fruit smooth;  
inflorescence may be villous.

*C. flabellata*

***Crataegus brainerdii* Sarg.**

**aubépine de Brainerd; go'gominaqsi**



This shrub is tall and thorny. Leaves are generally elliptic with shallow lobes, distally and finely serrate. The branches and hypanthia are pubescent and the sepals glandular. Stamens number 8–10, yellow. Similar to *C. chrysocarpa* but it has fewer, stouter thorns and is usually taller.

Flowers in June.

Generally edges of fallow fields.

Very common from Truro to Pictou and scattered to Cape Breton.

Eastern from NS to ON, south to NC.

***Crataegus chrysocarpa* Ashe**

**(=*C. coccinea* L.)**

**aubépine dorée**



Noticeably thorny, the spines may be 6cm long and slightly curved. Leaves are elliptic to nearly round with acute triangular lobes. Bases are wedge-shaped. Flowers arranged in cymes, pubescent. Sepals are glandular. Yellow stamens usually 10.

Flowers in June.

Edges of fields and early-successional forest.

Most common hawthorn in central NS and northward to Cape Breton.

Ranges from NS to AB, south to NM and VA.

***Crataegus crus-galli* L.**

**Cockspur Hawthorn; aubépine ergot-de-coq**

Generally arboriform, its canopy is rounded or with a depressed crown. Its branches are widely divergent. Twigs and leaves are mostly glabrous, their upper surfaces glossy dark-green. Fruit dry, red or green.

Dry and rocky soils on disturbed or successional sites.

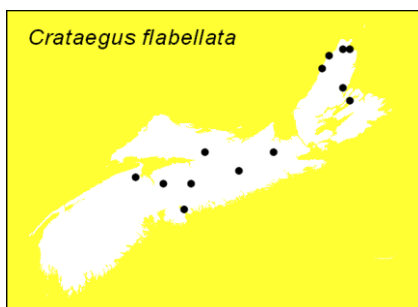
A single known site, from Sydney area. Introduced to Nova Scotia.

Ranges from NS to ON south to TX and FL.

***Crataegus flabellata* (Bosc.) K. Koch**

**(=*C. x. densiflora* Sarg.)**

**Gray's Hawthorn; Fan-leaf Hawthorn; aubépine flabelliforme**



A tree or shrub, this hawthorn is distinctive for its wide, deltate leaves. They are cuneate at the base and pubescent on the upper surface. Thorns range from 3–5 cm long. Stamens number 10 or fewer and have pink or red anthers., a character which distinguishes it from *C. chrysocarpa*. The oblong fruit has 3–5 nutlets. Sepals are sometimes serrate.

Grows in thickets or at the edge of fields.



Photo by Martin Thomas

Found in Kings and Hants Cos. and in northern Cape Breton.

Ranges from NS to ON, south to NY.

***Crataegus mollis* Scheele**

(=*C. submollis* Sarg.)

**Downy Hawthorn**

A tree (shrub) that may reach 10m in height, it bears a few thorns of 6cm length. Leaves are elliptic or round and 5–6cm wide, softly pubescent. The inflorescence is large and loosely branched, its pedicels, sepals and axis also softly pubescent. Stamens 8–10 with yellow or reddish anthers. Red fruit ripens early, and puberulent at the base.

Flowers a bit later than most hawthorns, in June.

Generally an inhabitant of edges such as along fields and thickets.

Collected from Antigonish to Lunenburg Co. and in Cape Breton.

Ranges from NS to ON, variously south to TX and GA.

***Crataegus monogyna* Jacq.**

**English Hawthorn; aubépine monogyne**



Photo by Martin Thomas

These plants are small trees, bearing deeply lobed and irregularly toothed leaves only 1.2–4cm long. Recurved thorns arm the twigs and leaf axils, rarely longer than 1cm. Up to 12 flowers are arranged in a short cyme. Each flower is less than 12mm wide and with 20 stamens crowned by pink anthers. The inferior ovary bears an undivided style. Fruit is oblong and reddish.



Photo by Martin Thomas

This May-flowering tree lent its vernacular name to the Pilgrim ship the 'Mayflower'. In England where this tree frequently grows as a hedgerow shrub, it flowers in May and is called the Mayflower.

Our trees flower in June.

An escape from cultivation.

Frequently encountered in the Annapolis Valley and about towns such as Truro and Windsor. Scattered localities south and eastward.

Introduced from Eurasia and found from NS to ON, variously south to AR and VA and western North America.

***Crataegus punctata* Jacq.**  
**aubépine ponctuée**

A thorny shrub, the prickles are 4–6cm long. Obovate leaves are only slightly lobed and taper towards the petiole. Veins are deeply impressed on the upper surfaces. Flowers have 20 stamens and are subtended by glandular sepals. The inflorescence is densely pubescent.

Flowers in June.

Open successional land. Known from Glen Margaret, Halifax Co.

NS; QC to MB, south to OK and GA.

***Crataegus succulenta* Schrader**  
**aubépine succulente**



Tall in stature, this thorny shrub has thick ovate or elliptic leaves, finely serrate around their margins. Sometimes lobed distally. Their veins are strongly impressed on the upper surfaces. Inflorescence is smooth or puberulent. Flowers are cupped by a glandular calyx with serrated sepals. Stamens number 20; their anthers are pink. Fruit may be puberulent near the attachment.

Photo by Martin Thomas

June flowering.

A shrub of edges and disturbed soils.

Scattered from Queens and Kings counties, to Cape Breton.  
NS to BC, south to AZ and GA; absent from SK.

## ***Dasiphora* Raf.**

Formerly included in *Potentilla* as a subgenus, the three species are shrubs. Asian in origin, there is one circumpolar species native to North America. All have leaves divided pinnately into five leaflets (3–7).

### ***Dasiphora fruticosa* (L.) Rydb.**

#### **Shrubby Cinquefoil; potentilla frutescente**



Photo by Martin Thomas

Freely-branching this shrub bears bright yellow flowers, clustered at the ends of branches. Leaves are leathery and pinnately divided, with usually five or seven leaflets.

Flowers throughout the summer.

Sometimes associated with calcareous soils; savannahs, meadows, bogs.

Found from Yarmouth and Digby counties to Cape Breton.

Elsewhere circumpolar, south to NC, NM and CA.

## ***Filipendula* Miller**

### **queen**

A north-temperate genus, with only three introduced species reaching Nova Scotia. Perennials, all bear a cup-shaped hypanthium in flowers 5–7-merous. Inflorescence is a large panicle, with graceful sweeping petals, surrounded by reflexed sepals. Stamens 10–40 in longitudinal rows opposite the corolla lobes. Pistils 5–15 in a circle. Fruit is indehiscent. Leaves are pinnately compound.

A. Leaves with 10–25 pairs of lateral leaflets.

*Filipendula vulgaris*

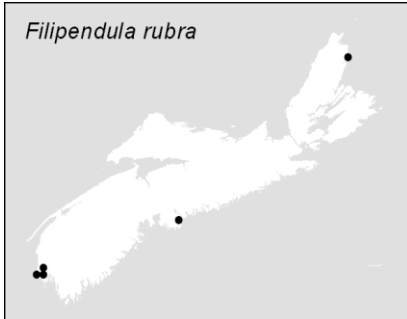
aa. Leaves with 2–5 pairs of lateral leaflets.

B

B. Lateral leaflets lobed, 3–5; flowers pink; fruit straight.  
bb. Lateral leaflets not lobed, merely serrate; flowers white;  
fruit twisted.

*F. rubra*  
*F. ulmaria*

***Filipendula rubra* (Hill) BL Robins**  
**Queen-of-the-prairie; filipendule rouge**



A woody herb, its height reaches to 1m tall. Smooth and unbranching, it bears a few leaves with deeply cleft leaflets, smooth beneath. The numerous pink flowers are clustered into an irregular panicle, 10–15cm long. Achenes are straight, 5–8mm long.

Flowers in July and August.

Roadsides and disturbed sites; a garden escape.  
Several widely separated localities: Yarmouth, Herring Cove, Halifax Co. and Red Head Victoria Co.

Elsewhere circumpolar, south to NC, NM and CA.  
Introduced from NF to ON, from further south.

***Filipendula ulmaria* (L.) Maxim.**  
**Queen-of-the-meadow; reine-des-prés**

Colonial, each plant may reach 2m tall. Leaves are divided into three leaflets, the terminal one larger than the lateral leaflets. Lower surfaces are white-tomentose. White flowers are crowded into a panicle, their stamens exerted. Achenes are twisted, 3–4mm long.

July and August flowering.

Oldfields and meadows, roadsides and old gardens.

Commonly found in the western part of Nova Scotia.

NF to ON south KY. From Eurasia.



***Filipendula vulgaris* Moench**  
**Dropwort; filipendule vulgaire**

Low-growing, the leaves are mostly basal. They are narrow and with many pairs of incised leaflets, of equal size. Flowers are pink, becoming white, forming straight densely pubescent follicles.

Flowers June and July.

Also found along roadsides and other disturbed sites.

Limited to the Yarmouth area, where it persists.

NF, NS, ON, south to NY; CA. Introduced from Europe.

***Fragaria* L.**  
**Strawberries**

A genus of perennial herbs, it includes nearly 30 north-temperate and South American species. Spreading freely by runners, these familiar plants have achenes, embedded on the swollen persistent receptacle, – the strawberry.

Leaves are divided into three serrate leaflets. Flowers have five white petals surrounded by five sepals and an equal number of leafy bracts. Hypanthium is saucer shaped.

Key to species

Achenes on the surface of the receptacle; petals <7mm long.

*Fragaria vesca*

Achenes in pits on surface of receptacle; petals equal to or >7mm long.

*F. virginiana*

***Fragaria vesca* L.**  
**Woodland Strawberry; fraisier des bois**



Slender plants, they extend abundant, long and slender runners. Flowers are white, borne on long scapes exceeding the length of the petioles, both downy. Fruits are ovate. Ours belong to ssp. *americana* (Porter) Staudt.

Flowers in June.

Forming dense patches in shady forests, ravines.

Photo by Martin Thomas

Brier Island to Kings and Cumberland counties, to northern Cape Breton.

NF to NT and BC south to NE, TN and NC.

A white-berried form of this species persists in a number of locations within the province: White Rock, Wolfville, Grand Pré and Barrington.

***Fragaria virginiana* Duchesne**  
**Strawberry; fraisier des champs**



Photo by Martin Thomas

A low-growing plant spreading by numerous rhizomes. Leaves are firm, on short petioles and comprise three serrate leaflets. Cauline leaves are absent. Flowers are terminally clustered on a scape. Petals are white, receptacle matures red, bearing its achenes in pits and subtended by a persistent calyx. We have two subspecies here: ssp. *virginiana* has the pubescence spreading, while ssp. *glauca* (S. Wats.) Staudt. has arcuate or appressed pubescence.

Flowers earlier in May.

Roadsides, meadows and fallow fields.

Common throughout.

Species is found throughout North America, including the arctic.

HYBRID: Our cultivated strawberry is short-persisting after cultivation. It is a cross with *F. chiloensis* and *F. virginiana* and is named *F. x ananassa* (Westone) Duchesne. Generally larger in stature, the flowers and fruit also much exceed the size of the wild species.

## ***Geum* L.**

### **Avens**

Another genus of the northern hemisphere, it also extends southward to mountainous South America. Of nearly 50 species, NS hosts six. Inflorescence is generally a corymb. Calyx is a tight spiral of sepals, subtended by a whorl of linear bracts. Petals may be white, yellow or purplish marked by darker nectar guides. Stamens number about 10. Styles are filiform and persistent on the achenes. Basal leaves are compound, vastly different in outline than the cauline leaves.

#### Key to species

- |  |                        |
|--|------------------------|
| A. Style not jointed, but long and feathery at the base in fruit.                      | <i>Geum peckii</i>     |
| aa. Styles jointed near the middle, the basal part hooked, terminal portion deciduous. | B                      |
| B. Sepals purple to crimson; flowers nodding; petals erect.                            | <i>G. rivale</i>       |
| bb. Sepals greenish; flowers erect; petals arcuate.                                    | C                      |
| C. Petals white or yellowish-green.  | D                      |
| D. Pedicels puberulent; receptacle densely hispid.                                     | <i>G. canadense</i>    |
| dd. Pedicels hirsute; receptacle nearly smooth.  | <i>G. laciniatum</i>   |
| cc. Petals golden yellow.  | E                      |
| E. Stipules very broad, reniform or hemispheric.                                       | <i>G. urbanum</i>      |
| ee. Stipules longer than wide, lanceolate or ovate.                                    | F                      |
| F. Leaflets dimorphic; beak of the achene glandular.                                   | <i>G. macrophyllum</i> |
| ff. Leaflets essentially the same shape; beak of the achene without glands.            | <i>G. aleppicum</i>    |

***Geum aleppicum* Jacq.**  
**benoîte d'Alep**



*Photo by Martin Thomas*

Plant pubescent and reaching about 1m in stature. Basal and cauline leaves are pinnately divided into leaflets, tapering at the base to the axis. Lateral leaflets about the same size as the terminal ones. Flowers are bright yellow and about equal in length to the sepals. Achenes are hispid, with the styles becoming recurved, deciduous tip.

Flowers in June and July.

Along roadsides, about buildings and in fallow disturbed soil.

Common from Annapolis and Cumberland counties to northern Cape Breton.

Across Canada, south to CA, NM and GA; Eurasia.

***Geum canadense* Jacq.**

**White Avens; benoîte du Canada**



*Photo by Martin Thomas*

A slender branching plant it also may reach a height of 1m. Leafy plants, they have most of the basal leaves divided into three lanceolate leaflets. Flowers are few, with white petals of similar length or slightly longer than the sepals. Pedicels tend to be lightly tomentose. Achenes are arranged in round heads, the receptacle densely pubescent, conspicuous even in flower. It resembles the following species.



Photo by Martin Thomas

***Geum laciniatum* Murray**  
**White Avens; benoîte laciniée**



Photo by Martin Thomas

Flowers in July.

Fertile soils on wooded intervals.

Uncommon in southwestern counties and along the Atlantic. Scattered from Annapolis to northern Cape Breton.

NS to ON, south to MT, TX and GA.

A tall coarse plant, its stems are densely hispid and the long-petioled basal leaves have deeply incised leaflets. Inflorescence has a few diverging branches and white flowers. Their pedicels are hirsute. Receptacle is smooth although the style is lightly hairy.

The rounded head bears smooth achenes (var. *laciniatum*) or bristly at the summit (var. *trichocarpum* Fern.). The latter variety has been collected from Windsor, Hants Co. and Five Islands, Colchester Co.

Flowers in July.

Deep fertile soil on intervals and in predominantly deciduous forest.

Annapolis Co. to Cape Breton. Infrequent or absent on the Atlantic coast from Queens to eastern Cape Breton.



Ranges from NS to northern ON, south to KS, AL and SC.

***Geum macrophyllum* Willd.**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

Of shorter stature than the previous species, it barely reaching 50cm. Leaves are hirsute. Basal leaves produce a larger nearly round terminal leaflet and a number of smaller lateral leaflets. Inflorescence is narrow, becoming more erect as the yellow flowers mature. Basal portion of styles are lightly hirsute but the ovoid receptacle and achene cluster are smooth or merely hispid.

Flowers in June.

Wet soils in meadows, riparian zones, often growing in muck.

A northern species from Annapolis and Cumberland counties, but infrequent along the Atlantic.

NF to AK, south to CA, NM and NY.

***Geum peckii* Pursh**

**Eastern Mountain Avens; benoîte de Peck**



*Photo by Sean Blaney*

A perennial herb, it reaches 50–60cm in height, when in flower. Leaves are mostly basal, with one very large terminal leaflet and two pairs of greatly reduced lateral leaflets. The terminal leaflet is round or kidney-shaped with very shallow lobes and serrate. Flowers number 1–5 and are borne on long scapes. Petals yellow, styles exerted and straight. Plants hispid to hirsute.

Flowers June to September.



Photo by Sean Blaney



### ***Geum rivale* L.**

#### **Purple Avens; benoîte des ruisseaux**



Photo by Martin Thomas



Photo by Sean Blaney

Bogs, fens, and shrub swamps.

Brier Island; Digby Neck.

In Canada only known from Nova Scotia. Elsewhere in the White Mountains of New Hampshire.

STATUS: Nationally Endangered (S1); RED-listed in Nova Scotia.

An unbranched plant, it is nearly 1m tall. Both basal leaves and cauline leaves are present and pinnately divided. Flowers 15–25mm wide, nodding. Pale yellow petals are suffused with purple. Pedicels and hypanthia are glandular pubescent. Styles are long villous basally and terminally.

Flowers in June.

Frequently encountered in ditches, swamps, meadows and even wet fields.

Common throughout the province, especially northern areas.

NF to AK, south to CA, NM and NY.

Across Canada and south to CA, NM and MD; Greenland.

***Geum urbanum* L.**  
**benoîte commune**



Photo Sean Blaney

This recent introduction to NS also produces flowers with yellow petals at least the same length as the sepals. The most noticeable character is the presence of extremely wide stipules, wider than long and notched or lobed.

Flowers in June.

Found roadside amidst a *Rosa rugosa* thicket.

So far known from only a single station, at Sand Beach Yarmouth Co., near Thrum Cap causeway.

NF to AK, south to CA, NM and NY.

Elsewhere it is known from NS; NB to ON, south to IL and PA and WA, OR and UT. Adventive from Europe.

This species has potential to become quite invasive, particularly in forested campgrounds or in rich soils of other disturbed sites. (Blaney, 2010, pers. comm.)

***Malus* Mill.**  
**Apple**

A genus of trees or shrubs, the apples include from 35–55 species, depending on the treatment. Generally they typically have stout rugose twigs, armed with lateral thornlike spurs along them. Distal ends may also bear tomentum. Buds are solitary with three or four scales. The petiolate leaves are simple, with serrate margins. Pubescence is variable on the lower leaf surfaces. Flowers are white to pink in small cymes, arising from lateral spurs. Five-merous, the hypanthia are urceolate. Inferior ovary bears five carpels, five locules each with two seeds. Styles number five, connate at the base. Fruit is a pome, fleshy and succulent, edible raw or cooked.

**Key to species**

Leaves and twigs glabrous; sepals deciduous in fruit; fruit <1cm across.

*Malus baccata*

Leaves pubescent beneath, at least along the veins; twigs also pubescent  
 calyx persistent; fruit >2m across.

B

B. Leaves serrate, pubescent on the veins only; hypanthium smooth.

*M. prunifolia*

bb. Leaves crenate or serrate, lower surface pubescent; hypanthium tomentose.

*M. pumila*

cc.

***Malus baccata* (L.) Borkh.**

**(= *Pyrus b.* L.)**

**Siberian Crab-apple; pommier de Sibérie**

It differs from the following species in having deciduous pedicels and calyx. The fruit are smaller, barely reaching 1cm in diameter, red or yellow in colour.

Near habitation. May persist after cultivation.

Grown for its lovely floral display, this small tree has been reported from Halifax. It is unclear whether it was from wild or planted material.

Ranges from NF to ON, south to MO and KY.

***Malus prunifolia* (Willd.) Borh.**

**Plum-leaf Crab-apple; pommier à feuilles de prunier**

Unlike apple below, this species is glabrous and the calyx soon becomes smooth. Leaves are serrate. Fruit is 2cm in diameter.

Riparian.

Reported once, from Weymouth, Digby Co.

Elsewhere, it has been mapped from NS and NB, south along the coast to SC, west to IL; MN. Introduced.

***Malus pumila* Mill.**

(=*Pyrus malus*. L.)

Apple; pommier commun



Photo Sean Blaney

Generally a small tree, it bears alternate leaves on spurs. Leaves are simple and ovate to elliptic and serrulate. Flowers are showy, white suffused with pink, arranged in short racemes. Stamens are numerous, the anthers yellow. Ovary is inferior becoming a fleshy pome, with a persistent calyx.

Many cultivars are known as varieties. When found wild, the branches become quite thorny.

Flowers late May and early June.

Found in well-drained soils.

Very common in cultivation and scattered as an escape.

NF to AK, south to CA, NM and NY. Naturalized from Eurasia, throughout all but the central states and provinces in North America.

***Photinia* Lindl.**

Colonial shrubs and small trees, 40–60 species, primarily Asian, with Nova Scotian species formerly included in *Aronia*. Leaves are simple and petiolate, elliptic to obovate, their margins finely serrate. A unique character is the row of reddish glands down the upper surface of the midrib. Flowers are arranged in small flat cymes, pinkish or white, five-merous, but for the 15–20 stamens. Ovary is half-inferior, compound with five carpels, producing a small red or black pome.

Key to species

A. Twigs, pedicels, axis and lower leaf surfaces glabrous or nearly so; fruit black; leaves not turning red in autumn.

*Photinia melanocarpa*

aa. Twigs, pedicels, lower leaf surfaces and axis at least puberulent.

B

B. Fruit red; sepals densely glandular; buds somewhat pubescent.

*P. pyrifolia*

bb. Fruit black; sepals eglandular or nearly so; buds soon smooth.

*P. floribunda*



***Photinia floribunda* (Lindl.) KR Robertson & Phipps**

**(=*Aronia prunifolia* (Marsh.) Rehd.)**

**Purple Chokeberry; aronie à feuilles de prunier**



Photo by David Mazerolle

Very similar to the next species, differing mostly in pubescence and autumn leaf colour. This species is variously puberulent on the lower leaf surfaces and pedicels. Its leaves turn aubergine or bronze in the fall. Shiny black fruit resemble huckleberries.

Flowers in mid-May.

Sandy rocky soils on barrens, thickets and meadows and often lacustrine; bogs.

Distribution is unknown, but probably throughout. A distinctly eastern species, from NF to ON, south to MS and GA.



Photo by Sean Blaney

***Photinia melanocarpa* (Michx.) KR Robertson & Phipps**

**(=*Aronia m.* (Michx.) Ell.)**

**Black Chokeberry; aronie à fruits noirs**



Photo by Sean Blaney

Generally a smooth shrub, several metres tall. Bearing black fruit less than 1cm in diameter, it also has a glandular calyx.

Flowers May to early June.

Prefers poorly-drained soils in bogs and swamps.

Found throughout the Province.



Photo by Sean Blaney

Ranges from NF to ON south to AR and GA.

***Photinia pyrifolia* (Lam.) KR Robertson & Phipps  
(=*Aronia arbutifolia* (L.) Ell.)**

**Red Chokeberry; aronie à feuilles d'arbousier**



Photo by Sean Blaney

This shrub may reach several metres in height, with slender wiry branches. Dark glands on the serration are most noticeable on this species. Leaves are pubescent beneath. Fruit is a small pome less than 6mm in diameter and bright red.

Flowers later in June.

Frequents meadows and thickets, often on lakeshores in wet or rocky soil.

Southwestern Nova Scotia at least to Truro and less frequent eastward.

NS to ON, south along the coastal plain; inland to TX and FL.

***Physocarpus Maxim*  
Ninebark**

These shrubs bear peeling bark and large solitary, brownish winter buds. The half-ovate leaf scars are raised on spongy cushions. Petiolate leaves are simple but with three crenate lobes, cordate or cuneate at the base. Tiny white flowers are gathered in a terminal corymb, usually hemispheric in appearance. The petals number 4–5 forming a dehiscent follicle.

***Physocarpus opulifolius* (L.) Maxim.**

**Ninebark; physocarpe à feuilles d'obier**



Photo by Martin Thomas

A shrub bearing leaves that superficially resemble those of *Viburnum*. The three-lobed leaves are generally dentate and with three main veins. The fruit is a dry follicle, not a succulent drupe.

Flowers in June.

Associated with roadsides, around abandoned dwellings and river sides.

There are several localities on mainland Nova Scotia: Mill Village, Queens Co., at Grand Pré, Pictou and Herring Cove, Halifax Co. It is to be expected elsewhere.

Ranges from QC to MB, south to AR and FL. Introduced to NS and NB.

***Potentilla* L.**

**Cinquefoils**

A genus of about 200 Holarctic species, with a few reaching the New Guinea highlands. The genus has seen some taxonomic changes with several species now separated from the true cinquefoils.

Herbaceous, annual or perennial, all are yellow flowered (in NS species), most with palmately divided leaves. Petals and sepals number five, the sepals alternating with narrow green bracts. Stamens 5–20. Achenes are clustered on the receptacle, forming a dry head.

**Key to species**

- |   |                                |
|---|--------------------------------|
| A. Leaves pinnately divided.  | <i>Potentilla pensylvanica</i> |
| aa. Leaves palmately divided or ternate.                                | B                              |
| B. Leaves generally with 3 leaflets (4–5 on a few basal leaves).        | C                              |
| C. Cauline leaves sessile, on petioles <5mm long.                       | <i>P. erecta</i>               |
| cc. Cauline leaves on petioles >5mm in length.                          | <i>P. norvegica</i>            |
| bb. Leaves with number of leaflets >5.                                  | D                              |
| D. Plant often trailing; flowers axillary or terminal, solitary or few. | E                              |

- |  |                      |
|--|----------------------|
| E. Flowers 4-merous.   | <i>P. anglica</i>    |
| ee. Flowers 5-merous.  | F                    |
| F. Stems radiating from a thick taproot; flowers >1.5cm wide.  | <i>P. reptans</i>    |
| ff. Stems from a short rhizome; flowers smaller.   | G                    |
| G. Leaflets toothed only in the distal half; first flower arising from the axil of the first leaf.             | <i>P. canadensis</i> |
| gg. Leaflets toothed nearly to the base; first flower arising from the axil of the second leaf.                | <i>P. simplex</i>    |
| dd. Plant erect or ascending; flowers in terminal cymes.   | H                    |
| H. Leaves with more than 5 leaflets.   | <i>P. recta</i>      |
| hh. Leaves with 5 leaflets.  | I                    |
| I. Lower surface of leaflets densely tomentose, concealing the undersurface, almost feltlike, white or silver. | <i>P. argentea</i>   |
| ii. Lower surface of the leaflets thinly tomentose-villous, grayish.   | <i>P. intermedia</i> |

***Potentilla anglica* Laicharding**  
**potentille d'Angleterre**



*Photo by Sean Blaney*

Arising from a stout crown are several slender stems, soon reclining. Leaves are petiolate, usually ternate, each 1–2cm long. Leaflet bases are cuneate and with 5–7 teeth around the margin distally. Solitary yellow flowers arise from the leaf axils, on long slender pedicels Four-merous, their length exceeds that of the sepals.

Flowers June and July.

Scattered localities from Guysborough Co. to Cape Breton. Historically recorded from Yarmouth Co.

Ranges in the east from NF to QC, south to PA; OR to CO and CA. From Eurasia.



***Potentilla argentea* L.**

**Silvery Cinquefoil; potentille argentée**



*Photos by Martin Thomas*



A caespitose species, its stems are erect or sprawling, 20–40cm tall. Palmately lobed leaves are finely dissected and silvery tomentose below. Yellow flowers are arranged in a terminal cyme. Petals are nearly equal to the sepals.

Flowers over the summer, from June to August.

Look for this plant near gardens, roadsides and in other disturbed habitats.

Scattered throughout, except for the eastern shore.

Across Canada, south to NC, AZ and OR. Introduced from Europe.

***Potentilla canadensis* L.**

**potentille du Canada**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

This slender species soon reclines and becomes prostrate. There are five leaflets, narrowly cuneate at the base, sharply serrate around the tips. The leaves are silky-villous, the pubescence appressed at flowering. Flowers are borne on long peduncles, arising from the first developed leaf axil on the stem.

Flowers in June.

Found on dry rock barrens and other open areas.

Known from Yarmouth and Shelburne counties and Kings, Halifax and Hants counties.

Ranging from NF to ON, variously south to TX and GA.



***Potentilla erecta* (L.) Rauschel**  
**potentille tormentille**

Bearing solitary flowers, each is four-merous. Cauline leaves are sessile or on very short petioles. Flowers June to August elsewhere in its range.

Favours mossy damp woods.

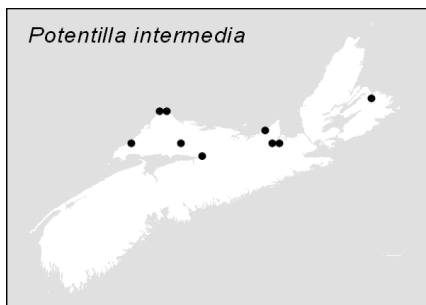
Known only from Cape Breton Co.

Elsewhere from NF, NS and MA after its introduction from Eurasia.

***Potentilla intermedia* L.**  
**potentille intermédiaire**



Photo by Sean Blaney



A low-growing, sprawling plant from a stout basal crown, the stems reaching 40–50cm. The stems and leaves are covered with copious appressed pubescence. Basal leaves are long-petiolate, while the cauline leaves are short-petiolate. Leaves have 4–5 leaflets, dentate on the margins. The inflorescence is freely branching. Flowers are small, about a cm wide, the petals and sepals of equal length.

Flowers in July.

A plant of roadsides and disturbed soils.

Local from Cumberland Co. eastward.

NS to QC, MN to KY and NC; BC. From Europe.

***Potentilla norvegica* L.**

**Rough Cinquefoil; Norwegian Cinquefoil; potentille de Norvège**



*Photo by Ross Hall*

A stout plant, growing as a biennial or annual, to 50cm tall. With numerous ternate leaves, the leaflets are obovate and deeply serrate. Freely branching, the plants bear diffuse inflorescences, with numerous small yellow flowers. The petals are of similar length to the sepals.

Flowers in July.

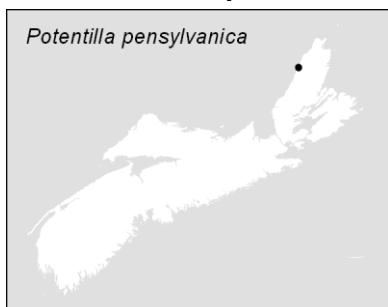
Another species of fallow fields and roadsides.

Scattered throughout the province, rarely common.

Widely introduced from Europe and absent only around the eastern Gulf of Mexico.

***Potentilla pensylvanica* L.**

**potentille de Pennsylvanie**



A perennial species, with erect or ascending stems to 60cm, from a short crown. Leaves are pinnately divided, usually with 5–7 leaflets. Undersurfaces are tomentose. Leaves are deeply incised, their lobes rounded. Upper leaflets are larger than the proximal leaflets. Styles are deeply inserted, only 1mm long. Ours are referenced as var. *littoralis* (Rydb.) Boivin.

Flowers in June.

Associated here with sandy or gravelly beaches on the coast.

Historically known from north of Cheticamp. Not reported recently.

Known from NF to AK and even into the MacKenzie District, south to CA, NM, and New England.

***Potentilla recta* L.**

**Sulphur Cinquefoil; potentille dressée**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

A perennial herb with unbranching stems, it stands to 60cm tall. Leaves are palmate, with 5–7 oblanceolate leaflets, 2–5cm long. Leaves are villous on both surfaces. Showy flowers arranged in a flat-topped corymb, 10cm wide. Flowers with petals to 1cm long and often notched.

Flowers in July.

Another species of disturbed soils and fields.

Frequently seen throughout.

Throughout North America, but for the arid southwest. Introduced here from the west.

***Potentilla reptans* L.**

**potentille rampante**

Long-trailing stems root at the nodes, from which the leaves arise. Leaves are palmately split into five ovate or obovate leaflets, serrate on the edges. Yellow flowers are solitary, nearly 2cm across, and borne on long pedicels from the leaf axils.

Flowers in June and July.

Associated with wharves and possibly ballast piles.

From Yarmouth to Halifax, Hants and Annapolis counties.

NS to ON, south around the Great Lakes to VA; FL; CA. After introduction from Europe.

***Potentilla simplex* Michx.**

**Cinquefoil; Five-finger; potentille simple**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Long-trailing on wiry stems, exhibiting long internodes. Variably pubescent, they are usually hirsute or with a light appressed covering. Leaflets are ovate to elliptic and usually five. They are sharply toothed on the distal half. The yellow flowers arise from the second leaf axil on slender pedicels.

Flowers June and July.

Similar habitat as other species, infertile, leached soils of disturbed sites.

Common throughout.

Ranges from NS to ON, south to TX and GA.

***Poterium* L.**

**Salad-burnet**

A genus of 13 herbaceous perennials or shrubs, several of which are Mediterranean endemics. Leaves compound, oddly pinnate with adnate stipules. Pedicels clasping. Flowers arranged in a terminal headlike spike, the flowers bisexual or pistillate. The hypanthium is persistent, wholly enclosing the achenes in fruit. Fruit is angled or winged, otherwise ornamented. Styles are brushlike and branched. North American material is said to belong to a single species, as below.

***Poterium sanguisorba* L.**

**(=*Sanguisorba minor* Scop.)**

**Garden Burnet**

A rhizomatous herbaceous plant, sometimes reaching to 80cm in height. It bears both basal and cauline leaves. Leaves are odd-pinnate with 5–15 ovate leaflets, widely spaced and serrate. Flowers are carried in tightly clustered round heads, subtended by greenish sepals. Ours is var. *polygamum* (Waldstein & Kitaibel).

Flowers June and July.

Persisting in fields and on waste ground.

Known from Windsor and Halifax and reported from scattered locations.

NS to ON, south to TN and NC; BC south to CA and NM. Eurasian introduction.

## ***Prunus* L.**

Nearly 200 species comprise this north-temperate genus; some are familiar to most: almond, plum, cherry, peach and apricot particularly. Woody plants, the bark is conspicuously marked with lenticels. Leaves are usually simple, serrate on the margins. Most species have a pair of very large glands on the distal end of the petiole. Showy flowers are highly fragrant, arranged in terminal racemes or axillary umbels and occasionally even solitary.

### Key to species

- |   |                        |
|---|------------------------|
| A. Plant a small very thorny shrub.   | <i>Prunus spinosa</i>  |
| aa. Plant a tree or shrub, not spiny.   | B                      |
| B. . Flowers in terminal racemes or small clusters subtended by leafy green bracts, or sepals smooth above; stone round or ovate. | C                      |
| C. Inflorescence a raceme with >20 flowers; pedicels shorter than the axis.   | D                      |
| D. Sepals entire or with subtly glandular margins, persistent in fruit; leaf margins with very short appressed or incurved teeth. | <i>P. serotina</i>     |
| dd. Sepals soon deciduous, marginal glands conspicuous; leaf teeth ascending, deltate.  | <i>P. virginiana</i>   |
| cc. Inflorescence umbelliferous, <12 flowers on pedicels, exceeding the axis of the inflorescence.                                | E                      |
| E. Clusters of flowers without bracts, or subtended only by bud scales.   | <i>P. pensylvanica</i> |
| ee. Clusters of flowers, with leafy bracts at the base.   | F                      |
| F. Leaves with persistent pubescence below; calyx tube tightly constricted at the summit; calyx lobes entire.                     | <i>P. avium</i>        |



- ff. Leaves becoming smooth; calyx tube not constricted; lobes of the calyx toothed. *P. cerasus*
- bb. Flowers solitary or in small clusters, not subtended by leafy green bracts; sepals pubescent within; stones flattened. G
- G. Flowers 4–5 per cluster; pedicels pubescent; fruit red to yellow; native. *P. nigra*
- gg. Flowers solitary or paired; pedicels softly pubescent; fruit dark blue to black; introduced. *P. domestica*

***Prunus avium* L.**

**Sweet Cherry; cerisier des oiseaux**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

A small tree resembling *P. cerasus*, but with large softer leaves, downy on the ribs below. Flowers arranged in corymbs, subtended by enlarged inner bud scales, each flower 2–3cm wide. The calyx tube is tightly constricted at the summit, its lobes smooth. Fruit about 2cm in dia., yellowish to purplish black. There are numerous cultivars from this species.

Flowers in late May.

Grows along edges such as roadside thickets and fields. Barely hardy here.

Limited to Wolfville and Annapolis Royal, with a single collection from Cape Breton, at Sydney.

NS to ON south to TN and SC; BC to CA.

***Prunus cerasus* L.**

**Sour Red Cherry; cerisier acide**



Photo by Martin Thomas



Photo by Martin Thomas

Another tree, this one has waxy or leathery leaves, whose margins are crenate. Their veins beneath are smooth. Inflorescence of few flowers, arranged in a sessile umbel. Calyx lobes are serrate and the tube is not constricted at the top, both important characters in separating it from *P. avium*. The inner bud scales are erect and not reflexed. Fruit is red and astringent or sour. Several cultivars are also known.

Flowers in May.

A cultivated tree escaping to roadsides and forest edges. Common in the Annapolis Valley; occasional elsewhere.

Ranges in the east from NS to ON, south to KS and GA and in the west BC to NM sporadically.

### ***Prunus domestica* L.**

#### **Plum; prunier domestique**

A small tree, its branches may be sparsely thorny or spurred. Leaves may reach 10cm long, downy pubescent beneath. Fruit are from 3–4 cm long, and only occasionally bearing pubescent pedicels. Commonly, *ssp. domestica* is the cultivated plum. Occasionally, especially near Wolfville, collections have been made of *ssp. institia* (L.) CK Schneider.

Flowers from late May into June.

About edges of fields and in fallow orchards, where trees persist after cultivation.

Collections from Kings, Lunenburg and Victoria counties. Generally not escaped, but persisting. European introduction.

Ranges from NS to ON, south to TX and LA; WA variously south to CA.

***Prunus nigra* Ait.**

**(= *P. americana*, var. *nigra* Waugh)**

**Canada-plum; prunier noir**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

A shrub, often becoming thorny with age. Leaves are folded in bud rather than rolled, their margins crenate. Numerous flowers are carried on dark red pubescent pedicels, three or more per inflorescence. Ranging from white to pink, the fruit is also reddish and oblong. Flowers subtended by a glandular calyx, the sepals serrate.

Flowers early in June.

Another species of edges of both fields and forests.

Collections extant from the Annapolis Valley and Tatamagouche, Colchester Co.

Ranges from NS to MB, south to IL. Formerly used as nursery rootstock, introduced from further south.

***Prunus pensylvanica* L.f.**

**Pin-cherry; Bird-cherry; cerisier de Pennsylvanie; masgwe'simanaqsi**



*Photo by Sean Blaney*

A slender tree or shrub, it may reach a height of 10m. The branches are smooth, not thorny. Lanceolate or elliptical leaves are finely serrate, with appressed teeth. Flowers are up to 1.5cm wide, arranged in a corymb. Bracts below the inflorescence are absent. Fruit to 8mm in diameter, soon becoming bright red and producing a globose pit.

Flowers throughout May and into June.





*Photo by Sean Blaney*

An early-successional species, flourishing at the edges of woods, fields and meadows wherever soils are light.

Common throughout Nova Scotia.

Across Canada variously south to WY and GA.

***Prunus serotina* Ehrh.**

**Black Cherry; cerisier tardif**



*Photo by David Mazerolle*

A tree, its trunk is covered with smooth dark bark. The leaves are glossy, serrate with the teeth inturned. The midrib below often with adjacent rusty hairs. Flowers and fruit borne in long drooping racemes, the fruit ripening to a purplish red. The calyx is persistent.

Flowers in June.

A native cherry, of thickets and mixed forests.

Common from Shelburne and Digby counties to Antigonish Co. Less frequent in the centre of the province.

Ranges from NS to ON, south to AZ and FL; BC.

NOTE: hybridizes with *P. virginiana*. Some of these hybrids may be found at South Berwick.



*Photo by Sean Blaney*



*Photo by Sean Blaney*

***Prunus spinosa* L.**

**Blackthorn; prunellier**

This shrub is very spiny. It bears leathery serrulate leaves, 2–4cm long. Its flowers are solitary, producing bluish globose fruit, considered inedible. Occasionally grown as an ornamental.

Flowers in June.

Collections from Wolfville and Halifax. Doubtful if it is escaping, more likely persisting after cultivation.

Ranges from NS, ON, BC and south MD; disjunct in TN and AR; ID and OR.

***Prunus virginiana* L.**

**Choke-cherry; cerisier de Virginie**





*Photo by Martin Thomas*

A large shrub, bearing obovate or oblanceolate serrate leaves. Their texture is thinner than those of Black Cherry. Flowers are white, borne in drooping racemes. Calyx is deciduous, its lobes soon dropping. Rusty hairs are absent from the lower leaf surface.

Flowers in June.

Another species of edges: fields, meadows, trails, roads and even intervals.

Common throughout the northern half of the province, becoming less frequent to the southwest.

Ranges across Canada. South to CA, TX and GA.



*Photo by Sean Blaney*

## ***Pyrus L.***

### **Pear**

A genus of north-temperate trees or shrubs of Europe, Asia and North Africa, reaching Nova Scotia only as introductions. Typically the flowers are white, producing a pome. Stamens are inserted. Fruit is enclosed within the fleshy swollen calyx tube, in five carpels. Differs from apple, which has been included here in the past, by the presence of stone cells, which give the characteristic texture to the edible flesh.

***Pyrus communis* L.**

**Common pear; poirier commun**



Photo by Patrick Foote

Reaching 15m in height, the unpruned trees have a narrowly pyramid crown. Leaves elliptical and crenate. White flowers bear stamens with red anthers.

Flowers in May.

Spreading from cultivation and persisting in thickets, edges of woods.

Primarily collected from the Annapolis Valley and from Sydney area.

Eurasian and thriving in North America across the continent, but for the plains and prairies.

***Rosa* L.**

**Rose**

A genus of some of the most prized ornamentals of the north-temperate regions and including about 100 species. Hybrids and polyploidy are common. They are typified by the urn-shaped hypanthium, narrowed at the summit. Calyx bears green acute sepals, sometimes persisting in fruit. Large petals form showy flowers, from white through all shades of pink and red and often variegated. Very short stamens inserted near the constricted opening of the hypanthium. Styles barely exerted. Fruit an achene, enclosed by the fleshy hypanthium, called a hip. Leaves pinnately divided and with adnate stipules. Plants generally armed with thorns or bristles.

**Key to species**

- |   |                        |
|---|------------------------|
| A. Styles connate, exerted; flowers small (2–4cm wide). white.                                  | <i>Rosa multiflora</i> |
| aa. Styles distinct, only stigmata exerted; flowers >4cm across from white to deep pink.        | B                      |
| B. Flowers solitary at terminal ends of branches; pedicels not subtended by bracts; introduced. | <i>R. gallica</i>      |
| bb. Flowers solitary or in corymbs, if solitary, then pedicels bracted; native and introduced.  | C                      |
| C. Sepals unequal in size and shape, the outer pinnate  | D                      |

with several lanceolate segments; the hypanthium opening only 1mm wide.

D. Lower leaf surfaces smooth or nearly so. *R. canina*

dd. Lower leaf surfaces glandular. E

E. Styles pubescent; sepals erect, persistent in fruit. *R. eglantheria*

ee. Styles glabrous; sepals deciduous. *R. micrantha*

cc. Sepals entire, or some with 1–4 linear branches arising from the base, opening of the hypanthium >2mm wide. F

F. Current season's wood tomentose; petals 3–5cm. *R. rugosa*

ff. Current season's wood glabrous or puberulent; petals mostly <3cm. G

G. Hypanthia and pedicels glandular; sepals arcuate or reflexed after flowering, deciduous. H

H. Leaves finely toothed. I

I. Prickles on nodes broad-based and reflexed, few or none on the internodes. *R. palustris*

ii. Prickles on nodes and internodes all straight and narrow. *R. nitida*

hh. Leaves coarsely toothed. J

J. Prickles mostly at nodes, reflexed and compressed. *R. virginiana*

jj. Prickles slender, straight, numerous on the internodes. *R. carolina*

gg. Hypanthia and pedicels glabrous; sepals long-persistent, usually erect after flowering. K

K. Thorns on nodes; flowers often double *R. cinnamomea*

kk. Thorns absent from nodes, or stems evenly armed. L

L. Floral bract and upper stipules glandular; stems densely bristly on most of the internodes. *R. acicularis*

ll. Floral bracts and upper stipules glabrous or pubescent; stems unarmed or with slender thorns only on the lower internodes. *R. blanda*

### ***Rosa acicularis* Lindl.**

It is a densely armed upright shrub forming dense thickets from rhizomatous branches. Leaves are coarsely divided into 5–7 serrate leaflets. Flowers sometimes borne in corymbs, more often solitary, deep pink. Ours is ssp. *sayi* (Schwein.) WH Lewis.

Flowers mid-June to July.

Found in thickets and rocky shaded slopes on acidic soil.

Reported only from Beavertown, Halifax Co.

Species is circumpolar. Ranges from NF to AK and variously south to NM and WVA.

***Rosa blanda* Aiton**

**rosier inerme**



*Photo by Sean Blaney*

A smooth shrub, rarely bearing thorns. If they are present, they are sparse and limited to the base of the plant. Sepals are erect at anthesis and persistent in fruit. Ours is var. *glabra* Crép.

Flowers from June to early August.

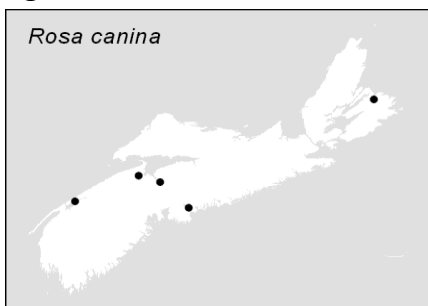
Grows in neutral or calcareous soils in rocky areas, as on talus or slopes.

So far known only from the Sydney region in Cape Breton.

Ranges from NS to NT, variously south to MS.

***Rosa canina* L.**

**Dog Rose; rosier des chiens**



Growing as a tall shrub, this import bears stout reflexed thorns. The leaves are glabrous or glabrescent, the serrate margins glandless. Flowers white to pink, about 4cm across. Sepals pinnately divided and early-deciduous in fruit. Flowers throughout July.

Formerly used as rootstock in horticultural trade and to be expected on roadside and near old gardens.

Collected from Kentville, Annapolis Royal, Windsor, Halifax and Sydney.

Ranges across Canada, south to VA and AL; BC to CA, upon introduction from Europe.

***Rosa carolina* L.**

**(incl. var. *grandiflora* (Baker) Rehd.)**

**Wild Rose**



*Photo by Martin Thomas*

A slender shrub, short in stature, rarely greater than 1m tall. Generally not prickly, but slender, straight bristles are scattered the length of the plant. Leaves glabrous on the lower surface. Flowers pink, solitary at the tips of the current year's wood. It is separated from *Rosa virginiana* on the flower position, straight bristles and weak growth.

Flowers from late June into July.

Roadsides, fields, pastures where the soil is sandy and light.

Scattered throughout, becoming more common in the western half.

NS to ON, south to TX and FL.

***Rosa cinnamomea* L.**

**Cinnamon Rose; rosier cannelle**



*Photo by Martin Thomas*

Clusters of double flowers arise on short pedicels from very thorny reddish branches. Flowers measure 3–5cm across and are reddish pink. The hypanthia are glabrous. Calyx is downy, with acuminate sepals. Shrubs to 2m, often growing in dense patches. Leaves densely pubescent below.

Flowers from late June into July.





Photo by Martin Thomas

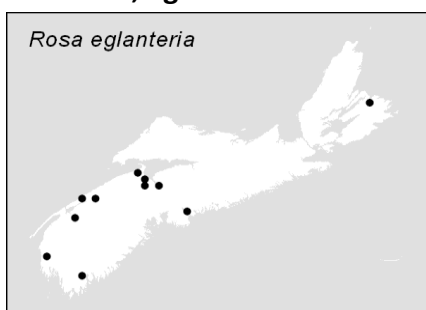
Roadsides and fence-rows around old houses and gardens. Formerly planted.

Historically reported from throughout NS; now mainly Annapolis Valley.

Ranges from NS to ON, south to VA; Eurasian.

### ***Rosa eglanteria* L.**

#### **Sweetbrier; Eglantine Rose**



Stems to 3m in height, bearing flattened reflexed thorns interspersed with bristles. Leaves are pinnately divided into 5–7 leaflets, softly pubescent below. Their margins are doubly-serrate and glandular. Flowers are usually pink, arising singly or in small corymbs. Styles are densely villous; glandular sepals persistent.

Flowers from late June into July.

Old gardens, roadsides, fallow fields and even open forest. Formerly planted and now persisting.

Found in most communities, from Yarmouth to Sydney.

Ranges from NF to ON and southward; BC to TX and CA. European.

### ***Rosa gallica* L.**

#### **French Rose; rosier de France**

Colonial in habit, this erect shrub is very bristly and armed with stout hooked thorns, even on the leaf rachis. Leaflets are rugose above and pubescent below. Flowers deep rose-pink and often double.

Flowers in June and July.

Thickets roadside.

Historically known from Sydney only.

Records from NS and NB; ME to WI south to LA and GA; naturalized from Europe.

***Rosa micrantha* Borrer ex Sm.**

**Small-flowered Sweetbriar; rosier à petites fleurs**

Resembles *R. eglanteria* but without the bristles. Styles are glabrous and sepals deciduous as fruit matures.

Flowers June and July.

Also found in thickets, roadsides and edges of fields. Also used historically as a rootstock.

Collected from Digby Co. to northern Cape Breton.

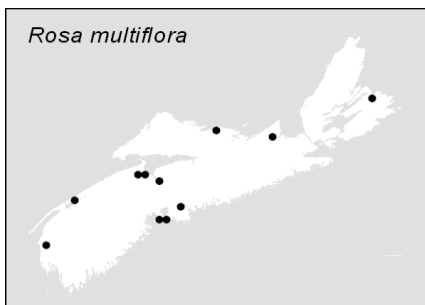
NS to ON, variously south to TX and NC; WA and OR.

***Rosa multiflora* Thunb.**

**Multiflora Rose; rosier multiflore**



Photo by Sean Blaney



A sprawling shrub with tall arcuate canes, which may climb over supports or other shrubs. Branches are armed with recurving thorns. Stipules have glandular, pectinate margins. Flowers are white, carried in a loosely flowered inflorescence, each 2–4cm wide. Sepals are acuminate. Styles are united to form a stout column, exerted but hidden by the stamens.

Also flowers in June and July.

Occasionally planted and aggressively spreading from cultivation into edges of roads, forests and fields. It is a serious threat to native habitat.

Throughout due to horticulture.

NS to ON and south to TX and FL; west coast.



Photo by Martin Thomas

Note: this species is considered a noxious weed in several jurisdictions and is banned. Hybrids with *Rosa virginiana* colonize fields and abandoned railway lines.

***Rosa nitida* Willd.**

**Swamp Rose; rosier brilliant**



Photo by Sean Blaney

A slender shrub, it is less than 1m in height. It is profusely armed with fine straight bristles. Leaves are divided into 7–9 pinnate leaflets, each 1–2cm long and finely serrate. Pink flowers are borne singly, each 4–6cm wide and with stalked glands on the pedicels.

Flowers in July.

Wetlands: bogs, swamps and thickets, especially near the coast.

Scattered throughout Nova Scotia.

Ranges from NF to ON, south to OH and NY.



Photo by Sean Blaney

***Rosa palustris* Marsh.**

**Swamp Rose; rosier palustre**



Photo by Martin Thomas

Another stout freely branching shrub, it may reach 2m in height. Leaves are commonly divided into seven leaflets which are minutely-pubescent beneath and finely serrate. Stipules have stout flattened reflexed thorns at the base. Flowers are solitary or in small corymbs, each 4–5cm wide. Stalked glands are present on the flowers, pedicels and the hypanthia.

Flowers in July.

Wet soils as in swamps and on lakeshores.

So far as known, from Yarmouth to South Maitland, Hants Co. and Upper Stewiacke, Colchester Co.

From NS to ON south to LA and FL.

### ***Rosa rugosa* Thunb.**

#### **Rugose Rose; rosier rugueux**



Photo by Martin Thomas

A stout and strongly bristly shrub, it reaches 1–2m in height, forming dense colonies. Young stems are finely pubescent. Leaves are divided into 5–9 leaflets, each rugose on the upper surface. Flowers range from white to purplish, 5–10cm wide and may even be double forms. The hips are 1.5–2cm in diameter have long persistent sepals. Distinctive due to the size of the fruits and flowers.

Flowers from June to September.

Roadside, thickets, coastal headlands.

Invasive on shoreline communities throughout.

Ranges from NF to ON, south to MO and VA; AK and WA. Introduced from eastern Asia.



Photo by Marian Munro

***Rosa virginiana* Mill.**

**Common Wild Rose; rosier de Virginie**



Photo by Martin Thomas



Photo by Martin Thomas

Another coarse, prickly shrub to 2m in height. Stout, broad-based thorns are usually present at the nodes; the internodes may be smooth. Leaves are smooth, with 5–7 leaflets. Pink flowers arise from glandular pedicels, subtended by glandular sepals. Inflorescence is a corymb, 5–7cm wide. Vegetative canes may be bristly, but only at the base. A common native rose, its flowers are almost always borne on older wood.

Flowers in July.

Old fields, pastures, thickets and the head of saltmarshes.

Common throughout.

From NF to ON, south to MO and AL.

HYBRIDS: with *Rosa nitida* and *R. carolina* are occasionally seen.

**Rubus L.**

**Brambles**

Cosmopolitan in distribution the brambles number about 200 species. Hybridization is common, confounding identification to species amongst the blackberries. Recognition of the putative hybrid state of much NS material meant that several formerly recognized species were dropped from the flora. Apomixis is common.

Biennial stems arise from perennial rootstocks. In the first year, the primocanes are simple and vegetative. In the subsequent year, they form branches, ending in an inflorescence, during which time they are referred to as floricanes. Plants bear a few simplified leaves on the floricanes, while the primocanes are palmately compound. Brambles are considered successional species, often the first to colonize after major disturbances of forests.

Flowers are five-merous in the calyx and corolla. Bractlets are absent. Pistils and stamens are numerous. Receptacle is cone shaped, elongating in fruit. Ovules number two, with one soon aborting. Fruit is an aggregate of drupelets, falling intact. Most are thorny shrubs; a few are perennial herbs.



# Key to species

A. Plants unarmed.	B
B. Flowering stems herbaceous.	C
C. Plants dioecious; flowers unisexual.	<i>Rubus chamaemorus</i>
cc. Flowers bisexual.	D
D. Stipules free; filaments filiform.	<i>R. dalibarda</i>
dd. Stipules connate; filaments laminar.	<i>R. pubescens</i>
bb. Flowering stems woody.	E
E. Leaves compound; petals white; styles long and slender; fruit remaining attached to receptacle at fruit-drop	<i>R. canadensis</i> , in part
ee. Leaves simple, merely lobed; petals magenta; styles clavate; fruit separating free from receptacle.	<i>R. odoratus</i>
aa. Plants armed with thorns or bristles.	F
F. Fruit separating without receptacle attached (raspberries); drupes coherent or falling singly.	G
G. Floricane leaves pinnately divided, 5–9 leaflets.	<i>R. illecebrosus</i>
gg. Floricane leaves simple or trifoliate.	<i>R. idaeus</i>
ff. Fruit separating with receptacle attached (blackberries, dewberries).	H
H. Plants creeping, mounding, remaining low.	I
I. Plants armed with sharp bristles only, hispid.	<i>R. hispidus</i>
ii. Plants never bristly, only with thorns.	<i>R. flagellaris</i> , in part
hh. Plants arching to erect.	J
J. Plants covered in many narrow and sharp bristles.	<i>R. setosus</i>
jj. Plants unarmed, or with broad-based thorns.	K
K. Inflorescence and midveins of leaves densely stipitate glandular, glands flat or cupulate.	<i>R. allegheniensis</i>
kk. Inflorescence and midveins without glands, or if glandular, the glands are rounded.	L
L. Stems smooth or nearly so; primocane leaflet apices long- attenuate or caudate.	<i>R. canadensis</i> , in part
ll. Stems armed; primocane leaflet apices acute or short-attenuate.	M
M. Stems arching soon creeping; inflorescence with <5 flowers.	<i>R. flagellaris</i> , in part

mm. Stems only arching;  
inflorescence with >5 flowers.

*R. pensilvanicus*

***Rubus allegheniensis* Porter**

**(*R. pugnax* LH Bailey; var. *neoscotica* (Fern.) Bailey are now included here.)**

**Common Blackberry; ronce des Alléghanys**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

An erect shrub, it reaches 3m, armed with scattered broad-based thorns. Stems may be glandular and bristly as well. Leaflets number five, petiolate and palmate; they are velutinous below. White flowers are borne in an inflorescence with abundant stipitate glands on the peduncles and axis. Fruit are large, shiny black and delicious to eat.

Sandy soils of old fields, clearings and in open woodland.

Very common from Yarmouth Co., east to Cape Breton.

NS to ON, south to OK and GA; BC; CA.

Hybrids: numerous hybrids are known. Several have been collected.

***Rubus canadensis* L.**

**Smooth Blackberry; ronce du Canada**



*Photo by Martin Thomas*

Bearing tall stout canes, this species is most distinctive for its absence of thorns, only a few straight prickles. Leaves are divided into five leaflets, the terminal one long-petiolate, glabrous on both surfaces. Texture is hard and dry, noticeable in the field. Flowers are showy, 10–20 per inflorescence, their petals about 2cm long. Fruit are generally not of superior quality.



*Photo by Sean Blaney*

Flowers June and July.

Clearings, roadsides and thickets.

Especially common in southwestern counties to central NS, infrequent to northern NS.

NF to ON, south to GA and TN.

***Rubus chamaemorus* L.**

**Bakeapple; Cloudberry; Jonesberry (Brier Island); chicouté**



*Photo by Sean Blaney*

Extending from extensive creeping rootstocks, the short branches are often buried in moss, the leaves extending above, 10–30cm tall. Leaves are long-petiolate, their blades nearly round, divided into several rounded crenulate lobes. Flowers are unisexual, white and solitary arise on long pedicels. Fruit soft, watery orange and delicious to eat.

Flowers June and July.

Most often grows in acidic soils in cool coastal bogs, swamps and headlands.

Common around the coast, except along the Northumberland Strait and the inner Bay of Fundy. Rare inland.

Ranges from Greenland to AK, south to NY and BC.



*Photo by Martin Thomas*

***Rubus dalibarda* L.**

**(*Dalibarda repens* L.)**

**False Violet; dalibarde rampante**



*Photo by Alain Belliveau*

Long trailing herbaceous perennial, plants arise from slender stems. They may root from the nodes or the tips. Leaves are simple, lightly pubescent and glandular, nearly round and deeply cordate at the base. Their margins are crenate. Stipules are free. White flowers are solitary, when petals present, on slender pedicels, villous to stipitate glandular. Ovaries are densely pubescent, producing dry drupelets when mature. Styles are glabrous.

Flowers in August.

Open moist woodland. Local; more frequent in southwestern counties, less so east to Hants Co.

NS to ON, south to MN and NC.

***Rubus flagellaris* Willd.**

**(=*R. recurvicaulis* Blanch.)**

**ronce à flagelles**

A variable species in armature and pubescence, but generally with small but stout, reflexed thorns. Primocanes emerge prostrate, rooting from the tip.

Flowers early, during May and June.

Dry fields, openings and edge of forests and fields.

Collected from Canso.

NS to ON, south to TX and FL.

***Rubus hispidus* L.**

**Dewberry; Swamp Dewberry; ronce hispide**



Photo by Sean Blaney

A long-trailing plant it has only scattered bristles. Small leaves, 3–6cm wide, have three leaflets, each of which is round on the apex and glossy on the top surface. Evergreen throughout the winter. Flowers are small, forming late-maturing fruit, sour and unpalatable. True thorns absent.

Flowers in July.

Found throughout open peatlands, but also seen roadside, on barrens and in damp hollows.

Ranges NF to ON, south to KS and NC; LA.

Hybrids form with several species and *R. X trifrons* has been collected here.

### ***Rubus idaeus* L.**

**Red Raspberry; framboisier d'Europe; gmu'jmin**



Photo by Sean Blaney

Rising on erect canes, 1–2m, plants are sparsely armed with a few broad-based thorns. This species exhibits a range of armature from densely hirsute to nearly smooth. Leaves are pinnately divided, 3–5 leaflets, white tomentose below. Their margins are coarsely serrate. Primocanes are covered with stipitate glands, especially on the floricanes in the inflorescence. Flowers are tightly clustered, petals greenish white and shorter than the calyx. The red fruits fall intact from the receptacle, easily crumbling when handled.

Both subspecies are present in NS:

A. Bristles and glands absent.

*ssp. idaeus*

aa. Bristles and glands present.

*ssp. strigosus*  
(Michx.) Focke

Flowers in July.



ssp. *idaeus* is an escape from cultivation. NS material may have to be further examined to determine the ranges of each subspecies. The species is common throughout.

Ranges from NF to AK and south to CA and NC Introduced from Europe, in part.

***Rubus illecebrosus* Focke**

**Strawberry-raspberry; framboisier fraisier**

Canes are slender and sparsely thorny. Its leaves are pinnately divided into 3-4 pairs of serrate leaflets. Flowers are 4–5cm wide with conspicuous ovate petals, borne in the axils of leaves. Fruit is a strawberry like red fruit, 2–3cm wide.

Flowers July to September.

Around old garden sites or on roadsides as an escape.

To date no collections have been submitted from the Annapolis Royal site.

NS; ME; NY to NC; MN; OR. Originally from Japan and cultivated here.

***Rubus odoratus* L.**

**Flowering Raspberry; ronce odorante**



*Photo by Martin Thomas*



Freely branching, this species reaches 2m. It is densely glandular on the upper stem and leaf surfaces. Leaves are deeply lobed, sometimes to 20cm wide, acutely tipped and serrated on the edges. Velutinous upper and lower surfaces, have black glands on the ribs beneath. Flowers are showy, rose-purple to magenta. 3–6cm wide, producing inspid fruit 1cm in diameter.

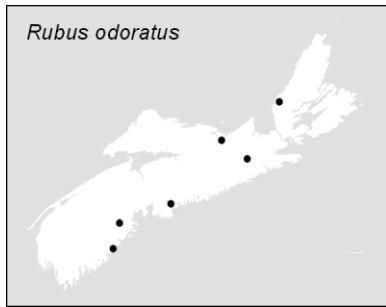
Flowers June and July.

Roadsides and old garden sites.

Queens Co. to Cape Breton, with scattered reports elsewhere.

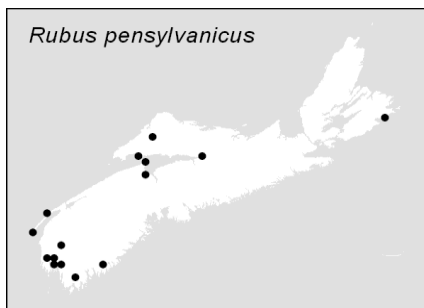
A native of southeastern US, introduced to NS; to ON; WA.

Photo by Martin Thomas



***Rubus pensilvanicus* Poir.**

**Pennsylvanian Blackberry; ronce de Pennsylvanie**



A colonial species, it may reach 3m in height. Primocanes bear a scattered covering of straight thorns. Doubly serrate leaves are velutinous below. Inflorescence is of showy flowers, their pedicels and the axis pubescent. Bractlets are sometimes present, if so they are eglandular. Fruit is succulent and flavourful. Distinguished from *R. allegheniensis* on the basis of glandless inflorescence and smoother leaves.

Flowers in June.

Frequents thickets and edges.

Common in the western counties, scattered elsewhere.

NF to ON, south to NC and TN.



Photo by Sean Blaney

***Rubus pubescens* Raf.**

**(var. *scius* Bailey is now included)**

**Dwarf Raspberry; ronce pubescente**



*Photo by Sean Blaney*

A long-trailing herbaceous species, it is armed with a few weak bristles, forming mats over the mossy ground. Leaves are cleft into threes and the white flowers are scattered in small clusters. Red fruit is edible, though sparse. Drupelets remain attached to the receptacle.

Flowers in June.

Low-lying waterlogged and mossy soils, especially in semi-shade.

Common from Yarmouth to northern Cape Breton, but less frequent along the Atlantic side, including offshore islands.

Across Canada and south to CO and WVA.

***Rubus setosus* Bigel.**

**Bristly Blackberry; ronce sétuleuse**



*Photo by Sean Blaney*

An erect shrub, neither arching nor rooting at the tips. Primocanes bear many soft bristles. Leaves divided into 3–5 leaflets, the terminal leaflet petiolate. Leaves glabrous beneath, except for the veins. Floricanes are also bristly. The flowers are carried on glandular pedicels, petals 7–10mm long. Fruit is dryish and poorly flavoured.

Flowers in June.

Frequents low-lying ground with poorly drained soils in clearings.

Scattered in central counties, less frequent to the south. NF to ON, south to IL and MD; LA.

Hybrids are common with *R. allegheniensis*, *R. flagellaris* and *R. canadensis*.

## ***Sanguisorba* L.**

### **Burnet**

Asia and North America host about 25 species of burnet. Nova Scotia has two. Ours are perennial herbs arising from a thick rhizome. Hypanthium is urn-shaped, constricted at the summit and with four smooth angles, a character separating them from *Agrimonia*. Petals are absent; sepals are petal-like. There are 1–2 pistils; stamens number four or more. Fruit is an achene.

#### Key to species

Spikes 3–12cm long; stamens exerted from the white sepals.

*Sanguisorba canadensis*

Spikes in rounded heads 1-3cm long; stamens equalling the length of purple sepals.

*S. officinalis*

## ***Sanguisorba canadensis* L.**

### **Canadian Burnet; sanguisorbe du Canada**



*Photo by Martin Thomas*

A perennial herb, it stands less than 1m tall. It has pinnately divided leaves with about 13 serrate leaflets. White flowers are arranged in a cylindrical spike 10–12cm tall on long peduncles.

Noticeable in flower, July to September.

Wet soils of bogs, swamps and meadows.



*Photo by Martin Thomas*

Common in northern, Cape Breton and with scattered stations elsewhere, as at Pubnico, Liverpool, Port Mouton and Scots Bay, near the coast. Scattered to common in its habitat.

NL to QC; MB, south to GA; AK to OR and ID.

### ***Sanguisorba officinalis* L.**

#### **Great Burnet; sanguisorbe officinale**

Leaves resemble those of the previous species. Inflorescence comprises deep red or purple flowers tightly clustered in a short head. The stamens are shorter than or equal to the length of the sepals.

Flowers July to September.

Low-lying soils.

A cultivated species well-established at a site upstream from Sherbrooke, Guysborough Co. Introduced to North America from Eurasia. AK to CA and scattered eastern locations.

### ***Sibbaldiopsis* Rydb.**

A monotypic genus represented by a shrubby perennial formerly included in *Potentilla*. It is characterized by evergreen leaves, divided into three leaflets, each bearing three teeth at their apices. Shiny green above and lightly pubescent below, the hairs lie appressed. The flowers are white, arranged in a branching cyme. Sepals, capsules and achenes are all densely pubescent.



***Sibbaldiopsis tridentata* (Aiton)**

**Shrubby Fivefingers; potentille tridentée**



Photo by Martin Thomas

A perennial, as above, arising from extensive creeping rootstocks.

Flowers during June and July.

Exposed locations on bare rock or soil near the coast; rocky outcrops inland.

Common around the coast.

Greenland to MacKenzie River, south to GA and SD.

***Sorbaria* (Ser.) A. Braun**

Asian and North American in range, only one species reaches Nova Scotia. Leaves are pinnately divided and bear stipules. The inflorescence is a large panicle of tiny white flowers, five-merous in arrangement. The hypanthium is cup-shaped and the flowers bear numerous stamens. Carpels are also in fives with long clavate styles. Fruits are follicles dehiscent along two sutures.

***Sorbaria sorbifolia* (L.) A. Braun**

**False Spiraea; sorbaire à feuilles de sorbier**



Photo by Marian Munro

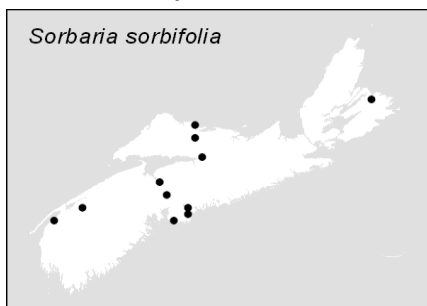
A finely branched shrub, it may reach 2m in height. The alternate leaves are divided into 13–21 leaflets, marked with straight veins, long acuminate. Petals are 6mm in length. Stamens are borne on long filaments and the ovary is mostly superior. Follicles are thin-walled. Shrubs resemble *Spiraea* but for the compound leaves.

Flowers early July.

Formerly a common ornamental, now persisting and escaping to roadsides.

Common in the Annapolis Valley but scattered Yarmouth to Cape Breton.

NF to AB, south to PA. Introduced from southeast Asia.



## ***Sorbus* L.**

### **Mountain-ash**

Both trees and shrubs comprise this north-temperate genus of about 100 species. Typically the leaves are pinnately divided, with an odd number of leaflets. White flowers are arranged in compact clusters, in branched, flat-topped or round inflorescences. Fruit is a small pome, distinctive upon ripening due to their crimson or orange-red display. Flowers are five-merous, except for the pistils, 2–4. Stamens are a multiple of five, 15–20.

#### Key to species

- A. Twigs, lower leaf surfaces, pedicels, winter buds and hypanthia white-villous; winter buds not sticky; introduced. *Sorbus aucuparia*
  - aa. Twigs, leaves, pedicels, hypanthium glabrous or glabrescent; winter buds sticky; native. B
    - B. Leaves long-acuminate, 3–5 times longer than wide; fruit 4–7mm thick. *S. americana*
    - bb. Leaves acute, 2–3 times longer than wide, fruit >7mm thick. *S. decora*

### ***Sorbus americana* Marsh.**

#### **Mountain-ash; Dogberry; sorbier d'Amérique; epsmusi**



*Photo by Alain Belliveau*

A small tree with smooth winter buds. Leaves are sharply serrate, 5–10cm long with long-acuminate tips. Flowers are small and numerous, with the stamens inserted. Sepals and the hypanthium are smooth. Fruits are bright red. This is our most common species.

Flowers late June into July.



*Photo by Alain Belliveau*

Open woods and edges.

Frequent, from Yarmouth to Cape Breton.

Ranges from NF to ON, variously south to IL and GA.

### ***Sorbus aucuparia* L.**

#### **European Mountain-ash; Rowan; sorbier des oiseleurs**

This species is another small tree, with white villous winter buds. Leaves have 7–8 pairs of leaflets, typically oblong and rounded at the apex. Inflorescence is a cyme of foul-smelling flowers. Petals are about 3mm long. Hypanthia and smaller cyme branches are densely white-villous at least at first. The fruit is somewhat large, exceeding 7mm in diameter. Vile-tasting.

Flowers in June.

Ornamental and scattered as an escape near towns and at the periphery.

Scattered in the central counties, from Annapolis to Antigonish.

Widely naturalized after its introduction from Europe.

### ***Sorbus decora* (Sarg.) CK Schneid.**

#### **American Mountain-ash; sorbier plaisant**



*Photo by Sean Blaney*

Another small tree, it has smooth winter buds. Twigs are also smooth. Leaflets number 9–15, each 5–7cm long and 1.5–2.5cm wide. They are short-acuminate at the apex. Leaves, inflorescence and hypanthia are glabrous or at least glabrescent. Fruit is bright red, 7–10mm in diameter. Resembles our other native tree, but has larger fruit and wider shorter leaves.

Flowers in late June through early July.



Photo by Sean Blaney

Wooded areas, slopes and shores, rocky sites.

Typical coastal. Common in northern Cape Breton.  
Scattered elsewhere as along the North Mountain coast.

Ranges from Greenland to SK, south IA, IL and PA.

## ***Spiraea* L.**

Mostly shrubs, there are about 70 species in the northern hemisphere. Two are native to Nova Scotia and several ornamental varieties are planted and expected as escapes. Flowers may be terminal or lateral and range from white to pink and purple. Sepals and petals are five-merous and there are 15 or more stamens. Fruit is a firm dehiscent follicle.

### Key to species

Leaves glabrous on both surfaces; sepals spreading.

*Spiraea alba*

Leaves densely rusty-tomentose below; sepals reflexed.

*S. tomentosa*

Not included in the key but noteworthy are the cultivated species *Spiraea japonica*, *S. vanhouttei* and *S. prunifolia* all of which have been collected from escaped plants in Wolfville. The first especially should be monitored. It is reported to be invasive in areas of North America.

***Spiraea alba* Duroi**

**(*S. latifolia* (Ait.) Borkh.)**

**Meadow-sweet; Hardhack; spirée à larges feuilles**



*Photo by Sean Blaney*

A small shrub, it has wiry branches and simple dentate leaves. Inflorescence is an open triangular panicle of pinkish-white flowers with tiny rounded petals. Pistils number five forming five follicles, persisting on the plants into winter. Stamens are numerous, on long filiform filaments. Ours is var. *latifolia* (Aiton) Dippel.

Flowers in July and August.

Ditches, swamps, meadows.

One of our most common shrubs, throughout.

Ranges from NF to MB, variously south to GA.

***Spiraea tomentosa* L.**

**Steeplebush; spirée tomenteuse**



*Photo by Sean Blaney*

A lower more compact shrub than the first, it is generally unbranching. Leaves are crenate and ovate, dark green above and rusty tomentose below. The inflorescence is a narrow panicle of rosy pink flowers. The branches of the panicle and the pedicels are also woolly. Follicles inconspicuous in fruit.

Flowers in August.

Acidic poorly drained soils.

Common in central NS, becoming infrequent east to Cape Breton.

NS to ON, south to KS, LA and GA.



## Rubiaceae

### coffee family

A relatively large family, there are 6500 species of shrubs or herbaceous plants, centred about the tropics/subtropics. Leaves are simple and entire and opposite with stipules, or whorled. The inflorescence is a cyme. Our species are generally four-merous; the flowers are perfect, subtended by a reduced calyx. Stamens are inserted, alternating with the corolla lobes. Ovary is inferior; carpels number 2–5.

#### Key to genera

- |  |                     |
|--|---------------------|
| A. Shrubs; inflorescence a spherical head, pedunculate.                          | <i>Cephalanthus</i> |
| aa. Herbs; inflorescence a cyme or reduced.                                      | B                   |
| B. Cauline leaves whorled.   | <i>Galium</i>       |
| bb. Cauline leaves opposite.   | C                   |
| C. Plants cespitose, leaves deciduous; rhizomatous; fruit a capsule.             | <i>Houstonia</i>    |
| cc. Plants stoloniferous, rooting at the nodes; leaves evergreen; fruit a berry. | <i>Mitchella</i>    |

### ***Cephalanthus* L.**

Generally shrubs or small trees, they include only six species. Flowers are four-merous, clustered in dense spherical heads. Hypanthia are ovate. Calyx is short; corolla is funnelform, with exerted stamens. Fruit is dehiscent from the base; the pair of nutlets within indehiscent.

#### ***Cephalanthus occidentalis* L.**

#### **Buttonbush; céphalanthe occidental**



Photo by David Mazerolle

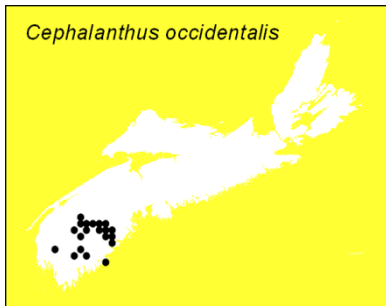
Leaves are opposite or whorled, obovate and entire and petiolate. Veins curve towards the leaf's apex. Flowers are pedicellate from the axils in compact heads forming tightly packed nutlets.

Flowers mid-summer.

Grows amidst boulders at waterline and overflow marshes of lakes.



Photo by Sean Blaney



Rare from Queens to Yarmouth Co. Locally abundant in suitable habitat from Medway to Roseway Rivers. Lunenburg Co. Part of our coastal plain floral community.

Ranges from NS to ON, south to TX and FL. CA and AZ.

## ***Galium* L.**

### **bedstraw**

About 300 species of bedstraws are known, cosmopolitan in distribution. All are herbs, arising on slender erect or reclining angled stems with cauline leaves in whorls. The flowers are carried in cymes. Calyx is reduced and without lobes; the corolla has four lobes, equal in length to the tube or shorter. The dry fruit is formed from the round carpels, each with one seed. Sometimes one carpel is aborted.

#### Key to species

- |   |                       |
|---|-----------------------|
| A. Plants from a short taproot, annual.                   | <i>Galium aparine</i> |
| aa. Plants rhizomatous, perennial.                        | B                     |
| B. Fruit glabrous or granular, or prickly, not pubescent. | C                     |
| C. Stems erect or nearly so.                              | D                     |
| D. Main cauline leaves in whorls of 4; veins 3.           | <i>G. boreale</i>     |
| dd. Main cauline leaves in whorls of 5 or more; 1 vein.   | E                     |
| E. Flowers white or green.                                | <i>G. mollugo</i>     |
| ee. Flowers yellow.                                       | <i>G. verum</i>       |

- cc. Stems weak, matted and decumbent, sometimes ascending. F
- F. Leaves acute, in whorls of 5–8. *G. asprellum*
  - ff. Leaves blunt or round, mostly in whorls of 4–6. G
  - G. Corollas with 4 lobes, longer than wide. H
    - H. Cymes branching repeatedly, with 5 to many flowers; nodes not bearded. *G. palustre*
      - hh. Cymes branching 1–2 times, flowers 2–4; nodes with short beards. I
      - I. Leaves ascending, >2.5mm wide; southern NS. *G. obtusum*
        - ii. Leaves recurved, 2.5mm wide; northern NS. *G. labradoricum*
    - gg. Corollas with 3 lobes, length and width about the same. J
    - J. Flowers solitary, long-pedunculate, 3 per node; leaves in whorls of 4. *G. trifidum*
      - jj. Flowers 2–3 on each peduncle; leaves 4–6 per whorl. *G. tinctorium*
  - bb. Fruit pubescent or hirsute. K
  - K. Principal leaves in whorls of 5–8. *G. triflorum*
    - kk. Principal leaves 4. L
    - L. Main leaves ovate to orbicular; fruit armed with hooked bristles. *G. kamtschaticum*
      - II. Main leaves lanceolate-linear; fruit with straight pubescence. *G. boreale*

### ***Galium aparine* L.**

#### **Cleavers; Stickywilly; gaillet gratteron**



*Photo by Sean Blaney*

An annual species, the stems bear several whorls of eight acute leaves, both are coarsely pubescent. Fruit is also hirsute, the bristles hooked. Flowers from May until July. Composts, ballast and waste soils. Collected at various coastal localities on the mainland. Absent only from the northern territories, it is questionable whether it is native in Canada. Eurasia.

***Galium asprellum* Michx.**

**Rough Bedstraw; gaillet piquant**



*Photo by Sean Blaney*

Weak-stemmed and reclining, this species clings to other plants, forming tangled mats. The rough stems are clearly four-angled and freely branching, bearing recurved prickles. Acute leaves are whorled. Flowers are cymose.

Flowers throughout the summer.

Pastures, fields, ditches and streamsides.

Very common throughout.

NF to ON, south to MI and NC.

***Galium boreale* L.**

**gaillet boréal**



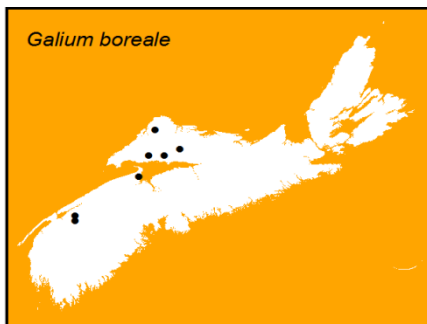
*Photo by Sean Blaney*

Leaves are lanceolate or linear, marked by three distinct nerves. They are whorled in fours, from a glabrous stem. Their margins are entire. Inflorescence is a terminal crowded cyme. The fruit are stiffly hirsute, the bristles hooked.

Flowers from June through August.

A species of edges, forests and fields and other grassy verges.

Very local in only a few counties: Kings, Annapolis and Cumberland counties. Perhaps historic. Greenland; NS to AK, south to CA, TX and VA.

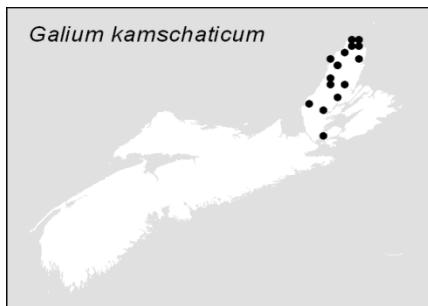


***Galium kamtschaticum* Steller**

**Northern Bedstraw; gaillet du Kamtchatka**



Photo by Sean Blaney



A colonial species it arises from stout stems. Cauline leaves are arranged in whorls of four, each ovate and acutely pointed. Leaves reduce in size towards the base. Cymes are simple, flowers white; fruit is bristly.

Flowers from June through August.

Fertile deciduous forests and ravines. Associated in the north with fir-birch boreal forest.

Known only from Cape Breton.

NF to ON south to MI and NY; NT to WA. The Aleutians and eastern Asia.

***Galium labradoricum* Wieg.**

**gaillet du Labrador**



Photo by Sean Blaney

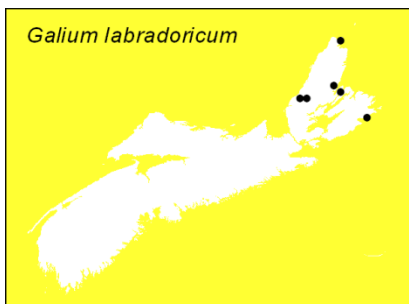
Small and delicate compared to other species, this one has slender, glabrous stems, that are sometimes puberulent. Leaves are linear or lanceolate, blunt tipped and only reaching 1–2cm in length. There are four to a whorl. The lateral cymes are once-branched and comprise tiny white flowers, producing smooth fruit.

Flowers from May through August.

Alkaline soils in wet meadows, bogs.

Limited to Cape Breton counties.





Ranges from NF to NT, south to BC, IL and NJ.

***Galium mollugo* L.**

**Cleavers; False baby's-breath; gaillet mollugine**



*Photo by Sean Blaney*

A tall species, Cleavers has glabrous stems bearing whorls of at least six acute leaves. Inflorescence is large with many pedicellate flowers. Fruit is also glabrous.

July and August flowers.

Roadsides and adjacent fields, forming dense colonies. Weedy. North and central parts of the province.

NF to ON, south to MS and GA; west coast. European and naturalized here.

***Galium obtusum* Bigel.**

**gaillet obtus**

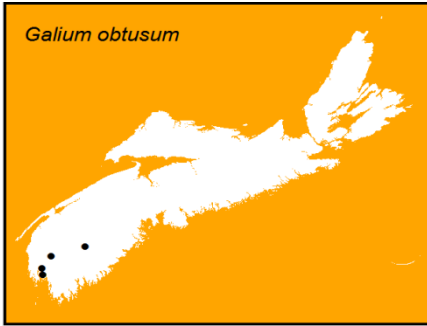


*Photo by Martin Thomas*

Very slender and tenuous, this species has weak stems, bearing few whorls of four elliptical leaves. Cymes are terminal but sparse, the pedicels ascending.

Flowers earlier, from mid-May through July.

Found in wet soils as in bogs and thickets.



Coastal plain in distribution, limited to the Tusket River valley. Also Lake Rossignol, Queens Co.

Ranges from NS to ON south to TX and FL.

***Galium palustre* L.**

**Common Bedstraw; Marsh Bedstraw; gaillet palustre**



*Photo by Sean Blaney*

Freely branching and slender, this plant also bears elliptic blunt leaves in whorls of 4–5. The inflorescence is much-branched, the limbs ending in clusters of tiny white flowers.

Flowers July and August.

Wet or alluvial soils, streamsides and even in ditches.

Common throughout.

Ranges from NF to MB, south to IL and MD; scattered in the western US; Eurasia.

***Galium tinctorium* L.**

**Small Bedstraw; gaillet des teinturiers**



A trailing plant, it has weak flexuous stems, which are armed with stiff curved prickles when young. Leaves are elliptic but not acute, armed on the ribs and margins with prickles. Flowers are clustered 2–3 on each pedicel.

Flowers in August.

Streamsides, meadows, marshes and bogs - wet soils.

Common throughout.

Ranges from NF to ON, south to FL and TX.

***Galium trifidum* L.**  
**gaillet trifide**



*Photo by Sean Blaney*

A densely matted species its sprawling stems are puberulent. The leaves are 2.5cm long, blunt-tipped and carried in whorls of 3–4. Flowers are borne on lateral branches, usually clustered in 2–3s. Fruit is glabrous. Two ssp. are found here, ssp *halophilum* (Fern. & Wieg.) Puff. is a seashore species, smooth and succulent throughout. It is limited to NL, QC, ME, MA, NB and NS. Ssp. *trifidum* (described above) is found throughout the continent and as far south as UT and VA.

Flowers July to September.

Frequents saturated or very wet sites, usually on fertile alluvium or paludal edges.

Local and found throughout but for northern Cape Breton. The species is found throughout North America, except in the extreme southeastern US.

***Galium triflorum* Michx.**

**Sweet-scented Bedstraw; gaillet à trois fleurs**



*Photo by Martin Thomas*

Stems are glabrous, but not armed with clinging prickles. Leaves are lanceolate and acute, in whorls of six. Inflorescence is composed of three flowers on long pedicels.

Flowers July and August.

Found in mixed or deciduous forest.

Scattered throughout, but more common from Annapolis to northern Cape Breton.

Found throughout the continent.

***Galium verum* L.**

**Yellow Bedstraw; gaillet vrai**



*Photo by Martin Thomas*

Stems are robust and glabrous, the lanceolate acute leaves are borne in whorls of six. The terminal inflorescence is large and pubescent, the flowers yellow. Fruit is smooth. June to August in flower.

Frequently seen about gardens and roadsides on light soils.

Known only from the Kentville area of Kings Co. and perhaps no longer extant.

Elsewhere from Greenland; NF to BC, south to CA and NC; a European introduction.





*Photo by Martin Thomas*

## ***Houstonia* L.**

A tropical genus with 300 species of herbs, one is found in Nova Scotia. Typically they are herbaceous, with small, opposite leaves. Flowers are four-merous and usually small. The corolla may be rotate or funnelform; the calyx is lanceolate to linear. Ovary is inferior at least in part. The locules each have many seeds, the capsule splitting loculicidally.

### ***Houstonia caerulea* L**

#### **Bluets; houstonie bleue**



*Photo by Sean Blaney*

A small species, it has stiffly erect stems from a cespitose base. Leaves are lanceolate and the cauline leaves are sessile in pairs along the stem. Flowers range from pale pink to pale blue.

Flowers mid-May to mid-June.

Colonial often in sandy gravelly soils, grassy hillsides, etc.

Scattered in the west, become abundant to central NS and northward. Less frequent along the eastern shore.



Ranges from St. Pierre et Miquelon to ON, south to LA and GA.

## ***Mitchella* L.**

Only two species comprise this genus of evergreen vines, one in North America; the other Asian. Ground-creepers, the stems are sparingly branched. Inflorescences are axillary, the pairs of flowers have a shared hypanthium and are each four-merous. Corollas are funnelform, with an elongate tube, the lobes softly pubescent on the inner face. Styles are of different lengths. Fruits are twinned red or white insipid berries, each containing eight seeds.

### ***Mitchella repens* L.**

#### **Partridgeberry; pain-de-perdrix**



*Photo by Martin Thomas*

A vining species, its pairs of evergreen dark green leaves, nearly round in outline, marked by white veins. Each pair of pink flowers shares an ovary and is borne on a short pedicel. Fruits are red.

Flowers in July.

Moist habitats where competition is low from taller shrubs or herbs as in mossy woods, banks, etc.



*Photo by David Mazerolle*

Common throughout, even on Sable Island where it frequents the turf-covered dunes.

NF to ON, south to TX and FL.

## Salicaceae

### willow family

Both willows and poplars make up this family. Both genera are found in Nova Scotia. Most noticeable character is the early timing of flowering in spring often before the leaves are expanded. Species are dioecious or at least flowers are unisexual. Both staminate and pistillate flowers are reduced in size and borne in catkins.

The pistillate flower is merely a pistil subtended by a simple or lobed bract. Staminate flowers have 1–2 stamens. Fruits are capsules, with many seeds, each bearing a tuft of villous hairs. Leaves are alternate, simple and sometimes serrate. Stipules are present or absent. Worldwide there have been about 300 species described.

#### Key to genera

- |  |                |
|--|----------------|
| Buds with a single scale; bracts entire or toothed; stamens 1–5;<br>catkins pendulous or erect.          | <i>Salix</i>   |
| Buds with several scales; bracts deeply cut with linear acute lobes;<br>stamens many; catkins pendulous. | <i>Populus</i> |

## *Populus* L.

### aspens, poplars

Aspens are early-successional trees of the boreal and temperate regions which bear pendulous catkins. Seeds mature before the leaves expand. There are 40 species widespread across the northern hemisphere. Staminate flowers have five or more stamens, borne on short filaments. A single ovary contains 2–4 carpels comprising the pistillate flowers. Seeds are armed with long silky tufts, useful in dispersal. Most flowers are subtended by a deeply cleft bract.

#### Key to species (vegetative characters)

- |   |                         |
|---|-------------------------|
| A. Leaves persistently white-tomentose beneath; palmately lobed.                        | <i>Populus alba</i>     |
| aa. Leaves smooth or becoming so, or merely lightly pubescent.                          | B                       |
| B. Petioles compressed in cross-section; buds not sticky nor very large.                | C                       |
| C. Leaves without translucent border; teeth rounded distally.                           | D                       |
| D. Leaves generally wider than long; serrate or undulate; winter buds glossy and shiny. | <i>P. tremuloides</i>   |
| dd. Leaves ovate, coarsely dentate; winter buds white-hairy.                            | <i>P. grandidentata</i> |

- cc. Leaves with a clearly-marked translucent border. E
  - E. Leaves wedge-shaped basally, only 4–6cm wide; *P. nigra*  
branches strongly appressed, tree forming a columnar outline.
  - ee. Leaves square or broadly triangular basally, *P. X canadensis*  
larger; branches spreading.
- bb. Petioles round in cross-section, not compressed; buds very large and sticky. F
  - F. Twigs smooth; leaves narrow, acute at the tip, smooth. *P. balsamifera*
  - ff. Twigs pubescent; leaves long-acute, densely pubescent on the veins beneath, lightly so above. *P. X jackii*

***Populus alba* L.**

**White Poplar; peuplier blanc; miti**



*Photo by Roger Lloyd*

Small tree with grayish white bark, it is often densely woolly when young. Leaves have a feltlike tomentum below, but are glabrous above. Broadly ovate and irregularly lobed, their margins may also be dentate.

Early-spring flowering.

Formerly a popular ornamental. Difficult to eradicate once established, freely forms colonies from root suckering. Several scattered localities along the Bay of Fundy coast, the Atlantic side and in Cape Breton.

Introduced from Europe and now found throughout the continent, but for the prairies.

***Populus balsamifera* L.**

**Balsam Poplar; peuplier baumier**



Photo by Roger Lloyd

A beautiful tree, it is most noticeable in early summer, due to the olive green to dark brown foliage. Leaves have a small sinus at the base, and are widely lanceolate and acuminate. Twigs are smooth, bearing sticky buds.

Locally common riparian species and often planted for shade.

Occasional in Cape Breton where it may be locally common; west to Digby County and Halifax County.

Ranges from NF to AK, south to CA, CO and VA.

### ***Populus xcanadensis***

#### **Carolina Poplar; peuplier de Caroline**



Photo by Ross Hall

A hybrid between *P. nigra* and *P. deltoides* it is intermediate between the two in canopy shape, leaf outline and size. It is relatively slow-growing for a poplar and does not rapidly spread vegetatively.

Established at Mill Village, Queens Co.

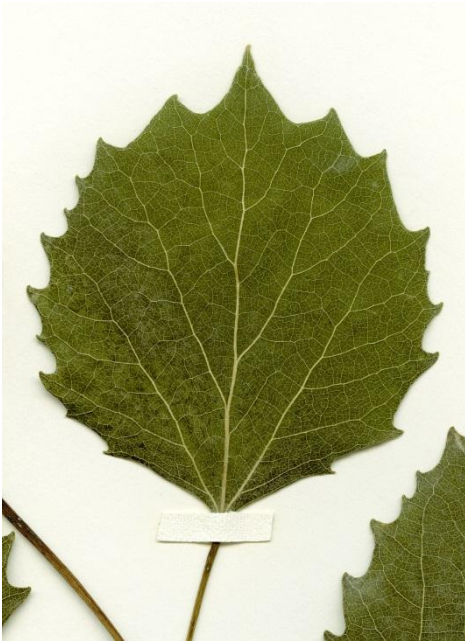
Scattered in NS; QC to ON and variously south to CA and GA



Photo by Ross Hall

***Populus grandidentata* Michx.**

**Large-toothed Aspen; Bigtooth Aspen; peuplier à grandes dents**



*Photo by Roger Lloyd*

Broadly ovate leaves are irregularly dentate on the edges, rather than serrate. Leaves are larger than those of *P. tremuloides*. This, like *P. tremuloides*, is a pioneer species. It is considered to be short-lived for a deciduous tree.

Once only a small component of our forest, now expanded over large areas on lighter soils. Readily suckers.

Common throughout the mainland; less frequent in Cape Breton.

NS to MB, south to NC and MO: BC.



*Photo by Ross Hall*

Crosses with *P. tremuloides*, forming the hybrid known as *P. x smithii*. It was once collected at St. Croix, Hants Co.



***Populus xjackii***

**Balm of Gilead**



*Photo by Martin Thomas*



*Photo by Martin Thomas*

A natural hybrid between *P. balsamifera* females and *Populus deltoides* males. It readily forms suckers and may reach 20m in height. The buds are strongly aromatic and sticky. Pistillate catkins reach 7-16cm, appearing before the leaves. Leaves are cordate and serrate.

Catkins appear in April and May.

In NS, local from Shelburne and Kings counties, to Pictou Co.

NS to MB, south to NC and MO: BC.

Found in northern America, from NL to AB, south to CO and GA. Introduced to NS.

***Populus nigra* L.**

**Lombardy Poplar**



Photo by Roger Lloyd

A tall tree, it is columnar in outline with smooth stems, branches and leaves, although the latter may be puberulent when newly emerged. Leaves are finely dentate and dimorphic. Leaves on short shoots are ovate, angular and long tapering at the base. Leaves on long shoots are triangular and truncate at the base.

Limited to roadsides and around dwellings and fields. A few collections exist of this infrequently escaping ornamental.

An early introduction from Europe now found in the east from NS to ON south to LA and FL; BC south to TX.

***Populus tremuloides* Michx.**

**Trembling Aspen; peuplier faux-tremble**



Photo by Roger Lloyd

A common tree, it has gray bark. Its leaves are broadly ovate, serrated on the edges and with prominently raised palmate veins. Terminal buds are shiny brown and smooth.

Pioneer species, tolerant of wetter soils than *P. grandidentata*.

Common throughout Nova Scotia as a successional species; especially numerous in cutovers or after fire.

Ranges across the continent, to AK, south to CA, TX and VA.

## ***Salix* L.**

### **willow**

Of all our tree or shrub genera, the willows are amongst the most difficult to identify to species. Hybrids are common, further complicating determination. Spring and early summer provide the best opportunity to study the willows, when catkins are still present. Catkins are erect and spreading, rarely pendulous. Winter buds are covered by a single scale.

#### Key to species

- A. Prostrate or creeping shrubs restricted to alpine habitats B  
on the Cape Breton Highlands.
  - B. Branches rooting at the nodes, above or below ground; *Salix reticulata*  
leaves wrinkled below, smooth above.
  - bb. Branches not rooting at the nodes; leaves not wrinkled beneath. C
    - C. Branchlets or leaves smooth or glabrescent; ovary and *S. uva-ursi*  
capsule smooth.
    - cc. Branchlets densely silky pubescent; ovary and capsule *S. glauca*  
not smooth.
- aa. Erect shrubs or trees; not restricted to alpine or northern localities. D
  - D. Shrub to 1m; branches and leaves white-woolly, even at maturity. *S. candida*
  - dd. Taller shrubs and trees; branches and leaves not as above, but E  
variously pubescent.
    - E. Fruit smooth; scales of catkins usually pale; stamens 2 or F  
more.
      - F. Leaves acute; stamens 3–8. G
        - G. Leaves acute; stipules on young *S. pentandra*  
leaves absent or very small; young  
leaves and branchlets glabrous.
        - gg. Leaves attenuate; stipules on *S. lucida*  
young leaves foliaceous; young leaves  
with white hairs; branchlets usually  
hairy.
    - ff. Leaves not acute; stamens 2. H
      - H. Leaves entire. I
        - I. Leaves strongly revolute, *S. pedicellaris*  
glaucous and smooth beneath.
        - ii. Leaves only slightly revolute; *S. caprea*  
gray tomentose below.
      - hh. Leaves toothed. J
      - J. Scales deciduous, yellowish. K
        - K. Teeth <6 per cm of *S. x rubens*  
leaf margin.

kk. Teeth >6 per cm of leaf margin.	<i>S. alba</i>
jj. Scales persistent, dark.	L
L. Leaves fragrant, smooth.	<i>S. pyrifolia</i>
ll. Leaves scentless, pubescent.	M
M. Plant <1m tall, arctic; leaves dark green, rugose, silky villose below.	<i>S. vestita</i>
mm. Plants >1m tall; not arctic; leaves grey-villous, upper and/or lower surfaces.	<i>S. eriocephala</i>
ee. Fruit pubescent; scales of catkins usually dark; stamens 1–2.	N
N. Scales pale yellow, red-tipped.	<i>S. bebbiana</i>
nn. Scales dark brown or black.	O
O. Leaves nearly opposite; stamens united at the base.	<i>S. purpurea</i>
oo. Leaves clearly alternate; stamens not united.	P
P. Twigs glaucous.	<i>S. pellita</i>
pp. Twigs not glaucous.	Q
Q. Leaves with few teeth.	R
R. Blade length up to 2–3X the width.	S
S. Peeled wood with striae to 62mm; capsule <6mm.	<i>S. cinera</i>
ss. Peeled wood with striae sparse, to 6mm; capsules 6–12mm.	<i>S. caprea</i>
rr. Blade length up to 4–9X the width.	T
T. Leaves smooth or puberulent early.	<i>S. discolor</i>

tt. Leaves persistently pubescent.	<i>S. humilis</i>
qq. Leaves with numerous teeth..	U
U. Leaves becoming smooth, white beneath.	<i>S. petiolaris</i>
uu. Leaves persistently silky beneath.	<i>S. viminalis</i>

***Salix alba* L.**

**White Willow; French Willow; saule blanc**



*Photo by Roger Lloyd*



*Photo by Roger Lloyd*

Branches and branchlets are variable in colour and pubescence. Generally it is a tree to 20m with olive-brown branches. Leaves are silky villous beneath, lanceolate to nearly linear in outline. Their margins are serrulate. Petioles may have glandular spots or lobes distally. Catkins may be as long as 6cm, their pedicels leafy, and 1–4cm in length. The floral bracts of the pistillate catkins are deciduous in fruit. Stamens number 2.

Early flowers in April and May.

Formerly treasured as an ornamental and now naturalized.

Frequently reported from most settlements in the province.

Widely introduced from Europe from NS to SK and variously south to CA and GA; AK.

***Salix bebbiana* Sarg.**

**Beaked Willow; saule de Bebb**





*Photo by Sean Blaney*

A shrub or small tree, it may reach 10m in height. Its leaves and branchlets are softly pubescent. Older branches have transverse lines on the peeled wood. Leaves obovate to elliptic, their lower surfaces bluish green or glaucous. The staminate catkins measure 0.5–1.5cm long arising on short bracteate peduncles. Pistillate catkins measure 2.8–5cm long. Pistils are light green and puberulent.

Flowers from late April to early June.

Wide-ranging habitats, from wet to dry.

Our most common native willow, found throughout.

Across the continent and south to CA, NM and MD



*Photo by Roger Lloyd*

### ***Salix candida* Fluegge**

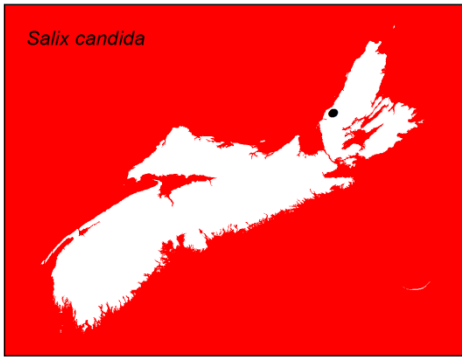
#### **Hoary Willow; saule tomenteux**



*Photo by Sean Blaney*

Usually a shrub, it rarely reaches 1m tall. Branchlets and the lower surfaces of the leaves remain densely white woolly, even as fruit matures. Leaves generally are linear or narrowly lanceolate. Peeled wood of branches show transverse lines.

April to June flowers, appearing as the leaves emerge. Associated with calcareous wet sites, such as bogs or in thickets.



Known only from Black River bog of Inverness Co. and Two Rivers Wildlife Park.

Found from NL to AK, south to CO and NJ.

RED-listed species.

***Salix caprea* L.**

**Goat Willow; saule marsault**



*Photos by Roger Lloyd*



A cultivated shrub, it rarely exceeds 6m in height. It closely resembles *S. discolor*, but for the pubescence. Noticeable is the gray rather than white tomentum on the lower surfaces of the leaves. They may be 3–12cm long and 3–8cm wide, broader than most willows.

Flowers early, before the leaves appear.

Frequently found on wet sites.

Spreading from cultivation around Sydney.

May form hybrids with *S. viminalis*.

Introduced from northern Europe and now spreading in NS and BC; from ON south to AL.

***Salix cinerea* L.**

**Large Gray Willow; saule cendré**

Another introduced shrub that resembles *S. discolor*. Reaching to 15m in height, its leaves may reach 9cm long and 1–3cm wide. They are pubescent below. The staminate catkins are silvery turning yellow at anthesis. Pistillate catkins are greenish gray releasing seeds in early summer.

Flowers early spring.

Open sites.

Spreading from cultivation in Yarmouth and on Seal Island of the same county.

Introduced from Europe in NS to ON, south to LA and GA; UT.

***Salix discolor* Muhl.**

**Pussy Willow; saule discoloré**



*Photo by Roger Lloyd*

A conspicuous and common shrub, this species has smooth dark-brown stems. Leaves are glabrous and glaucous beneath. They are elliptic to oblanceolate. Stipules are present, ovate. Buds and catkins are sessile, with catkins ranging from 2–10cm in length, although the pistillate catkins are shorter than the staminate ones. Under optimal conditions, plants may form small trees.

The earliest to flower, often in February, until May.

Wet soils in damp woods, pastures, roadsides and along the margins of wetlands.



Photo by Roger Lloyd

Common throughout NS.

Across Canada, variously south to CO and NC.

A hybrid with *S. bebbiana* has been reported from Annapolis Royal region.

***Salix eriocephala* Michx.**  
**saule à tête laineuse**



Photo by Sean Blaney

This is a complex and variable species, with respect to pubescence and leaves. Generally reaching only 1–4m in height, its leaves are glabrous and lanceolate, their margins serrulate. Older branches show points or projections on peeled wood.

Flowers in late March into April.

Habitat is limited to streamsides, even gravel bars.

Scattered throughout the province, but especially common in the central counties.

Ranges from NF to SK, variously south to LA and FL



Photo by Roger Lloyd



***Salix glauca* L.**

**saule à beaux fruits**



Photo by Roger Lloyd

This species is a small prostrate shrub, with sprawling branches. It resembles *S. uva-ursi*, except it has only two stamens, and ovary and capsule are densely pubescent. Floral bracts are persistent in fruit. Leaves and branchlets while young are silky-villous. Only ssp, *callicarpaea* (Trautv.) Böcher reaches Nova Scotia, with the typical ssp. in the west and northern part of the continent.

Alpine habitats such as windswept barrens.

Saint Paul Island is our only locality.

Greenland west to the NT, south to MB, ON, QC and NS, east to NL.

STATUS: ORANGE-listed.

***Salix humilis* Marshall**

**Small Pussy-willow; saule à beaux fruits**



Photo by Sean Blaney

Resembling *S. discolor*, it may be separated on the presence of woolly branchlets and gray tomentum on the lower leaf surfaces. Like the other Pussy-willow, it has elliptic to oblanceolate leaves, although dark green in colour. Catkins range from 1.5–3cm in length, the staminate catkins smaller than the pistillate ones.

Flowers before the leaves appear. Reproduces vegetatively by layering.

Look for pussy willows from March through June.





Photo by Roger Lloyd

Limited to clay soils, especially in low-lying areas.

Throughout Nova Scotia.

Eastern North America in range, from NF to MB, south to TX and FL.

***Salix lucida* Muhl.**

**Shining Willow; saule brillant**



Photo by Sean Blaney

Either a shrub or small tree in habit, it ranges from 4–6m tall with smooth and shiny bark. Lanceolate or ovate leaves are finely serrate, shiny and acutely pointed. Stipules, if present, are kidney-shaped, 2–5mm long. Staminate flowers have 3–6 stamens; catkins are 2–7cm long.

Flowers from late April until June.

Favours wet ground streamsides and lacustrine habitats, even in ditches.

Most common from Digby to northern Cape Breton, scattered to frequent elsewhere.

Ranges from NL to AK, south to CA, KS and VA.

Photo by Roger Lloyd



***Salix pedicellaris* Pursh**  
**saule pédicellé**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

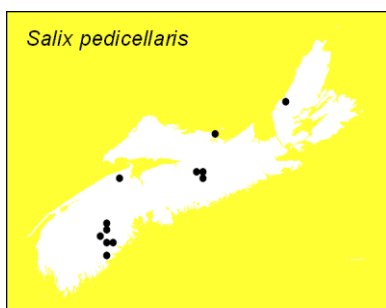
A small and slender shrub, it is usually less than 1m in height. Leaves are smooth, obovate or oblanceolate rarely elliptic. They are glaucous beneath and with margins entire. Bud scales are very small. Catkins range from 2–5cm in length. Pistillate catkins are loosely flowered. Staminate flowers have two stamens. May form colonies by layering.

Flowers from May to July.

Grows in acidic substrate as in bogs; nutrient-rich marshes and in sphagnous lacustrine habitats.

Local, but may be common where found: Queens County, occasionally seen along Sharpe Brook in Kings County. Collections from South Branch, Stewiacke River, Colchester Co., Black River fen, Inverness Co. and several Queens Co. localities are recent. A Northumberland collection and report from Halifax County require substantiation.

Northern in range, from NL to YT, south to OR, IL and NJ.



***Salix pellita* Andersson**

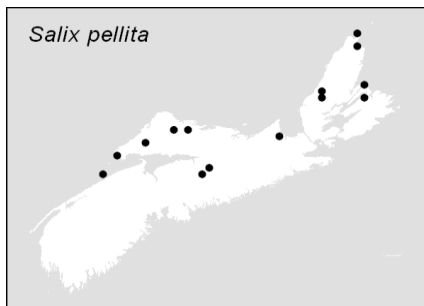
**saule satiné**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*



It is similar to *S. viminalis*, but is a native species. Branches are glaucous. Catkins develop earlier in this species, before the leaves expand, unlike those of *S. viminalis*. Stipules are soon deciduous. Ovary is covered in short silky hairs.

Flowers May and June.

Found in riparian habitats.

Scattered from Annapolis and Cumberland counties to Colchester Inverness and Victoria counties.

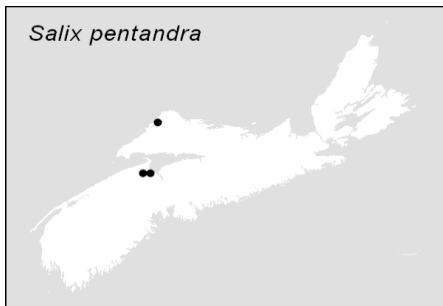
Ranges from NL to northern SK, south to MN and VT.

***Salix pentandra* L.**

**Bay-leaved Willow; saule laurier**



Photo by Roger Lloyd



***Salix petiolaris* JE Smith**

**saule laurier**



Photo by Sean Blaney

Another shrub or small tree, this one reaches 7m in height. Ovate or lanceolate leaves are glossy, dark green in colour, with finely serrate margins. Petioles have glandular lobes or spots. Staminate flowers have five stamens. The pistillate catkins persist until autumn.

Flowers appear from May to early June.

Flowers May and June.

Spreading from cultivation although perhaps not established. Collections on file from Kings and Cumberland counties only.

NF to BC and AK, south to CO and NC, after its introduction from Europe.

Reaching 7m, this shrub or small tree is typified by having yellow to dark brown branchlets, which may be smooth or puberulent. The leaves are narrowly lanceolate. Margins of the leaves are entire or serrate and with dense silky hairs as they unfurl. At maturity leaves become dark-green above, glaucous below.

Flowers in May and June.



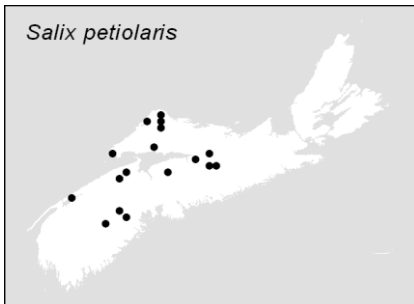


Photo by Roger Lloyd

Wet soils as in meadows.

Known from the western part of the province, from Digby to Lunenburg Co., east to Cumberland and Colchester counties.

Ranges from NS to NT and BC; south to WA, CO and NJ.



***Salix purpurea* L.**

**Purple osier; purple willow**



Photo by Roger Lloyd

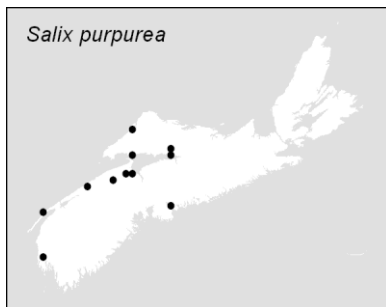
Reaching up to 3m (5), this willow has purple-brown to yellowish shoots, which turn grey as they age. The leaves range from 2-8 or 12cm long, with the upper surfaces dark green. They are glaucous green below, usually arranged in opposite pairs and not alternate along the stem. Flowers are small, the catkins up to 4.5cm long and purplish or red, rather than the usual white or green of most willows, the character for which they are commonly called. Filaments of the stamens are fused.

Catkins produced in early spring.





Photo by Roger Lloyd



***Salix pyrifolia* Andersson**  
**Bog Willow; saule baumier**



Photo by Sean Blaney

Soggy soils in low-lying areas.

A former ornamental naturalized throughout the western half of the province.

Cultivated from NF to ON, south to GA and a few western states after its introduction from Eurasia and Africa for basketry.

Shrub or tree, it grows to about 5m in stature. Bark is generally smooth and sometimes shiny. Leaves are ovate, puberulent when young, becoming smooth. Leaf margins are finely serrate or entire. There is a distinctive reddish colour to the leaves in early spring. Wood on older branches has no conical projections. Catkins are carried on leafy branchlets. Staminate catkins are 2–4cm long, while the pistillate catkins may reach 9cm.

Flowers from mid-May throughout August.

Bogs, swamps and generally poorly drained soils.

Occasional throughout northern NS, although absent from northern Cape Breton. Not common on the Atlantic side.

Ranges from NL to NT, south to BC, MN and NY.

***Salix x rubens* Schrank**  
**Hybrid Crack Willow**



*Photo by Sean Blaney*

A hybrid resulting from *S. alba* X *fragilis* L. it has yellow branches, the branchlets less fragile at the base than *S. fragilis*. The narrowly lanceolate leaves are silky when young, becoming glabrous with age. In all respects it is intermediate to the parent species.

Early-spring flowering.

Grows on riparian sites.

Scattered localities.

Ranges from NF to BC; south to CA and GA. Introduced.

Argus (2007) considers all of our material, formerly identified as *S. fragilis* L. as belonging here. While *S. fragilis* may be found here, it is doubtful.



*Photo by Roger Lloyd*

***Salix sericea* Marshall**

**Silky Willow; saule soyeux**



Photo by Martin Thomas



Another species of restricted distribution in Nova Scotia, this small tree or shrub has lanceolate leaves with nearly smooth upper surfaces. They are covered below with a silky silver pubescence. Younger branches are gray-brown to violet. The young branchlets are covered with erect hairs.

Flowers late March until May.

Low-lying ground as in riparian zones.

Rare and only reported from western NS. Parr Lake and Lake Fanning, Yarmouth Co.; Queens and Lunenburg counties to Halifax County,.

Ranges from NS to WI, south to SC and MO.

STATUS: ORANGE listed.

***Salix uva-ursi* Pursh**

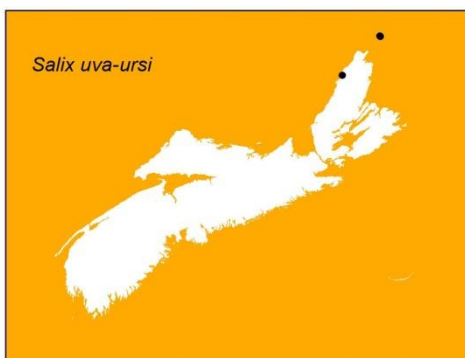
**saule raisin-d'ours**



Photo by Jamie Ellison

Dwarf and creeping, this shrub bears small staminate flowers with a single stamen. The pistil and ovary are smooth or merely puberulent as are the branchlets and leaves.

Later flowering than most willows, in June and July. Calcareous ledges; sub-arctic barrens.



Rare in NS and only known from Saint Paul Island and the Corney Brook gorge, within the National Park, Inverness Co.

Greenland, NS to QC, south to MN and GA.

***Salix vestita* Pursh**  
**saule pubescent**



*Photo by Roger Lloyd*

Another northern species, this one bears leathery rugose leaves covered in long white appressed hairs. Bark is dark gray on the branches whose internodes are relatively short. The nodes swell upward and are sometimes winged. Capsules are 5–7mm long, pubescent.

Favours seepy, dark crevices of calcareous rocks.

Known from a single locality, at Corney Brook gorge, Cape Breton Highlands National Park.

Found from NF to MB and NU; AB to BC south to OR.

STATUS: ORANGE-listed in NS

***Salix viminalis* L.**  
**Common Osier; saule des vanniers**



Photo by Roger Lloyd

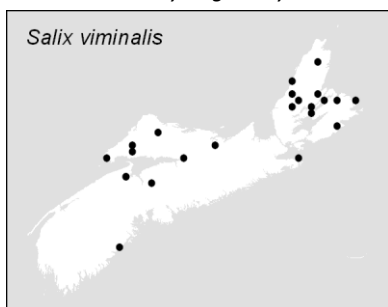


Photo by Sean Blaney

Taller than many willows, these trees may reach 15m in height. Leaves are long and narrowly lanceolate or linear, with inrolled margins and gray or white-villous beneath. Catkins are 2–6cm in length.

April to June flowers.

Near habitation as an escape.

Isolated trees scattered throughout the province although most collections originate from Cape Breton.

NF to ON south to WI, IN and VA. Native to Europe

Hybrids: Baddeck, Victoria Co. hosts frequent shrubs or small trees of a hybrid between this and *S. caprea*. It is found also in Antigonish Co. It has been named *S. X smithiana*. There are also reports of *S. X sericans* (*S. caprea x viminalis*) from Nova Scotia.





## Santalaceae

### sandalwood family

Cosmopolitan in distribution, the family counts about 400 species of parasitic plants. Only two species reach Nova Scotia, both perennials parasitic on the roots of other vascular plants. Leaves are simple, entire or reduced to bracts. Perfect flowers are variously arranged, all unisexual with 4–tepals, forming a tube. Stamens of equal number, opposing the tepals. A nectary disk sits atop the ovary. Fruit is a nut or drupe with a single seed.

Inflorescence a terminal cyme or panicle; hypanthium visible.

*Comandra*

Inflorescence axillary cymes; hypanthium absent.

*Geocaulon*

### ***Comandra* Nutt.**

#### **Bastard toadflax**

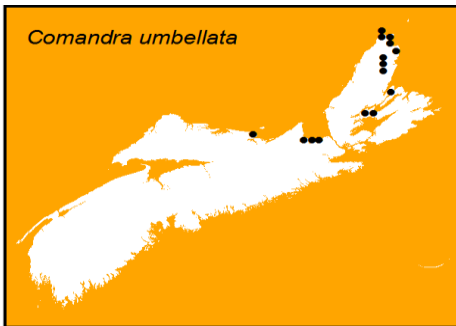
Only two species comprise this genus, one North American. Short in stature, these glabrous perennials, are rhizomatous. Flowers are perfect, the hypanthium well-developed. Nectary is shallowly lobed at the top, alternating with the stamens. Five tepals each bear a tuft of hair adherent to the stamens. Flowers and leaves are both small and inconspicuous. Leaves are alternate.

***Comandra umbellata* (L.) Nutt.**

**Bastard Toadflax; comandre à ombelle**



Photo by David Mazerolle



Leaves are ovate and alternate along branching stems. Yellow flowers are small and simple, arranged in terminal inflorescences. Fruit is a dry nut. Ours is the typical ssp. *umbellata*.

Grows in damp sands, as on headlands, in barrens, dunes and evergreen forests.

Rare and local in northern Cape Breton; common at Pomquet, Antigonish Co.

Ranges across Canada, south to the Gulf. Absent only in FL and LA.

***Geocaulon* Fern.**

**false toadflax**

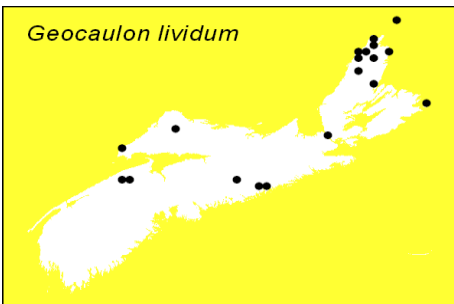
Monotypic, this species has axillary flowers, three per cluster. Usually the lateral pair are functionally staminate, soon deciduous after anthesis. Fruit is a fleshy drupe.

***Geocaulon lividum* (Richards.) Fern.**

**False Toadflax; comandre livide**



Photo by Sean Blaney



It resembles *Comandra* but for the axillary flowers arising midway along the stem, and juicy fruits.

Flowers from late May to early August.

Damp sands and other sterile soils, especially in acid or peaty sites.

Disjunct sites in Halifax, Kings and Cumberland counties; widespread but local in Cape Breton.

Ranges across Canada south to NY and ID.

## Sarraceniaceae

### pitcher-plant family

Unmistakeable in form and function, these carnivorous species live in peatlands and other inhospitable habitats. There are only 15 species worldwide; one in Nova Scotia. All have modified leaves forming passive traps into which their prey falls. These basal, cuplike structures are armed with strongly recurved hairs, forbidding escape. As the cups fill with rainwater, the small invertebrates, mostly insects, drown. The green leaves are also ornamented with bright red veins. Single flowers are borne on erect scapes above the leaves. Their styles are modified into an umbrella-shaped shield protecting the carpels.

***Sarracenia* L.**  
**pitcher-plant**

A single species reaches Nova Scotia.

***Sarracenia purpurea* L.**  
**Purple Pitcher-plant; saule des vanniers**



The cuplike basal leaves are marked with purple veins. Distally they are modified into a hood, extending over the pitcher opening. The inside of the leaves are bristly as above. Single flowers are erect when young, nodding with maturity. Tepals are purple.

Plants lacking the purple marking on the leaves are common in Cape Breton, with a single report from mainland NS in Annapolis County. This form is recognized by some as f. *heterophylla*. Ours is ssp. *Purpurea*.

Frequents bogs, swamps and sphagnum lakeshores.



Nutrient-poor habitats.

Common where suitable habitat is found.

Ranges across Canada to NT and BC; disjunct, NJ to FL and LA.

## Saxifragaceae

### saxifrage family

About 700 species in 40 genera comprise this family of herbs and shrubs. Nova Scotia has several representative species, ranging from the highland saxifrages to deciduous forest mitreworts.

Calyx and corolla are 4-5-merous. Sepals appear to be lobes of the hypanthium. Petals are variable in size and dissection. Stamens are equal in number or double the number of sepals and petals. Pistils number one or three; carpels 2–5, united basally to form a compound ovary, which may be deeply lobed. Fruit is dehiscent. Leaves are alternate with or without stipules, basal or cauline. Several genera are cultivated, but not persisting outside of cultivation.

#### Key to genera

- |  |                       |
|--|-----------------------|
| A. Leaves opposite, cauline; plant sprawling; flowers 4-merous; petals absent.                                     | <i>Chrysosplenium</i> |
| aa. Leaves mostly in a basal rosette, or very small and alternate; plants erect; flowers 5-merous; petals present. | B                     |
| B. Flowers solitary; stamens equal in number to the petals.  | <i>Parnassia</i>      |
| bb. Flowers several to numerous; stamens double the number of petals.  | C                     |
| C. Leaves small, crowded, sessile or nearly so.  | <i>Saxifraga</i>      |
| cc. Leaves mostly basal, on long petioles.   | D                     |
| D. Leaves serrate; petals entire; capsule beak acute.  | <i>Tiarella</i>       |
| dd. Leaves crenate; petals finely cleft; capsule beak obtuse.  | <i>Mitella</i>        |

### ***Chrysosplenium* L.**

Plants of cool regions, all 40 species have minute flowers. Petals are absent; calyx is four-merous. Flowers are perfect and perigynous. Hypanthium has eight lobes in its centre, with 4–8 stamens attached. Perennial creeping herbs, they are freely branched, their leaves simple.



***Chrysosplenium americanum* Schwein.**

**Golden saxifrage; dorine d'Amérique**



*Photo by Sean Blaney*

A smooth, nearly succulent plant, it has many trailing branches, forming thick mats. Round opposite leaves are small, less than 1cm wide and borne on short petioles. Flowers are solitary or arranged in a leafy cyme, sessile and apetalous. They are nearly invisible but for the reddish stamens. Fruits are tiny capsules.

Flowers from early May to July.

Springs, trickles, seeps and wet low-lying nooks.

Common throughout, from Annapolis to northern Cape Breton. Less frequent on the Atlantic side from Yarmouth Co., eastward.

NS to MB, south to AL and GA.

***Mitella* L.**

**mitrewort**

Rhizomatous, this herbaceous genus totals 12 species; 1 reaches Nova Scotia. Uncommon, our species is associated with the Alleghenian flora. Flowers are regular, perfect and perigynous. Also, they are five-merous. Hypanthium is saucer-shaped. Leaves are basal (in our species); Seeds are shining black.

***Mitella nuda* L.**

**Mitrewort; Bishop's Cap; mitrelle nue**



Photo by Sean Blaney

A small woodland perennial, its basal, cordate leaves are scalloped on the margins. Petioles are long. Cauline leaves are absent. Scape ranges from 10–20cm tall. Inflorescence is a terminal raceme, with a few distant flowers, on very short pedicels, 2–3mm long. Flowers are greenish-yellow, 3–5mm long and deeply split along each side into linear lobes, giving a distinctive appearance.

Flowers June and July.

Limited to shady habitats as in wooded swamps, mossy thickets and mixed forests, on fertile soils.

Annapolis Co., to northern Cape Breton.

Ranges from NL to AK, south to WA, IA and PA. Asia

## ***Parnassia* L.**

### **grass of Parnassus**

About 50 species of *Parnassia* are found in the north temperate zones and but a single one in Nova Scotia, limited to Cape Breton. White flowers are marked with purple nectar guides, perfect and five-merous. Staminodes opposite each petal, are connate basally. Stigmas are four and the capsules divided into four valves. Leaves basal, smooth and entire, with a single cauline leaf, midway along the stem.

### ***Parnassia palustris* L.**

**(= *P. parviflora* DC)**

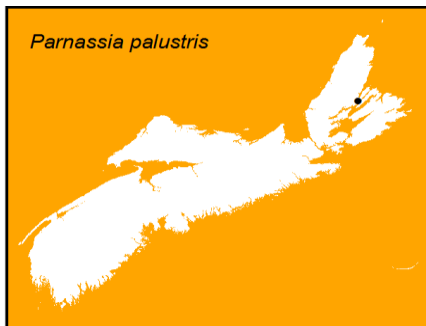
**Grass-of-Parnassus; parnassie des marais**



Photo by Beth Cameron



Photo by Beth Cameron



*Parnassia palustris*

A small upright perennial, it bears several ovate leaves in a basal rosette. One or two scapes up to 15cm tall, each bear a single flower, whose white petals are suffused with purple lines. Petals exceed the length of the sepals slightly. A small cauline leaf is present near the middle of the stem.

Flowers in July.

Sand dune hollows amongst grasses and in hummocks in swamps or tussocks.

Rare to infrequent. Known from Mabou Harbour northward.

Ranges from NS; NF to AK, south to WY and ON.

***Saxifraga* L.**  
saxifrage

Primarily of the Arctic and north-temperate zones, the saxifrages total about 350 species. Flowers are usually arranged in a slender cyme. Flowers are perfect, five-merous and usually regular. Petals are delicate and distinct. Perennial herbs, they rarely exceed 30cm in height, even in flower. Leaves are generally basal, and some species also have cauline leaves. Their margins may be entire or toothed and are usually ciliate.

In Nova Scotia, these species are associated with cliffs and rock crevices especially in northern areas.

Key to species

A. Leaves opposite; flowers purple.

*Saxifraga oppositifolia*

aa. Leaves alternate; flowers white or yellow.

B

B. Matted; leaves cauline, entire and ciliate; flowers yellow,  
5–8mm wide.

*S. aizoides*

bb. Leaves in dense basal rosettes, ciliate at the base  
and serrate, each tooth ending in a lime-encrusted pore; flowers  
white, 3–4mm wide.

*S. paniculata*

### ***Saxifraga aizoides* L**

#### **Yellow Mountain Saxifrage; saxifrage jaune**



Photo by Jamie Ellison



A small delicate plant, dwelling only on the windswept cliffs of northern Cape Breton. Leaves are crowded on the stems, opposite or whorled. Yellow flowers are distant in a slender cyme.

Flowers June to September.

Luxuriant where found, dripping limestone cliffs within spray zone.

In Cape Breton, known from Big Southwest Brook and south of French Lake in Cape Breton Highlands National Park.

Ranges from NS; NF to AK, south to MI and NY; Absent from SK. Europe.

### ***Saxifraga oppositifolia* L.**

## Purple Alpine Saxifrage

A densely matted species, its scapes may reach 10cm in height. Flowers are solitary, purple and about 1cm wide. Opposite leaves are pubescent, tightly clustered and overlapping at the base, with but a few cauline leaves.

Flowers June and July.

Rock face and seepage area at our only locality.

Found only at Corney Brook gorge to date, in Cape Breton National Park.

Ranges from NS; NF to AK, south to CO and NY. Circumboreal.

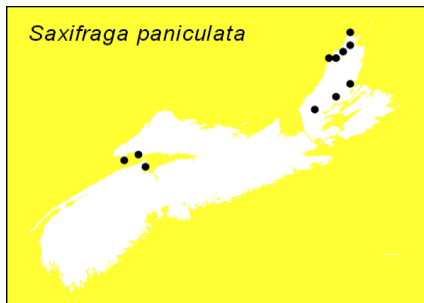
## *Saxifraga paniculata* Mill

(*S. aizoon* Jacq.)

White Alpine Saxifrage; saxifrage paniculée



Photo by Jamie Ellison



A perennial with basal rosettes 2–3cm wide, it has leathery, serrate leaves. Each serration bears a pore, encircled by lime, a striking character. Scapes range from 10–30cm tall with a few flowers forming a small cyme. Petals are white and tiny. North American plants are separated from European ones as ssp. *neogaea* (Butters) D. Löve

Flowers late June to July.

Crevices and peaty pockets in cliffs and limestone ledges. Limited distribution: Cape Blomidon (3km east of Cape Split), Cape d'Or and northern Cape Breton.

Arctic regions, south to NS, NY and MN; Europe.

## *Tiarella* L.

foamflower

A small genus of only six species, it is centred in North America, but for a single Asian species. Nova Scotia hosts one species. Flowers are white, arranged in racemes on a scape. Five-merous and perfect,



the flowers are also perigynous. Hypanthium is small, campanulate and basally united to the superior ovary. Leaves are mostly basal, lobed and toothed. Plants are rhizomatous.

### ***Tiareella cordifolia* L**

#### **False Mitrewort; Foamflower; tiarelle cordifoliée**



*Photo by Sean Blaney*

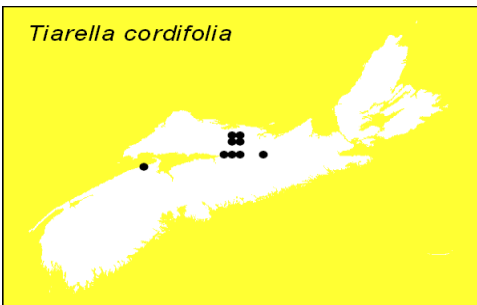
A beautiful plant, its tall slender scapes bear delicate white flowers. Basal leaves are long-petiolate, resembling those of Red Maple. Stems and petioles are puberulent. Capsule formed of two valves, unequal in size.

Flowers mid-May to mid-June.

Alluvial soils, deciduous forests even stony roadsides.

Centred about Colchester and Pictou counties, with a small population near Huntington Point, Kings Co.

Ranges from NS to ON, south to GA and MS.



## **Scrophulariaceae**

### **snapdragon family**

A larger family, the snapdragon relatives number about 4000. Most are herbaceous, and all have showy flowers. Several groups are favourite ornamentals. Flowers are perfect and always sympetalous. Typically the corollas are irregular, with 4–5 lobes. The calyx has as many lobes as the corolla and both are bilabiate. Generally there is a palate at the base of the corolla. Stamens number 2–5, alternating with the lobes of the corolla. Staminodes may be present in some species with four stamens. The ovary has two locules, superior. Fruits are generally capsules.

Root parasitism is common in this family, although chlorophyll production continues.

# Key to genera

- A. Corolla with a distinct spur or swelling at the base. B
  - B. Flowers in terminal racemes; stems smooth. C
    - C. Flowers blue; stripes absent; pedicels <5mm long. *Nuttallanthus*
    - cc. Flowers yellow, orange or white with blue stripes; pedicels >5mm long. *Linaria*
  - bb. Flowers solitary in the leaf axils; stem glandular pubescent. *Chaenorrhinum*
- aa. Corolla without a spur or swelling in the throat. C
  - C. Leaves alternate or all basal. D
    - D. Stems prostrate; leaves and flowers clustered at the nodes; flowers <5mm long. *Limosella*
    - dd. Stems erect; flowers >5mm long, terminal or nearly so. E
      - E. Corolla nearly regular; stamens 5. *Verbascum*
      - ee. Corolla definitely irregular; stamens 4. *Pedicularis*
  - cc. Leaves opposite or whorled. F
    - F. Stamens 2. G
      - G. Sepals 4 or calyx-lobes 4. *Veronica*
      - gg. Sepals 5 or calyx-lobes 5. H
        - H. Staminode minute or absent; some flowers subtended by a pair of bracts. *Gratiola*
        - hh. Sterile stamens a pair of filaments; bractlets absent. *Lindernia*
    - ff. Stamens 4. I
      - I. Corolla shaped like a helmet; upper lip hooded over the anthers, its teeth wanting or short. J
        - J. Leaves 2x long as wide, veins palmate. *Euphrasia*
        - jj. Leaves much longer, veins pinnate. K
          - K. Leaves mostly entire, teeth few and obscure. L
            - L. Corolla light red, pubescent. *Odontites*

ll. Corolla white with yellow; glabrous.	<i>Melampyrum</i>
kk. Leaves toothed or pinnatifid.	M
M. Calyx inflated at anthesis, enlarged in fruit, lobes 4. mm. Calyx not inflated; lobes usually 2.	<i>Rhinanthus</i> <i>Pedicularis</i>
ii. Corolla not helmet-shaped; upper lip not hooded, not enclosing the anthers and sometimes not differentiated.	N
N. Sepals distinct to the base, or nearly so.	O
O. Bracts abruptly reduced in size from foliage, inflorescence therefore terminal.	P
oo. Bracts gradually reduced so flowers appear axillary.	<i>Lindernia</i>
P. Flowers subtended by 2–3 sepal-like bracts.	<i>Chelone</i>
pp. Flowers without bracts.	Q
Q. Corolla green or brown, not showy; staminode reduced.	<i>Scrophularia</i>
qq. Corolla showy, blue or white; staminode prominent.	<i>Penstemon</i>
nn. Sepals connate to form calyx tube.	R
R. Corolla nearly regular.	<i>Agalinis</i>
rr. Corolla strongly bilabiate.	S
S. Middle lobe of lower lip of the corolla folded down and enclosing stamens	<i>Collinsia</i>
ss. Lower lip arcuate, not enclosing the stamens.	<i>Mimulus</i>

A perennial species of *Antirrhinum* L. the snapdragon has been reported from Nova Scotia. An escape from cultivation, it is unlikely that it persists for long.

### ***Agalinis* Raf.**

## false foxglove

About 60 species comprise this genus of root parasites, limited to the Americas. Those found in NS are herbaceous, slender and freely branching, with opposite or alternate linear leaves, generally less than 5cm long. Flowers appear in late summer and are ephemeral; the corolla falls away after only a day. Pink to purple, the corollas are subtended by regular calyces, with the tubes extending longer than the lobes. Corollas are only slightly irregular, usually bulging basally. Stamens number four, the lower pair exceeds the upper ones.

### Key to species

- |   |                      |
|---|----------------------|
| A. Calyx lobes oblong or globose, much shorter than the tube; pedicels much exceeding the length of the calyx; plants fleshy and of saltmarshes | <i>A. maritima</i>   |
| aa. Calyx lobes lanceolate or deltate, acute; pedicels shorter than the calyx; plants not fleshy nor obligate halophytes.                       | <i>B</i>             |
| B. Calyx lobes from three-quarters to twice as long as the connate base; style about 4–5mm long.  | <i>A. neoscotica</i> |
| bb. Calyx lobes from 0.2-1 times as long as the connate basal portion; style about 8-14mm long.   | <i>A. tenuifolia</i> |

### ***Agalinis maritima* Raf.**

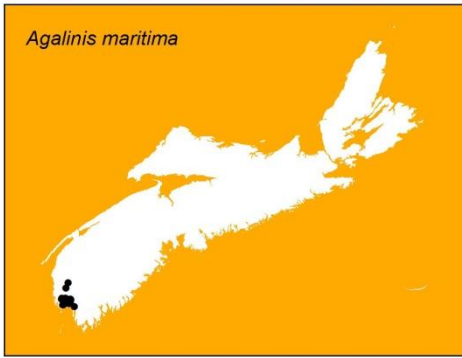
#### **Saltmarsh False Foxglove; g rardie maritime**



*Photo by Martin Thomas*

The leaves of this species are very narrow, only 2mm wide. Its flowers are borne in a raceme of 2–5 pairs of flowers on long pedicels, exceeding the length of the calyx. Plants tend to be somewhat succulent.

Look for flowers from mid-July through September.



Limited to saltmarshes.

Local. Known from the Argyle Head region of Yarmouth Co. where it is abundant.

Ranges along the coastal plain from NS and ME south to FL and TX.

STATUS: Of conservation concern: ORANGE-listed.

***Agalinis neoscotica* (Greene) Fernald  
(=*Agalinis purpurea* (L.) Pennell, var. *neoscotica* (Greene) B. Boivin); g rardie de Nouvelle- cosse**



Photo by Martin Thomas

With its smooth quadrangular stems, this plant may reach 30cm in height. It has leaves to 4mm in width. Sometimes poorly developed axillary clusters of leaves are seen. Flowers are purple, pubescent within. They may be carried in small clusters or singly.

Flowers late summer.

Grows in acidic soils in damp locations where there is little competition from shrubs, lakeshores and woods roads.

Found from Annapolis County around the coast to Queens Co.

This species is endemic to NS, NB and ME.

***Agalinis tenuifolia* (Vahl) Raf.  
(=*Agalinis purpurea* (L.) Pennell, var. *neoscotica* (Greene) B. Boivin)**





Photo by Sean Blaney

It was reported as well established on a logging road south of Beecham Settlement in Cumberland County. It was growing with several other calciphiles, including *Equisetum variegatum* and *Liparis loeselii*.

Considered to be introduced in NS currently, although it also grows from NB to MB south to TX and FL.

***Castilleja coccinea* (L.) Spreng., Indian Paintbrush** was collected but once at Chester Basin exit from Highway 103 where 300 plants were counted. Usually found from ME to SK and south to FL and OK, it may be expected here at other locations. To date none have been reported.

### ***Chaenorhinum* (DC) Reichenb.**

Native to the Mediterranean region, this small genus of 20 species is represented here by only a single species. Annuals or perennials, they are typified by having the leaves alternate and entire. Flowers are axillary, arising from the upper leaf axils. The corolla is only slightly irregular and spurred at the base. It is strongly bilabiate and the palate does not constrict the throat. Calyx is deeply five-lobed.

#### ***Chaenorhinum minus* (L.) Lange**

##### **Dwarf Snapdragon; chénorhinum mineur**



Photo by Sean Blaney

A diffuse plant, it is freely branching and only 30cm tall. The leaves are narrow, linear or oblanceolate. Flowers are bluish purple and borne on tiny pedicels. Palate is sometimes yellow. Plant appears messy due to the glandular pubescence that covers it.

Flowers during July and August.

Waste soils roadsides and along railways, used or abandoned.

Scattered from Lunenburg Co. northward, especially along the rail.

Ranges from NF to BC, variously south to OR, TX and GA. Mediterranean.

## ***Chelone* L.**

### **turtlehead**

Only four species comprise *Chelone*, restricted to eastern North America. Herbaceous, they are perennials with smooth opposite and toothed leaves. Flowers are large and showy, borne on terminal ends of the branches and the stem. Flowers are closely subtended by 2–3 bracts. Corolla is bilabiate, with villous hairs in its throat. Calyx is deeply cleft into five lobes. There are four fertile stamens, on filiform filaments and a sterile staminode, that is much shorter than the others.

## ***Chelone glabra* L.**

### **Balmoney; Turtlehead; galane glabre**



*Photo by Sean Blaney*

Stems are erect and simple, to 80cm in height. Leaves generally are lanceolate and large, equal in length along the stem. Flowers are pinkish white, borne on very short pedicels in short spikes, which may or may not be interrupted. Some flowers are axillary.

Flowers mid-July through August.

Found in wet sites of swamps, meadows, roadsides, streamsides and estuaries.

Scattered throughout, but becoming more common northward.

NF to MB, south to GA and MS.

## ***Collinsia* Nutt,**

### **blue-eyed Mary**

A temperate genus found only in North America and only recently discovered in Nova Scotia. Seventeen species strong, it is best developed in California. An annual herb, it bears opposite cauline leaves and bicoloured flowers. Calyx is campanulate, although it is irregular; the lobes exceed the length of the tube and the lower lobes are shorter and wider than the upper ones. Corolla is bilabiate, the tube is swollen at the base of the top lip. Lower lip reflexed, its middle lobe forming a sac.

***Collinsia parviflora* Dougl.**

**Blue-eyed Mary**

Erect and branching from the base, this plant bears linear leaves, entire along their edges. Lowermost flowers are solitary, while the upper ones are borne on slender pedicels, with 2–6 flowers per inflorescence. The upper lip is white; the lower blue usually.

Flowers from mid July to August.

Fallow fields where soils are rocky and sterile.

So far collected only from Sydney River, Cape Breton Co.

Possibly introduced here; native from ON westward to AK and YT, and southward; VT; MA; PA.

***Cymbalaria muralis* Gaertn., Meyer & Scherb. or Kenilworth Ivy** is a Mediterranean species often cultivated in pots for its trailing habit. The pale blue flowers with yellow palate are borne singly from the rooting leaf nodes. It has been reported as thriving outside cultivation on Vancouver Street in Yarmouth. It is unknown if it is extant, although its introduction is reported from both east and west coasts of the continent. Most recently it has been observed thriving in sidewalk cracks and crevices about the town of Lunenburg.

***Euphrasia* L.**

**eyebright**

The eyebrights found in Nova Scotia are compact little annuals, with small toothed leaves and tiny sessile flowers. All are hemiparasitic, both photosynthetic and parasitizing the roots of adjacent plants. Leaves are opposite; bracts are alternate; venation is palmate. Corolla is bilabiate; calyx is unevenly divided into four lobes. The spreading lower lip has three lobes. Stamens number four. Seeds are winged.

## Key to species

- |  |                         |
|--|-------------------------|
| A. Teeth of the bracteal leaves rounded, corollas <4mm, upper lip emarginate           | <i>Euphrasia randii</i> |
| aa. Teeth of bracteal leaves acute to aristate; corollas >4mm long, upper lip bilobed. | B                       |
| B. Teeth of bracteal leaves aristate; calyx glabrous or ciliate.                       | C                       |
| C. Spikes produced in upper 2/3 of stem to almost the base.                            | <i>E. stricta</i>       |
| cc. Spikes produced only in the top half of the stem and branches.                     | <i>E. nemerosa</i>      |
| aa. Teeth of bracteal leaves acute, but not bristle-tipped; calyx pubescent.           | <i>E. disjuncta</i>     |

### ***Euphrasia disjuncta* Fern. & Wieg.**

#### **Polar Eyebright; euphrase à aires disjointes**

A dwarf species, often reaching no more than 5cm in height. Stems bear several pairs of leaves, each is ovate and with 3–4 teeth per side. They are pubescent on both surfaces. Bracts resemble the leaves. The calyx is also pubescent.

Flowers from July through September.

Damp open soils.

Collected from Lockeport, Shelburne Co. (ACAD).

NL to QC; AK; ME.

### ***Euphrasia nemerosa* (Pers.) Wallr.**

#### **Common Eyebright; euphrase des bois**



Photo by Sean Blaney

A more robust and leafier species, this plant is also more widespread. Plants are mostly glabrescent although the calyx may be ciliate. The bracteal leaves are aristate. Flowers only in the upper third of the plant.

Flowering from July through September.

Compacted soils on disturbed open sites, roadsides, meadows, headlands.

Common throughout.

Ranges from NF to ON, south to MN and CT; west coast from AK to WA and AB.

### ***Euphrasia randii* BL Robins.**

#### **Small Eyebright**



Photo by Sean Blaney

Another compact species, rarely exceeding 10cm in height. Leaves are rounded distally, sometimes glabrous or even densely pubescent. Tiny flowers are less than 4mm long.

Flowers in August.

Sea cliffs and turfs on headlands, even wet pastures near the coast.

Common northward in Cape Breton and along the lower Fundy coast. Scattered on the Atlantic side.

Endemic from NF to QC, south to ME.

### ***Euphrasia stricta* D. Wolff**

#### **Medicinal Eyebright; euphraise dressée**





Photo by Sean Blaney

Closely resembling *E. nemerosus*, it differs only in the extent of the inflorescence. This species has its flowers often to the base of the plant.

Flowers throughout the summer.

Grows on disturbed soils in sunny locations.

Probably common throughout.

Ranges wider than other species, from NS to ON south to IL and PA. Introduced.

## ***Gratiola* L.**

Small annuals or perennials, there are only 20 species of these herbs. Leaves are opposite, and in our species, sessile and lanceolate. Solitary flowers carried in the leaf axils, are yellow or white, and pedicellate. The calyx is distinctly five-lobed, the sepals subtended by a pair of bracts. Corolla is tubular or campanulate, bilabiate. Its upper lip is cleft in two, although the lobes are united for most their length. The throat is pubescent. Functional stamens number two, the other pair reduced to slender filaments.

### Key to species

Perennial; leaves sessile and broad-based; flowers bright yellow, 12–16mm long.

*Gratiola aurea*

Annual; leaves narrowing at the base; flowers white, with a yellow tube, 8–10mm long.

*G. neglecta*

### ***Gratiola aurea* Pursh**

**Golden-pert; gratiole dorée**



Photo by Sean Blaney

Small plants, they have simple or branching stems and opposite sessile leaves, lanceolate or ovate in outline. Brilliant yellow flowers are borne on short pedicels. Sepals are lanceolate or deltate. White form is known around Ponhook Lake.

Flowers during July and August.

Mat-forming on slate cobble of lakeshores, wet savannahs.

Common from Yarmouth around the coast to Halifax Co.

Ranges from NF to ON; variously south and west to ND, IL and FL.

***Gratiola neglecta* Torr.**  
**gratiole négligée**



Photo by David Mazerolle

Also has simple or branching habit, reaching from 10–30cm tall. Leaves are lanceolate or elliptical, even oblanceolate. Flowers are borne on slender pedicels, from basal axils to the top of the plant.

Flowers from May until August.

May be found on wet mud.

Limited to the bank of the Stewiacke River and Hilden, both in Colchester Co. and more recently at a single Cumberland Co. locality.

North American, but for NF and FL and the far northern territories.



***Limosella* L.**  
**mudwort**

Found nearly worldwide, this small genus includes only 15 species. All are small annual herbs, with prostrate stems rooting from the nodes. Peduncles bear solitary flowers, arising from the base. Flowers are nearly regular, with five lobes on both the calyx and corolla. Corolla tube is longer than the lobes. Stamens count is four, the anthers unite to form a single pollen sac.

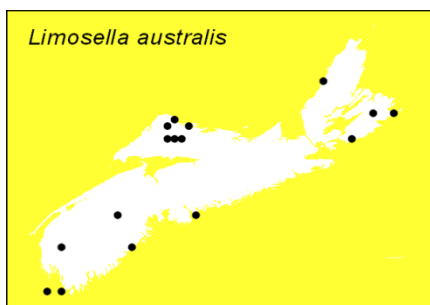
***Limosella australis* R. Br.**

(=*L. subulata* Ives)

**Mudwort; limoselle à feuilles subulées**



Photo by David Mazerolle



A caespitose plant, very short in stature and comprising 5–10 linear leaves, to 5cm long and 2mm wide. Flowers arise on pedicels shorter than the leaves and usually nodding.

Begins flowering in late June through the summer into October.

Only on muddy shores or gravels of ponds, lakes and rivers along the coast.

Yarmouth, Shelburne, Queens and Cumberland counties; Sable Island; Cape Breton and likely elsewhere.

Ranges from NF to QC, south to NC; CA.

***Linaria* Miller**

**toadflax**

Eurasian in distribution, there are nearly 100 species comprising the genus, many planted as short-lived ornamentals. Annual or perennial all are herbaceous and smooth, the stems bearing terminal racemes of many flowers. Calyx is deeply divided into five lobes; the corolla is irregular and bilabiate. Upper lips have two lobes, the lower lip with three. Palate is well-developed, sometimes closing the throat.

Key to species

A. Flowers yellow or mostly so.

B. Leaves linear narrowing slightly at the base.

B

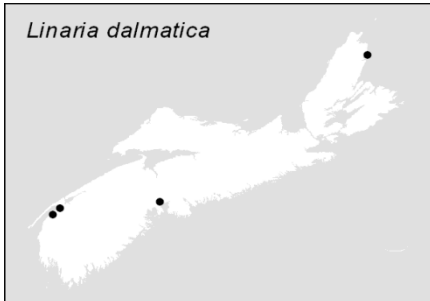
*Linaria vulgaris*

- bb. Leaves lanceolate to ovate, widest at the base, sessile.  
aa. Flowers white with blue stripes.

*L. dalmatica*  
*L. repens*

***Linaria dalmatica* (L.) P. Mill.**

**linaire à feuilles larges**



Plants have stout stems, bearing leaves to 3cm in length. Acutely pointed, their outline is broadly ovate. They are sessile and semi-clasping. Raceme is densely flowered with showy yellow blooms.

Flowers June until September.

Roadsides and other disturbed sites.

Victoria Co., Hubbards, Halifax Co. and Digby Co.

NS to BC, south CA, AR and NJ. Introduced from southern Europe.

***Linaria repens* (L.) BSP**

**Striped Toadflax; linaire rampante**

A perennial toadflax and more slender than our other species. Usually basal leaves are whorled. Flowers are white with purple lines, arranged in a loose raceme. Pedicels 2–6mm long.

Flowering from late June to September.

Found in disturbed soils as on roadsides, in fields and even dry thickets.

Collected from a single locality: an orchard behind Acadia University, Wolfville and possibly extirpated.

Ranges from NF south to MA and PA. Introduced.

***Linaria vulgaris* P. Mill.**

**Butter-and-eggs; linaire vulgaire**



*Photo by Martin Thomas*

Generally arising on sparsely branching erect stems, to 80cm. Leaves are crowded and numerous, linear or narrowly lanceolate and light green, tapering to the base. Flowers are bright yellow and tightly clustered at the top of the plant. They are spurred and sport an orange palate, nearly closing the throat of the corolla.

Flowers July and August.

Broad range of light soils on disturbed sites.

Very common species.

Ranges throughout the continent. Naturalized. Native to Eurasia.

## ***Lindernia* All.**

### **False pimpernel**

Cosmopolitan in its distribution, of 70 species, only a single annual reaches Nova Scotia. Leaves are opposite, marked with 3–5 veins and small solitary flowers. Plants produces cleistogamous flowers nearing the end of the season. Calyx is regular; corolla is bilabiate, the lower wider than the upper. Stamens may be two or four, the lower pair often folded back appearing bifurcate.

## ***Lindernia dubia* (L.) Pennell**

### **False Pimpernel**



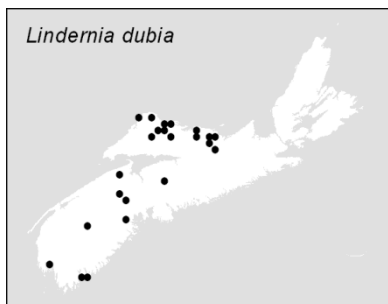
*Photo by Sean Blaney*

Branching freely from the base, the stems are to 30cm in height. Leaves are ovate or widely elliptic, 1–3cm long and entire or serrulate. Flowers are solitary and usually in the axils. Pedicels shorter than the leaves subtending them.

Flowers from late June until frost.

Riparian, muddy streambanks, drained ponds.





Kings and Lunenburg counties north to the Northumberland Strait.

North American, absent only from western Canada and the Great Plains.

## ***Melampyrum* L.**

### **cow-wheat**

Northern hemispheric in scope, the 25 species of cow-wheat are all annual root parasites. Leaves are opposite and the upper ones bear flowers in their axils. Flowers have a slightly irregular four-lobed calyx. The corolla tube slightly exceeds the length of its lobes. The upper lip is concave and the lower lip has three lobes, ridged below the sinus. The four stamens are inserted.

### ***Melampyrum lineare* Desr.**

#### **Cow-wheat; mélampyre linéaire**



*Photo by Martin Thomas*

Simple or branched, the stems reach 10–40cm tall. Basal leaves, if present are oblanceolate or spatulate. Upper leaves are lanceolate and may be lobed or cuneate. Flowers 1–2 in the axils.

Flowers mid-summer.

Found on rocky barrens, bogs and heaths.

Common throughout the province.

NF to BC south to ID and GA.

## ***Mimulus* L.**

### **monkey-flower**

A widespread genus, *Mimulus* includes about 120 species, mostly of western North America. Generally they are rhizomatous perennials. Leaves are opposite and flowers are showy colours of red, yellow or

blue, arising on slender pedicels from the leaf axils. The tubular calyx is angled and its lobes are shorter than the calyx tube. Corolla is bilabiate, with the lower lip convex or ridged, closing the throat. Stamens number four, inserted along the tube.

#### Key to species

Plants smooth; flowers blue.

*Mimulus ringens*

Plants downy pubescent, sticky; flowers yellow.

*M. moschatus*

#### ***Mimulus moschatus* Dougl.**

##### **Muskflower; mimule musqué**



*Photo by Sean Blaney*

Very distinctive, in its unpleasant odour and sticky downy pubescence covering the stems. Leaves are ovate and distantly toothed. Petioles are very short. Pedicels arise in pairs or solitary from the leaf axils and bear small yellow flowers.

Flowers in mid-summer.

Grows in wet shady sites and may form dense colonies.

Scattered from Annapolis to Cumberland counties and northeast to Cape Breton.

Ranges from NF to ON, south to NC; BC to CA and inland. There is some question whether it is native in NS.

#### ***Mimulus ringens* L.**

##### **Monkey-flower; mimule à fleurs entrouvertes**



Photo by Martin Thomas

Stems are distinctly angled, smooth and occasionally branching distally. Leaves are lanceolate and entire or shallowly toothed, sessile and even clasping. Leaves reduce in size up the stem, the long pedicels arising from their axils. Flowers borne in ones or twos, each with bluish-purple corolla to 30mm long.

Mid-summer flowering.

Grows in moist soil as around lakes and streams, even in marshes and meadows.

Scattered from Lunenburg and Annapolis counties to northern Cape Breton. Absent from the warmer southwestern counties.

Ranges from NS to AB, variously south to CA, TX and GA. Absent from arid regions.

## ***Nuttallanthus* DA Sutton**

This small genus of four species, was recently segregated from *Linaria* based on molecular evidence. *Linaria* now includes only Old World plants, while *Nuttallanthus* is limited to the Americas. Resembling *Linaria* in appearance, these have blue flowers borne on very short pedicels. Their corollas are spurred, but the spurs are less than 1mm wide.

### ***Nuttallanthus canadensis* (L.) DA Sutton**

**Blue Toadflax; linaire du Canada**



Photo by Martin Thomas

Tiny blue flowers have a paler palate bearing two ridges in the throat. Similar to *Linaria* but for colour and size. It is a slender, self-fertile annual.

Flowers very early, often in April until September. One of our best early forage plants for bees.

Found in dry, sandy soils, especially common on roadsides and along abandoned rail cuts.

Occasional from Halifax to Yarmouth and other southwestern ports.

Eastern North America, and from WA to CA. Introduced to NS.

## ***Odontites* Ludwig** **red bartsia; eyebright**

European in scope, the native range of the 30 species includes centres around the Mediterranean. Mostly root parasites, their leaves are opposite but small. Flowers are red, yellow or purple, and second in a terminal inflorescence. The calyx is four-lobed, deeply divided above and below, less so laterally. The bilabiate corolla is irregular. The upper lip is concave and straight while the lower is spreading with three shallow lobes.

***Odontites vernus* (Bellardi) Dumort, ssp. *serotinus* (Dumort) Corb.**  
**(= *O. serotina* Dumort)**

**Red Bartsia; odontite tardif**



*Photo by Reta Cook*

A branched herb 10–50cm tall, its stem is puberulent. Short leaves are sessile and lanceolate, short and numerous, bearing a few acute teeth. Flowers are also sessile and carried in a long secund raceme. The corolla is pink, an unusual colour for this family.

Flowers from July onward.

Generally on moist soils in fields, roadsides and pastures and often coastal.

Scattered in southern Cape Breton and becoming common along the Gulf of St. Lawrence-Northumberland, less frequent westward.

Found from NS to AB, south to WI and NY; Introduced from Europe.

## ***Pedicularis* L.**

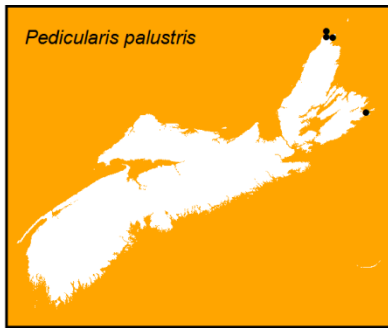
### **lousewort**

About 500 species are included as louseworts, north-temperate, boreal or alpine. Most are hemi-parasitic or root parasites, with opposite or alternate serrate leaves. Flowers are red, purple or yellow, borne in a terminal leafy inflorescence. The calyx is campanulate or tubiform, regular or irregular. The corolla is irregular. Its tube is enlarged at the throat forming a palate. The upper lip while equal in length to the lower, is arched or laterally compressed or galeate. It may be beaked and is usually denticulate. Lower lip is trilobed, with two ridges below. Stamens are inserted.

### ***Pedicularis palustris* L.**

**Swamp Lousewort; pédiculaire des marais**





An erect plant, its stems may reach 30–50 cm, simple or more commonly, branched. Leaves are lanceolate and pinnatifid, nearly to the midrib. Flowers are arranged in one or more spikes. The calyx measures 6–9mm long and the pinkish corolla is to 2cm long.

Flowers in July.

Wet substrates as in marshes or meadows.

Rare and local: Bay St. Lawrence, Baleine and Sydney area. Reported from Guysborough Co.

Ranges from NF to QC.

STATUS: Of potential conservation concern, ORANGE-listed.

A collection of **Pedicularis sylvatica L.** is housed at UCCB. This specimen should be verified. This would be an interesting site as the species is European.

## ***Penstemon Mitchell*** **beard-tongue**

Most of these plants are from North America, especially western regions. All have leaves showing great variation, rendering them not useful as identifying characters. Many are perennial; a few are biennial. Leaves are mostly basal, from which a stem arises. Cauline leaves decrease in size towards the flowers. Inflorescence is a panicle or raceme of white to blue, purple or red flowers. Calyx is cleft deeply into five lobes; the corolla is tubular or trumpet shaped, its tube longer than the limbs. Stamens include four fertile; one sterile, bearded.

### ***Penstemon digitalis* Nutt.**

**Beard-tongue; penstémon digitale**



*Photo by Martin Thomas*

It is an erect plant, to 1.5m in height. Basal leaves are long-petiolate, lanceolate or ovate and entire. Flowers are borne in a raceme, the pedicels strongly ascending. Flowers are white.

Early flowering, from May to July.

A plant of meadows and prairies, spreading to eastern fields and clearings.

Historically known from north side of a field on Cape Blomidon, Kings Co. where it is believed to be an introduction.

Ranges from NS to ON, south to TX and GA, may be adventive in the northeast.

## ***Rhinanthus* L.**

### **yellow rattle**

Only three species are included in this genus of hemiparasites; one reaches Nova Scotia, with two subspecies. The opposite leaves are sessile. Yellow flowers are borne in a terminal leafy spike. Most distinctive is the papery calyx, which becomes swollen at maturity. The highly irregular flowers carry appendages on either side of the top corolla lobe. The lower lip is trilobed and ridged. Stamens are borne in two pairs beneath the upper lip. Seeds are large and flat, winged.

### ***Rhinanthus minor* L.**

(=*R. crus-galli* L.)

**Yellow Rattle; petit rhinanthe**



Photo by Alain Belliveau

Flowers are borne on erect stems which may be simple or branched, rarely more than 60cm tall. Leaves are sessile and lanceolate or oblong, crenate or serrate. Flowers are carried in spikes arising from the upper axils. Corolla is yellow and to 2cm in length, subtended by a calyx to 1cm and round. Bracts at the base of the flowers are attenuate and serrate.

*ssp. groenlandicus* (Ostenf.) L. Nenin has the leaves oblong and crenate; the corolla has no purplish brown mottle.

*ssp. minor* has lanceolate attenuate leaves, their margins serrate; the lower lip of the corolla is mottled brown.

Flowers from mid-June through July.

Grows on disturbed, compacted soils as on roadsides, abandoned fields and the like.

Common throughout.

*ssp. minor* is considered introduced to Canada from Europe. Greenland to NT south to AZ and NM. *ssp. groenlandicus* ranges from Greenland to AK, south to OR and CT and is considered native.

***Scrophularia* L.**

**figwort**

About 150 species comprise this temperate Eurasian genus, for which the family is named. All are perennial herbs with opposite toothed leaves, petiolate or apetiolate. Flowers are small, green to reddish brown borne terminally in large panicles. Calyx is regular and five lobed. The corolla is bilabiate, its tube wide. The central lobe on the lower lip droops, while the others are borne flat. Stamens number four, beneath the upper lip. Seeds are rough and angular.

Key to species

Leaves cuneate or truncate at the base; sterile stamen greenish yellow.

*Scrophularia lanceolata*

Leaves rounded or cordate at the base; sterile stamen purple or brown.

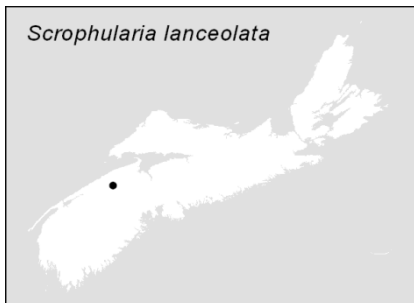
*S. nodosa*

***Scrophularia lanceolata* Pursh**

**Figwort; scrofulaire lancéolée**



Photo by Sean Blaney



Reaching 2m in height, this plant has broadly lanceolate leaves, coarsely serrate. Cauline leaves are whorled and carried on petioles about one-third the length of the blades. Panicles are elongated and loosely branched; they are composed of many flowers.

Flowers June and July.

Limited to open forest and thickets, dryish soils.

Rare and known only from Harmony, Kings Co.; Boylston, Guysborough Co. and Baddeck, Victoria Co. although only a single locality is reflected in the collections.

Ranges from NS to BC, south to CA and NC. Introduced.

***Scrophularia nodosa* L.**

**Knotty Figwort; scrofulaire noueuse**



Resembling the previous species in stature and inflorescence, this species differs mainly in the leaf outline, with the base cordate or at least rounded rather than squared. The sterile stamens are also purplish or brown rather than green.

Flowers in summer.

Vacant lots and roadsides; base of talus.

So far known from Main Street, Wolfville where it is actively spreading and from Middle River, Pictou.

Elsewhere it is known from NF to QC. In the east as far south as NC; in the west found in WA. Introduced to Canada

## ***Verbascum* L.**

### **mullein**

Centred about Eurasia, of 300 species only one reaches Nova Scotia, as an introduction. Ours is distinctive in its size, sometimes reaching 2m. The elongated spike of yellow flowers is unique amongst the scrophs, at least in our species. The calyx and corolla are nearly regular. Five lobes of calyx subtend the salveriform corolla, whose tube is nearly absent. The three lower lobes are only slightly longer than the remaining pair. There are five dimorphic stamens. The lower pair differs in length and pubescence. The fruit has two valves, dehiscent at the top. Leaves are both basal and cauline.

## ***Verbascum thapsus* L.**



### **Common Mullein; grande molène**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Common in its habitat, with tall cylindrical spikes arising from large rosettes of woolly light green leaves. The basal leaves are oblanceolate and petiolate while the cauline leaves are decurrent and acute.

Flowers throughout the summer.

Commonly grows on light gravelly soils as found roadside, or on railways, plains and pastures.

Common throughout.

Introduced throughout North America from Europe.

### ***Veronica* L. speedwells**

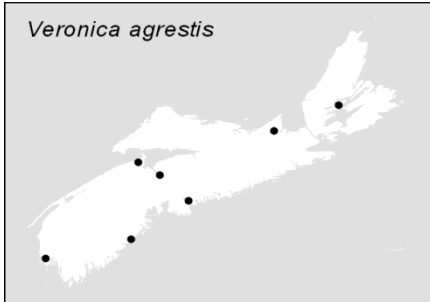
A genus of the north-temperate regions, Eurasian-centred. Eleven are found in Nova Scotia, of 300 described. All herbaceous, they carry opposite or whorled leaves and alternate or opposite bracteate leaves. Flowers are small, ranging from white to blue or purple. The corolla is generally tubiform, the tube shorter than the limbs, which appear to be only four due to fusion in the upper pair. The calyx is cleft into 4–5 lobes and persistent on the fruit. Style is persistent; stamens a single pair.

## Key to species

- |   |                              |
|---|------------------------------|
| A. Inflorescence terminal on the main stem and flowers crowded, bracteate leaves alternate. | B                            |
| B. Flowers in a terminal raceme or spike.   | <i>V. serpyllifolia</i>      |
| bb. Flowers axillary.   | C                            |
| C. Pedicels very short, to 2mm.   | D                            |
| D. Flowers white; leaves at least 3x long as broad, not lobed as below.                     | <i>V. peregrina</i>          |
| dd. Flowers blue; leaves much broader or lobed, with lobes pinnately arranged.              | E                            |
| E. Leaves toothed; fruit ciliate.   | <i>V. arvensis</i>           |
| ee. Some leaves pinnate; fruit glandular.   | <i>V. verna</i>              |
| cc. Pedicels to 40mm, at least at maturity.   | <i>V. agrestis</i> , in part |
| aa. Inflorescence never terminal on main branch; flowers axillary; all leaves opposite.     | F                            |
| F. Mature pedicels <15mm long; corolla <8mm wide.   | <i>V. persica</i>            |
| ff. Mature pedicels >15mm long; corolla >8mm wide.  | G                            |
| G. Plants of dry habitats; pubescent.   | H                            |
| H. Leaves cuneate; pedicels much shorter than the bracts.                                   | <i>V. officinalis</i>        |
| hh. Leaves round or square at the base; pedicels as long as or longer than the bracts.      | <i>V. chamaedrys</i>         |
| gg. Plants of wet soils; glabrous, or finely pubescent only in the inflorescence.           | I                            |
| I. Leaves all short-petiolate.  | <i>V. americana</i>          |
| ii. Leaves sessile from the middle upwards.   | <i>V. scutellata</i>         |

### ***Veronica agrestis* L.**

**Field Speedwell; véronique agreste**



A small tangly plant with prostrate growth, its stems sparsely branched. The leaves are widely ovate, almost round, crenate and with the veins palmate. Blue flowers top slender pedicels in the leaf axils, exceeding the length of the leaves. Plants are puberulent.

Flowers from May until October.

Fallow soils in lawns and fields.

Scattered localities along the Atlantic and at Windsor, Hants Co.

An introduced species and now reported sporadically from NF to AB, south to TX and FL.

***Veronica americana* (Raf.) Schwein.**

**American Brooklime; véronique d'Amérique**



A sprawling plant with prostrate stems, 20–60cm long. Generally it bears ovate to oblong leaves, their margins serrate or entire. Arising on very short petioles, they may be less than 1cm long. One to several racemes arise from the upper axils. Pedicels are longer than the minute bracts, from 5–10mm.

Flowers from June until September.



Found on wet soils near streams and springs, marshes and swamps or in riparian habitats.

Common from Yarmouth to northern Cape Breton along the northern side. Unknown from Atlantic counties.

Ranges from NF to AK, south to FL, TX and CA; Asia. Absent only from the prairie provinces. Introduced.

***Veronica arvensis* L.**

**Field Speedwell; véronique des champs**



*Photo by Martin Thomas*

A tidy, erect plant to 20cm tall, usually with simple or sparingly branched stems. Leaves are ovate, larger towards the base and rarely exceeding 1cm. They narrow towards the top where the flowers arise from the axils. Pedicels are short and become crowded terminally.

Flowers May and June.

Found in fields, on slopes and other dry sandy conditions.

Scattered throughout and forming large patches.

Ranges from NF to AK, southward; BC to CA. Introduced from Eurasia.

***Veronica chamaedrys* L.**

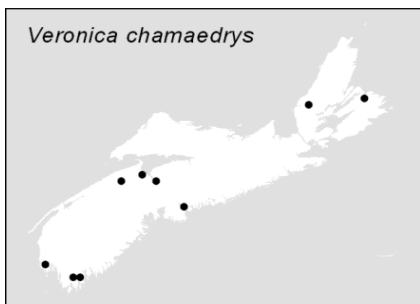
**Birds-eye; véronique petit-chêne**



*Photo by Martin Thomas*

Lightly puberulent, the stems are simple or sparsely branching. Leaves are deltate to ovate and sessile. They are deeply serrate or crenate on the margins. Flowers are arranged in racemes, distant, on long slender pedicels, subtended by lanceolate bracts, shorter than the pedicels. Corolla is pale blue with darker nectar guides, 5–6mm long.

Flowers from May to July.



Found along edges of roadsides, fields and forests.

Scattered localities from Yarmouth to the Windsor area, north to Cape Breton.

NS to ON, south to MO and NC; AK to CA. European introduction.

### ***Veronica longifolia* L.**

(=*Pseudolysimachion longifolium* (L.) Opiz)

**Garden Speedwell; véronique à longues feuilles**

Stems reach to 1m, standing erect and pubescent. Leaves are lanceolate and borne in pairs or whorls of three on tiny petioles. Flowers are brilliant purple crowded into spike-like racemes atop the stem, 15cm or more in height.

Flowers during July and August.

Often planted and sometimes persisting, especially in roadside thickets.

Abundant from Yarmouth to Annapolis counties and scattered to Pictou and Amherst.

Introduced from Europe. Ranges from NF to AK, south to OR, MD; FL.

### ***Veronica officinalis* L.**

**Common Speedwell; véronique officinale**



A prostrate species, its stems are decumbent, but for the ascending inflorescences. The entire plant is puberulent. Leaves are broadly elliptic, tapering to a short petiole, serrate. Flowers are purplish blue, arranged in spike-like racemes with inconspicuous linear bracts.





Photos by Martin Thomas

In addition to the typical variety, var. *tournefortii* (Vill.) Reichb. has been recorded from NS. Our material needs to be examined for inclusion to variety.

Flowers July to August.

Roadsides, fields and shady edges elsewhere.

Throughout.

Greenland to ON; BC south to CA and GA. Absent from arid regions. Introduced from Europe.

***Veronica peregrina* L.  
véronique voyageuse**



A slender annual to 30cm, its stems may be simple or often branching from the base. Leaves are mostly cauline, linear to oblong, entire or toothed. Inflorescence is loose, bearing tiny white flowers whose corollas are barely 2mm wide.

Flowers from April to September, throughout its range.

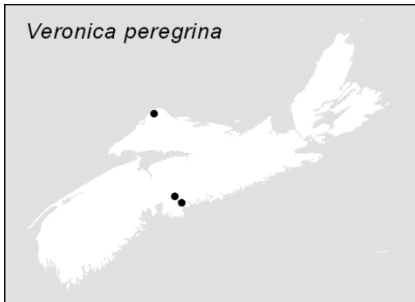
A weedy introduction in damp open soils.

Collected from Halifax's Point Pleasant Park and Broad Cove, in Cape Breton Highlands National Park, Victoria Co.

Probably introduced to Nova Scotia from elsewhere on the continent.

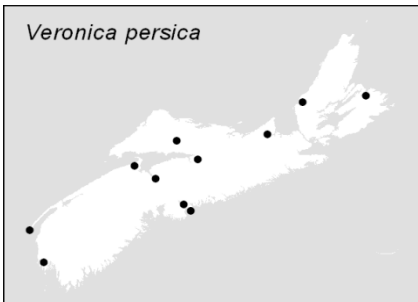


Photos by Martin Thomas



***Veronica persica* Poir.**

**Birds-eye Speedwell; véronique de Perse**



A diffuse plant, it is freely branching and spreading, but only 10–30cm tall. Leaves are ovate and toothed or lobed, on short petioles. Flowers are blue on slender pedicels, exceeding the leaves in length. Capsules are deeply notched at the top and covered by a network of ridges.

Flowers to September.

Edges of fields, lawns and in open woods.

Recorded from Yarmouth to Cape Breton.



*Photo by Sean Blaney*

Introduced and now spread across the continent.

***Veronica scutellata* L.**

**Marsh Speedwell; véronique en écusson**



*Photo by Martin Thomas*

A tenuous plant, it reaches 20–60cm tall. Its leaves are linear to narrowly lanceolate, sometimes serrulate. Sessile, they are also dark olive-green in colour. Racemes are few-flowered and slender, axillary near the top of the plants. Flowers are borne on drooping pedicles.

Flowers mid-June through September.

Emergent from shallows in ponds, marshes or swamps, persisting in ephemeral ponds for some time.

Throughout the province and more frequent in north and central regions.

NF to AK, south to NC, CO and CA; LA. Eurasia.

***Veronica serpyllifolia* L.**

**Thyme-leaved Speedwell; véronique à feuilles de serpolet**



Photo by Sean Blaney



The stems of this perennial are creeping, with only the flowering portions ascending. Leaves are ovate or elliptic, mostly sessile and each pair is widely spaced. Flowers are borne on slender pedicels, arranged in a raceme. There is a single elliptic bract subtending the inflorescence.

Flowers from mid-May to October.

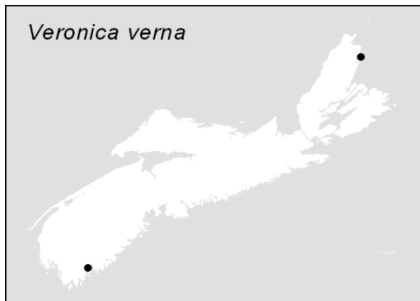
Limited to moist soils, as found in fields and roadsides.

Common throughout.

Ranges from NF to AK, south to CA and GA. Absent from NT and MB as well as some southern states.

### ***Veronica verna* L.**

**véronique du printemps**



This species was recently added to our flora. It bears certain resemblance to *V. peregrina*, except for its possessing some pinnately lobed leaves. The style is about equal in length to the fruit, while *V. peregrina* has a shorter style.

Flowers as early as April, rendering it overlooked perhaps.

Compacted soils as in picnic and campgrounds, roadsides.

Islands Provincial Park, Shelburne Co.

NS and NB; ON south to IN; west coast. Introduced.

## Solanaceae

### nightshade family

Nearly 2800 species are included in this family of familiar crops, found throughout the world. Cultivation is extensive in several genera, particularly the tomato, potato, tobacco and petunias. All species in Nova Scotia are Eurasian or South American introductions to our flora.

Typically leaves are alternate and the five-merous perfect flowers are arranged in cymes. Calyx is comprised of five persistent sepals. Corollas may be round or tubular, bearing the stamens alternately with the corolla lobes. Ovary is bilocular and superior. Fruits are capsules or berries.

Key to genera, requiring flowers or fruits

A. Stems woody.	<i>Lycium</i>
aa. Stems herbaceous.	B
B. If you have plants in flower.....	C
C. Corolla nearly round, widely spreading.	<i>Solanum</i>
cc. Corolla tubular or funnelform.	D
D. Calyx tubular, 3.5–10cm long; sepals united, > 3.5cm long.	<i>Datura</i>
dd. Calyx short and tubular, or sepals separate, <3.5cm long.	E
E. Corolla white to yellow; carpels 2.	<i>Physalis</i>
ee. Corolla blue; carpels 3–5.	<i>Nicandra</i>
bb. If you have plants in fruit.	F
F. Fruit a berry.	G
G. Calyx not inflating after anthesis, subtending the berry, spiny.	<i>Solanum</i>
gg. Calyx enlarging with age, enclosing berry, smooth or hairy.	H
H. Calyx divided to base, carpels 3–5.	<i>Nicandra</i>



hh. Calyx divided only at summit; carpels 2.  
ff. Fruit a capsule.

*Physalis*

*Datura*

## ***Datura* L.**

Neotropical and warm-temperate, this small genus numbers only 25 species. All are narcotic and generally POISONOUS, shrubs or herbs. Leaves are very large, lobed or dentate. The lobed corolla is well-developed and may be showy. Calyx is circumscissile forming a collar beneath the fruit. Nova Scotia has a single species, escaped from cultivation.

### ***Datura stramonium* L.**

**Jimsonweed; Thornapple; stramoine commune**



*Photo by Alex Wilson*

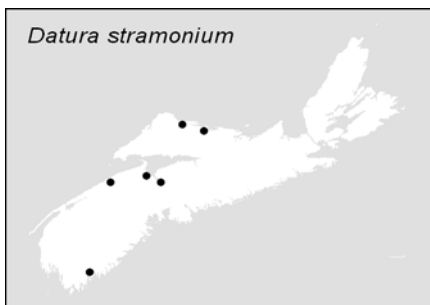
A tall species, the purple or green stems may reach 2m; they are hollow and smooth. Leaves are dimorphic, those produced early-season ovate and unlobed. The later leaves have sharply lobed margins, alternating along the stem, on long petioles. Flowers are white and solitary, borne on short peduncles. Corollas are sharply lobed. Five stamens are inserted towards the base of the corolla-tube. Seeds are brown or black contained in a bristly capsule, within each of four valves. Fruit and seeds contain toxic alkaloids.

Flowers from July to September.

About old gardens, building sites and farms. May have been introduced in tomato or tobacco crops.

Rarely seen now, its import is controlled. Formerly collected from Annapolis to Cape Breton.

Throughout the continent and under eradication in various jurisdictions.





***Hyocyamus niger* L., Henbane** is a poisonous annual or biennial bearing a strong odour and with slimy leaves. The pale purple and greenish white flowers encouraged its inclusion in gardens. It was once collected at Annapolis Royal. Usually shrubs or small trees, there are about 100 species worldwide. Unlike others in the family, this genus is typified by the presence of thorns. Calyx is 4–5 parted and rupturing with the expansion of the fruit within.

***Lycium* L.  
matrimony-vine**

***Lycium barbarum* L.  
Matrimony vine; lyciet de Barbarie**



*Photo by Ruth Newell*



*Photo by Martin Thomas*

A climbing shrub, it bears narrowly elliptic or lanceolate leaves. The drooping branches are thorny. Pink flowers produce reddish fruit.

Flowers late June to September.

Occasional weed persisting after cultivation.

Collected from Canning, Wallbrook and Hortonville, Kings Co. Reported from: Sable Island, Digby and Port Mouton.

Ranges across Canada, except for NB and MB, south to CA, FL and TX. European native.



Photo by Ruth Newell

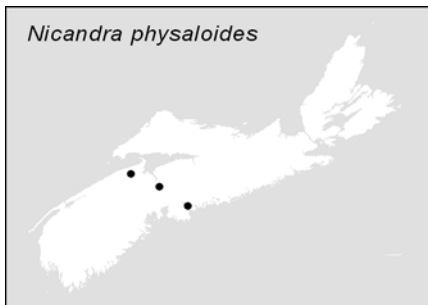
### ***Nicandra* Adans.**

#### **Apple-of-Peru**

A monotypic genus, reaching Nova Scotia only as an escape. The calyx is much enlarged at maturity forming an envelope around the berries.

### ***Nicandra physalodes* (L.) Gaertn.**

#### **Apple-of-Peru; nicandre faux-coqueret**



Leaves are pale green, their margins are strongly irregular and often lobed or winged at the base. Stems are angled. Blue flowers produce a dry pulpy berry.

Flowers from July to September.

Fallow soils around old gardens with high fertility. An annual weed that probably doesn't overwinter here.

Formerly collected at Halifax, Windsor and Cambridge.

NS to ON, variously south to CO and FL.

### ***Physalis* L.**

#### **ground-cherry**

Diversity of *Physalis* species is highest in the Americas, although some of the 90 species included are cosmopolitan. Generally herbaceous, all have solitary axillary flowers on drooping pedicels. The five-

lobed calyx expands with maturity, marked by veins and loosely enclosing the fruit. The corolla is yellow and may be spotted, entire to the summit or with five lobes. The pulpy berry contains many seeds.

***Physalis heterophylla* Nees**

**Ground-cherry; coqueret hétérophylle**



Photo by Reta Cook

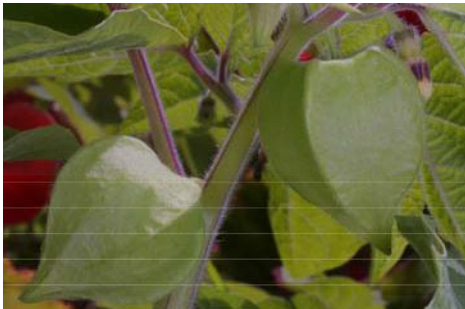
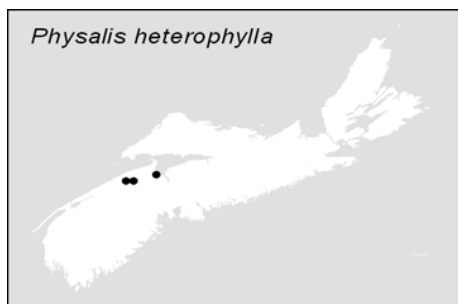


Photo by Martin Thomas



Weakly erect or sprawling, this plant is softly pubescent. Leaves broadly ovate or nearly deltate; their margins are irregular. Both the flowers and the bristly fruit are yellow. Flowers during July and August.

Associated with orchards or other cultivated land.

Persisting in the Annapolis Valley; previously collected from Halifax and Truro.

Ranges from NS to ON and south to AZ, TX and FL.

***Solanum* L.**

**nightshade**

Upwards of 2000 species of *Solanum* have been described. The genus is cosmopolitan, although diversity is greatest in the tropics. Potato, tomato and eggplant are well-known crops obtained

from species within. Flowers are axillary, corollas rotate or salverform. Anthers unite around the style. Fruit is a berry, containing many seeds, most are poisonous.



#### Key to species

- A. Stems climbing; flowers blue or violet. *Solanum dulcamara*
- aa. Stems erect or diffuse, not vining; flowers white. B
  - B. Calyx tightly embracing the lower half of the fruit; fruit yellow or green; stems with spreading pubescence. *S. physalifolium*
  - bb. Calyx not hugging the fruit; fruit black; stems glabrous, or with appressed pubescence. C
    - C. Flowers 5–7 in a raceme; berries globose and dull black. *S. nigrum*
    - cc. Flowers up to 6 in an umbel; berries shiny purplish black. *S. ptycanthum*

#### ***Solanum dulcamara* L.**

**Bittersweet; morelle douce-a mère**



A distinctive vine and quite recognizeable. Puberulent, the vine bears broadly deltate leaves, often incised at the base to form two ovate lobes. Flowers bluish purple, with yellow centres. Fruits ovoid and bright red when ripe and inedible. Both this var. *dulcamara*, and var. *villosissimum* Desv. with pubescent leaves are known from NS.

Flowers from mid-May to September.

Often seen in thickets, on intervalles, along roadsides and waste soils. Climbs over fences walls and other plants.



*Photo by Sean Blaney*

Throughout the province. Tendency to spread and become weedy in urban areas.

NS to ON; SK and BC south to GA and CA. From Eurasia.

***Solanum nigrum* L.**

**Black Nightshade; morelle noire**

An erect plant or weakly so, reaching 50cm in height. Green stems are glabrous although they may be angular. Leaves are ovate, up to 5cm across and 8 cm long. They may be blackened or purple and irregular along the edges. White flowers with yellow centres are borne 5–7 in a raceme. Fruit is dull black, about 12mm in diameter.

Flowers to be expected May until October.

Generally grows in rocky, dry open habitats, forested or thickets, even in cultivated fields.

Found throughout and on Sable Island.

A Eurasian introduction, found across Canada to AK, south along the west coast and the east coast of the continent.

***Solanum physalifolium* Rusby**

**(=*Solanum sarrachoides* Sendt.)**

**Hairy Nightshade; morelle à feuilles de coqueret**

It is distinctive in the degree of dense pubescence. Petioles are winged, bearing ovate serrate leaves. Corolla is white with the stellate centre yellow and purple. Calyx lobes are snug against the yellow or green berries, separating this species from *S. nigrum*.

Weedy species of gardens and other fertile soils nearby.

Locally abundant: Bridgewater, Halifax and Hilden, Colchester Co. Reported recently from Aylesford.

Ranges from NF to AK, south to CA, TX and NC.

***Solanum ptycanthum* Dolan**

**morelle noire de l'Est**

More robust than the previous species, reaching 1m in height. Leaves larger (9cm wide and 10cm long). Stems may be purplish in colour. The inflorescence is an umbel of up to six white flowers. Fruits are shiny purple-black, 7–9mm in diameter, soon falling from the plant.

Reported from Cape Breton I. and at Guysborough Co. but there are no collections in local herbaria. Ranges from NF to AB south to the Gulf States.

**Thymelaeaceae**

**mezereum family**



A worldwide family, it numbers about 500 species; in NS consisting of two shrubs. One is an Acadian introduction; the other is a rare native shrub. All are highly toxic and most are woody, shrubs or trees. Ours have alternate, entire leaves. The flowers are perfect or unisexual, usually regular and 4–5-merous. Petals are absent or insignificant in size; the sepals are petaloid. Ovary is superior, with one developed carpel and one vestigial. The fruit is indehiscent.

**Key to genera**

Sepals well-developed, petaloid; stamens and style not exerted.

*Daphne*

Sepals scarcely developed; stamens and style exerted.

*Dirca*

***Daphne* L.**

**Daphne**

There are about 70 species of these Eurasian shrubs, with a single one introduced to Nova Scotia by French settlers. It is conspicuous, as the pleasing pink to white flowers are clustered about the stems in

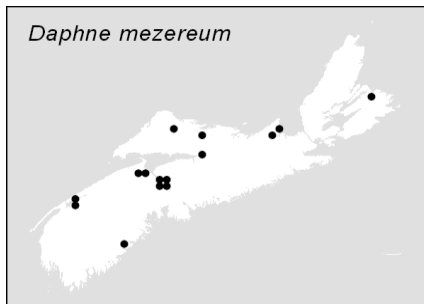
sessile lateral inflorescences. Perfect, their hypanthia are tubular and unstricted. Petals are absent, but the four sepals are petaloid. Style is very short; the fruit formed is a red or yellow drupe.

***Daphne mezereum* L.**

**Daphne; bois joli**



Photo by Beth Cameron



A low shrub, our species has light-coloured bark. Alternate leaves are entire and obovate. The rose-coloured flowers are sessile, appearing before the leaves.

Flowers in late April and May.

Thickets, trailsides and at old quarry sites; roadsides.

Frequently encountered near old Acadian home sites. Scattered from Queens County to Cape Breton.

Ranges from NF to ON, south to OH and NY; MT; AK; introduced from Europe, probably by the French.

Formerly found only around Acadian settlements, now thought to be spread by birds.

CAUTION: A few fruit are enough to kill a child. All parts of the plant are TOXIC.



***Dirca* L.**

**leatherwood**

Of two North American species, a single one reaches Nova Scotia. Both have perfect yellow flowers borne in lateral clusters of 2–4, subtended by pubescent bud scales in early spring. Hypanthia are constricted, forming narrow tubes with spreading lobes. Petals are absent; sepals are minute, quickly deciduous.

***Dirca palustris* L.**

**Leatherwood; dirca des marais**



Photo by Beth Cameron



Photo by Martin Thomas

A shrub, it bears alternate ovate or obovate leaves, glaucous beneath. They are acute at the apices. The tubular hypanthium is yellow; the stamens are exserted.

Flowers near mid-May, before the leaves expand.

Associated with calcareous soils in deciduous or mixed forest, streamsides.

Limited to Hants County.

Elsewhere much more widespread, from NS to ON, south to OK and FL.

STATUS: Maybe of conservation concern due to rarity.



## **Tiliaceae**

### **linden family**

Mostly of tropical regions this family of 450 species, is represented in Nova Scotia only by two species of *Tilia* ornamental shade trees.

#### ***Tilia* L.**

#### **basswood, linden, lime**

With widely cordate, serrated leaves, these trees bear sweetly fragrant white flowers. Stamens are numerous, often bundled in fives. Peduncle is basally joined to a persistent papery bract. Fruit is a dehiscent tomentose nutlet containing one or two seeds. The closest native *Tilia* species, *T. americana* occurs in floodplain forest of the Saint John River, New Brunswick.

Flowering cymes pendant; pubescence on undersurface of leaves whitish.

*Tilia x vulgaris*

Flowering cymes ascending; pubescence on undersurface of leaves reddish brown.

*T. cordata*

#### ***Tilia cordata* Mill.**

#### **Small-leaved Lime; tilleul à petites feuilles**

The small heart-shaped leaves, have their lower surfaces pubescent, the downy hairs are reddish brown.

Less commonly seen but may be expected as a persistent shade tree after cultivation.

It is one of the parent species of our commonly planted ornamental *T. cordata* x *T. platyphyllos*.

#### ***Tilia x vulgaris* Hayne**

#### **(*T. x europaea* L.)**

#### **Basswood, Linden, Lime-tree; tilleul d'Europe**





Photo by Marian Munro

Cordate leaves are serrate and acute. Usually 5–10cm in length, smaller than those of the native linden, *T. americana*. Bright green beneath, the veins are pubescent in the axils.

Commonly planted and sometimes escaping about settlements. Persisting, as at Halifax.

Collected from most towns and near derelict houses.

NS to ON; OH; MA: CT and OR. introduced from Europe.

## Ulmaceae

### elm family

Eighteen genera comprise this family, including 150 species. A single genus and species is native to Nova Scotia. Several European species are widely planted and often seen, especially in urban landscapes.

Clusters of small, perfect flowers appear in early spring. The calyx has 4–9 lobes with as many stamens. Petals are absent. Leaves are simple, alternately arranged and doubly-serrate. Ours produce samaras.

Elms in NS are easily identified in leaf, as the leaf base is asymmetric on either side of the midvein.

### *Ulmus* L.

#### Elm

North-temperate trees, elms have slender reddish brown winter twigs, which may or may not be pubescent. Terminal buds are absent. Leaf buds are more slender than floral buds. Bark is rough, darkly gray and deeply furrowed with crisscrossing ridges at maturity. Flowers are pendulous, purple or yellow in lateral clusters. Fruit is a widely ovate samara, greenish until mature, when it turns papery brown.

### *Ulmus americana* L.

American Elm; White Elm; orme d'Amérique



Photo by Marian Munro

It is a tall stately tree at maturity with a mushroom-shaped canopy. Leaves are variable, but generally ovate and acute, with coarsely serrated margins. Leaf bases are unequal on either side of the midvein. Samaras are about 1cm long, winged and ciliate.

Flowers from March to early May.

Streamsides, intervals and terraces. This species is much less common than formerly due to the introduction and infestation of Dutch Elm Disease.

Scattered northward from central counties.

NS to SK, south to WY, TX and FL.



*Ulmus glabra*

Photo by Marian Munro

Several European species have been introduced as ornamentals in the past, such as English Elm and Scotch Elm. Their susceptibility to Dutch Elm disease excludes their spread from cultivation, such that they are rarely seen outside of the urban setting.

English Elm has more tendency to spread and may be expected in the Annapolis Valley. Scotch Elm, with its obovate leaves rarely escapes. Its samaras have smooth margins.



*Ulmus minor* Mill. var. *suberosa* (Moench) Rehd. was recently collected near Clementsport, Annapolis Co. This is a variant of the European field elm. It has nearly glabrous, thin twigs with glabrous bud scales (at least the lower) that have ciliate margins. The leaves are smooth above and ciliate only on the main veins below. This is a new record for the province and possibly of the continent, as an escape.

## Urticaceae nettle family

Mostly tropical with nearly about 800 species, (*sensu stricto* according to Zomlefer), only four genera reach Nova Scotia. Known for their stinging hairs, all but one of ours is so armed. Plants are generally dioecious, rarely with complete flowers. Petals are absent; calyx is lobed. Stamens 3–5, equal in number to the calyx lobes. Ovary is solitary, in superior position. Fruit is an achene most commonly, enclosed within the calyx. The leaves are opposite or alternate, simple, toothed and with stipules.

### Key to genera

- |   |                  |
|---|------------------|
| A. Plant without stinging hairs.                                  | B                |
| B. Weak succulent annual, pistillate calyx three-parted.          | <i>Pilea</i>     |
| bb. Stout perennial herb, pistillate calyx entire, or 2–4 parted. | <i>Boehmeria</i> |
| aa. Plant with stinging hairs.                                    | C                |
| C. Leaves opposite.   | <i>Urtica</i>    |
| cc. Leaves alternate.   | <i>Laportea</i>  |

### ***Boehmeria* Jacq.**

Perennial herbs, they have axillary, erect and spicate inflorescences composed of staminate and carpellate flowers. Staminate flowers are four-merous (Calyx and stamens). Pistillate flowers are 2–4 toothed or the calyx is entire and the ovary single-celled. Stinging hairs are absent.

#### ***Boehmeria cylindrica* (L.) Sw.**

**False Nettle; boehméria cylindrique**



*Photo by Sean Blaney*

This species is a monoecious herb bearing opposite leaves from a tough woody crown. Stems are 50cm–1.3m. Plants tend to be caespitose.

Flowers from July to September.

Understory herb of moist deciduous forests in Nova Scotia. Elsewhere found in swamps.

An Appalachian deciduous forest species, in Nova Scotia it is scattered and locally very abundant on the LaHave R from New Germany to Bridgewater, local on the Annapolis R at Kingston and there's one record from the Shubenacadie Wildlife Park. (Blaney, personal communication, 2014).

Ranges from NS to FL, TX and NB, extending to Central and South America.

## ***Laportea* Gaud.**

### **Wood-nettle**

A widespread genus, there are 25 species including trees, shrubs and herbaceous plants. Ours is a monoecious species. Leaves are serrate and alternate along the stem. Inflorescence is a cyme, loosely arranged. The staminate flowers have five sepals and stamens, while the pistillate flowers have only 4 sepals. The outer pair of pistillate flowers are reduced in size. Style is adorned with hairs. Fruit is an achene.

## ***Laportea canadensis* (L.) Wedd.**

### **Wood-nettle; laportéa du Canada**



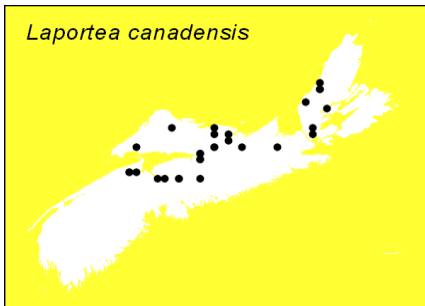
A robust herb, it reaches nearly 1m in height. Leaves are alternate and oval in outline; their margins are coarsely serrate. Petioles are stipulate and deeply cleft.

Flowers from July to September.

Photo by Eugene Quigley



Photo by David Mazerolle



Limited to fertile loam or alluvium in deciduous forests and within floodplains.

Scattered infrequently from Coldbrook, Kings Co. to western Cape Breton. Distinctly northern here.

Elsewhere from St. Pierre & Miquelon to SK, south to FL and LA.

## ***Pilea* Lindl.**

### **Clearweed**

Mostly tropical, there are 200 species worldwide. Dioecious, the staminate plants are four-merous; pistillate plants are 3-merous. Opposite leaves are merely sparsely pubescent. Stipules are reduced in size.

### ***Pilea pumila* (L.) A. Gray**

#### **Dwarf Clearweed; piléa nain**



Photo by David Mazerolle

A small and compact herbaceous plant, its shining green leaves are on long petiolate. Achenes are pale green and sometimes marked with purple glands.

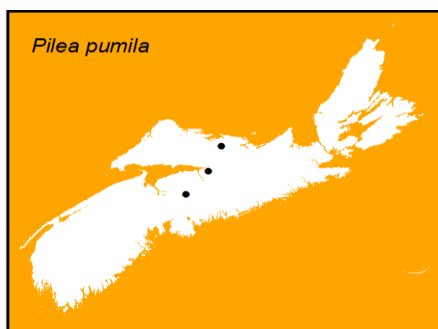
Flowers from July to October.

Usually grows in cool shady habitats as found on forested slopes of maple-beech, in the centre of the Province.





Photo by David Mazerolle



So far only known from West Branch, Pictou Co.; Little River, near Brookfield, Halifax Co.; and along the Herbert River, Hants Co. at Woodville.

Ranges from NS to ON, south to FL and TX.

## ***Urtica* L.**

### **Nettles**

Nettles include 25 species of erect herbaceous plants, usually branching. Inflorescence is terminal, although some flower clusters may arise from the upper leaf axils. Sepals and stamens number four. Stinging hollow hairs cover the stems and leaves which may pierce the skin of unsuspecting trampers. The uric acid within may cause an allergic reaction on sensitive skin.

#### Key to species

A. Annual, 10–50cm tall; inflorescence mainly pistillate; petioles only slightly shorter than leaf blades; mature achenes triangular, 1.5–2.5mm long.

*Urtica urens*

aa. Perennial to 2 m in height; inflorescence either staminate or pistillate; petioles much shorter than the blades; mature achenes lens-shaped, 1.0–1.5mm long.

*U. dioica*

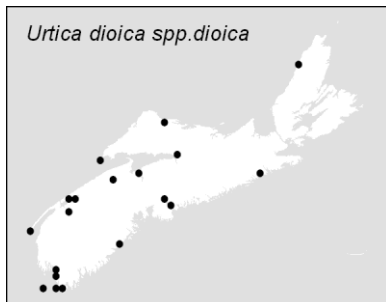
***Urtica dioica* L.**  
**Stinging Nettles**



(*ssp. dioica*) Photo by David Mazerolle



*ssp. gracilis* Photo by Sean Blaney



Coarsely hirsute, this tall nettle has its leaves lanceolate or ovate. Staminate flower clusters contain greenish-yellow flowers, each having four stamens and four sepals. Cluster length exceeds that of the petioles. Pistillate flower clusters are shorter.

Two subspecies are recognized.

Monoecious, only lightly pubescent; leaves lanceolate and merely round at the base. *ssp. gracilis*

Dioecious, densely pubescent; leaves cordate or ovate. *ssp. dioica*

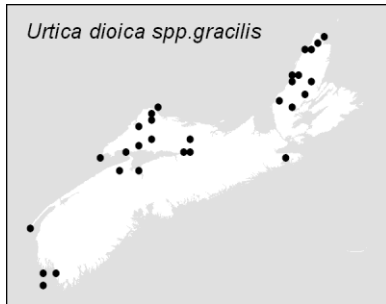
*ssp. dioica* is covered in stinging hairs, including its more compact leaves. It often has a sprawling habit, with weaker stems than the native subspecies. Tiny axillary leaves may be present. Flowers throughout the growing season. Mostly found in waste places about ports and towns, where soil is moderately organic.

Scattered throughout NS. NF to southwestern ON, south to FL and OK; Eurasia. Widely adventive.

*ssp. gracilis* (Ait.) Selander has most of the hypodermic hairs on the underside of its lanceolate leaves and on the stems. Staminate flowers appear earlier than the pistillate ones, during June and July. Pistillate flowers mature later. Frequents native habitats streamsides, moist forest edges or meadows in organic shady soils.

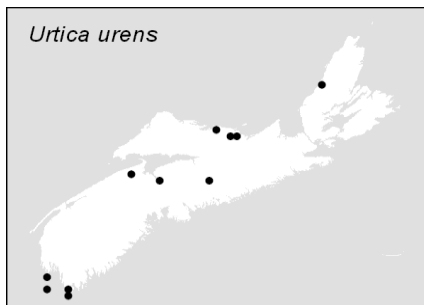
Ranging across the continent to AK, south to CA, TX and NC.

Although mature plants can cause skin problems, the newly-emerged plants are often eaten as a potherb and delicious beverages and soups may be prepared.



***Urtica urens* L.**

**Burning Nettle; ortie brûlante**



A dwarf species its branches are usually erect and simple. Dark green leaves are ovate and serrate. Tiny flowers are clustered in the leaf axils.

Summer flowering from June to September. Less frequently seen than the preceding nettles.

Introduced around settlements near the coast. Most often seen on offshore islands in the western part of NS: Candlewax and Seal Islands, Yarmouth Co. and Cape Sable Island, Shelburne Co.

Widely scattered across Canada and US. Native to Europe.

## Valerianaceae

### valerian family

Three hundred species form 13 genera in this species, but only a single perennial herb reaches Nova Scotia. Familial characters include a corolla tube subtended by a calyx tube, its segments inrolled at

anthesis and expanding to form a pappus. The corolla is five-merous and is nearly bilabiate, the tube spurred or swollen. The stamens are inserted and alternate with the corolla lobes, reduced to three. Pistil has three carpels, a single fertile one. Fruit is a indehiscent capsule.

## ***Valeriana* L.**

### **Valerian**

The largest genus, it has more than 200 species, found worldwide. The perennial herbaceous species found here has pinnately compound petiolate leaves, reducing in size towards the top. Flowers are arranged in a panicle or corymb, perfect or unisexual. The calyx expands after flowering, the long bristle-like portions enclosing the nerved achene.

## ***Valeriana officinalis* L.**

### **Garden Valerian**



*Photo by David Mazerolle*



*Photo by Martin Thomas*

A tall coarse plant, it exceeds 1m and bears opposite pinnate leaves. Petioles are decurrent. Flowers are crowded terminally and sweetly fragrant. They are pink to white and tubular; the stamens are exerted.

Flowers from mid-July to early August.

Found about old gardens, abandoned fields and roadsides, moist areas.

Annapolis, Kings and Cumberland Co., rapidly spreading in the Annapolis Valley and border region between NB and NS. Potentially invasive species.

A Eurasian introduction, ranging now from NF to MB, south to IA and MD; west coast.

## **Verbenaceae**

### **vervain family**

A family with its greatest diversity in warm or tropical climates, there are about 2600 species. All have opposite leaves from quadrangled stems. Flowers are sympetalous and perfect, their corollas tubular or funnellform and 4–5-merous. Stamens are equal in number to the lobes and inserted. Ovary is divided into two carpels with four locules, dispersing at maturity as four nutlets.

## ***Verbena* L.**

### **Vervain**

Our single genus is an American species, with about 250 species found in North and South America. The tubular corolla has five lobes and is weakly two-lipped. Stamens are reduced to four, rather than five as is typical, these in pairs. Terminal style is lobed, with a single lobe stigmatic. Fruits are rugose.

#### Key to species

Mat-forming, tangled on the ground; inflorescence a single crowded spike; each flower subtended by a long acute bract; of weedy disturbed habitats. *Verbena bracteata*

Tall, erect herb; inflorescence is of multiple spikes; bracts absent; of riparian or other natural habitats, undisturbed by human activity. *V. hastata*

### ***Verbena bracteata***

#### **Bigbract Vervain**



*Photo by Sean Blaney*

Sprawling in habit, its pubescent stems form a tangled mat on the ground, to 30cm. The inflorescence is a crowded spike. Each flower is subtended by a long pointed bract, to 8mm.

Flowers May to October.

It is frequently found on roadsides, cracks of old runways, edges of lawns and other waste places.

A recent introduction, it has been discovered at Greenwood, both within the base and around its perimeter.

Native to the continent, it appears to be previously absent from the northeast.



***Verbena hastata* L.**  
**Blue Vervain**



*Photo by Ross Hall*

A tall herb, it is most noticeable in flower, when it bears numerous erect spikes of purplish-blue flowers. Leaves glaucous and are opposite, lanceolate and doubly-serrate.

Flowers during August and September.

Limited to mucky fertile soils, as along floodplains.



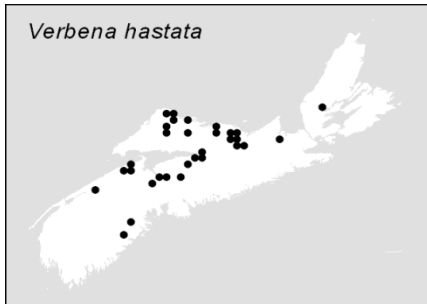
*Photo by Ross Hall*

Scattered from Queens Co., to Cape Breton. Never common when found, but appears to be secure.

Ranges from NS to BC, south to FL and AZ; absent from AB.



*Photo by Alain Belliveau*



## Violaceae

### violet family

Known by most as one of our earliest spring wild flowers, the violets are our single genus of a family with 800 species worldwide, divided into 16 genera. Typically, the flowers are perfect, but irregular and five-merous. Lowermost petal is modified into a spur. Lower two stamens have a spurlike nectary on the dorsal surface. Sepals are persistent. Fruit is a capsule. Leaves are alternate or whorled, toothed or lobed.

### *Viola* L.

#### violet

Nearly 400 species are included in this genus of the north-temperate regions. They include pansies and Johnny-jump-ups, two much-loved annuals, which self-sow and thrive here. Hybrids are common. The pansy is a hybrid between *Viola tricolor* and several other European species.

Most produce showy flowers whose petals are unequal in size. The lateral two may be bearded, at least in the spring. Later in the season cleistogamous flowers are produced towards the base of the plant. White forms are not uncommon in the blue or violet forms, further muddling identification. Our species may have axillary flowers or those arising directly from the roots.

Flowers are required for certain identification to species.

Key to species

A. Flowers arise directly from the base of the plant.	B
B. Flowers blue.	C
C. From long creeping rootstocks, 2–4mm thick at the top.	<i>Viola selkirkii</i>
cc. From short, stout rootstock, 3–10mm thick.	D
D. Leaves ovate or lanceolate, deeply incised teeth basally.	<i>V. sagittata</i>
dd. Leaves cordate, margins with rounded teeth.	E
E. Pedicels exceeding the length of the leaves; spurred petal shorter than the others, smooth; lateral petals with clavate hairs.	<i>V. cucullata</i>
ee. Pedicels shorter than the leaves; spurred petal equal in length to the others; lateral petals with hairs not clavate.	F
F. Plant pubescent; leaves and sepals villous; early spring flowers	<i>V. soraria</i>
ff. Plant mostly smooth; early summer flowers.	<i>V. nephrophylla</i>
bb. Flowers white.	G
G. Leaves cordate or widely cordate; sinus present at base of the blade.	H
H. Leaves kidney-shaped or rounded, round at the tip, thick and waxy or glossy; lateral petals beardless; stolons absent	<i>V. renifolia</i>
hh. Leaves cordate, acute tip, thin; lateral petals bearded near the base; stolons long and thin.	I
I. Leaves smooth on both sides; seeds black, 1–1.4mm long.	<i>V. macloskeyi</i>

ii. Leaves puberulent on one surface; seeds brownish, 1.6–2.1mm long.	<i>V. blanda</i>
gg. Leaves much longer than broad, square at the base or tapering to the petiole.	J
J. Leaves lanceolate or linear, >3 times longer than broad, gradually tapering to the base.	<i>V. lanceolata</i>
jj. Leaves ovate, angled at the base, < 3 times longer than broad.	<i>V. sub lanceolata</i>
aa. Flowers arise from the leaf axils.	K
K. Flowers with petals irregular in shape (violet-like); stipules entire or finely serrate.	L
L. Petals yellow.	<i>V. pubescens</i>
ll. Petals white to blue.	M
M. Flowers white with violet veins; style forming a head; stipules entire and white, deciduous.	<i>V. canadensis</i>
mm. Flowers blue; style slender, its tip recurved; stipules slightly toothed, green and persistent.	N
N. Leaves acute; stipules ovate or lanceolate, serrated and bristly.	<i>V. labradorica</i>
nn. Leaves blunt; stipules linear with a few teeth at the base.	<i>V. adunca</i>
kk. Flowers with petals regular (pansy-like); stipules large and deeply cleft or lobed.	O
O. Petals 2–3 times longer than the sepals; flowers large, violet with yellow and sometimes white.	<i>V. tricolor</i>
oo. Petals rarely longer than the sepals; flowers small and pale yellow.	<i>V. arvensis</i>

***Viola adunca* JE Smith**



Photo by Martin Thomas

The leaves are broadly lanceolate, crenulate and with a basal sinus. Plants are puberulent throughout. The stipules are linear. Similar to *V. labradorica*, it tends to have fewer leaves. The purple flowers extend above the leaves.

Flowers during May and June.

Usually seen on cool shady damp sites in ravines or dripping seeps.

Uncommon and northern.

Ranges from NS to AK, south to Ca, NM and NY.

***Viola arvensis* Murr.**

**Field Pansy; Wild Pansy**



Photo by Ross Hall

Resembles our familiar *V. tricolor*, but this plant has white flowers, which may have purple or yellow marks. Sepals are nearly equal in length to the petals.

Long-flowering season, from April-September.

Frequents sterile soil as in fallow fields and roadsides. Only occasionally seen, Halifax and Aylesford and in Cumberland Co.

NF to BC, south to CA and variously to MS and GA; Greenland. Introduced from Europe, probably in uncleaned forage seed.

***Viola blanda* Willd.**

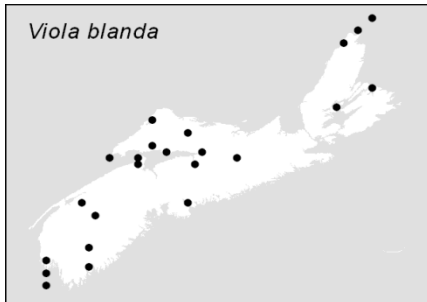
**(*V. incognita* Brainerd)**

**Sweet White Violet**





Photo by Martin Thomas



Leaves are similar to those of *V. macloskeyi* F. Lloyd. They are glabrous above and slightly pubescent below. Petioles and peduncles are also pubescent. Flowers are white with purple nectar guides. Our material is referenced to var. *palustriformis* A. Gray with the typical variety found south and west of NS.

Flowers early from May to early July.

Shady forests and thickets, especially in older deciduous forests.

Collected throughout, from Yarmouth Co., to northern Cape Breton, except for the eastern regions along the coast from Halifax to Sydney.

The species ranges from NF to SK, south to AL and GA.

### ***Viola canadensis* L.**

#### **Canada Violet; Tall White Violet**



Photo by Marian Munro

Loosely branched, this tall violet bears broad ovate or rounded leaves on long petioles. Leaves are more profuse distally. Flowers may be white or cream with purple veins carried on short peduncles, arising from the axils of terminal leaf pairs.

Late April to July, sometimes as late as October.

Deciduous forests in calcareous soils.



Very rare in Nova Scotia. Known only from Truro area, Newport Station and Mabou Falls, Inverness Co. and not seen in 50 years. May be extirpated in Nova Scotia.

Ranges from NS to AK, south to AZ and GA

STATUS: RED-listed in Nova Scotia.

### ***Viola cucullata* Aiton**

#### **Blue Violet**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Bearing ovate or cordate leaves, this is one of our most commonly seen blue violets. Distinguishing characters include the clavate pubescence on the lateral petals. Flowers extend well-beyond the leaves. Variable in colour from pale blue or white with purple veins to deep purple. The sepals are also of variable length although var. *microtitis* Brainerd is no longer separated from the typical variety.

April flowers are not uncommon as late as July.

Wet seepy fields, swamp, beaches and in meadows.

Common throughout.

From NF to ON, south to AR and GA.

### ***Viola labradorica* Schrank**

(=*V. conspersa* Reichenb.)

#### **Dog Violet**



*Photo by Martin Thomas*

Freely branching, this species has its leaves broadly ovate, cordate at the base and crenate on the margins. Stipules are lanceolate and serrate. Petals are wide, pale violet in colour.

Flowers May until early July.

Swamps and alluvial meadows.

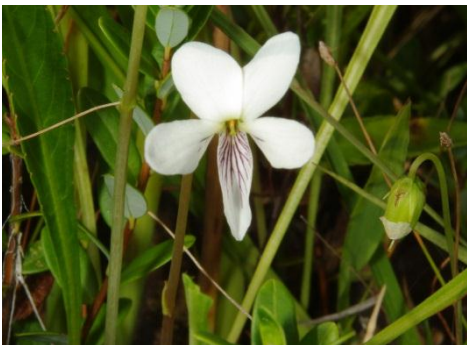


*Photo by Martin Thomas*

Northern, from Annapolis and Cumberland counties to northern Cape Breton. Common.

NF to NT and south to CO; FL.

***Viola lanceolata* L.**  
**Lance-leaved Violet**



*Photo by Martin Thomas*

With lanceolate leaves tapering to the base, this violet is distinctive. The leaves may also be dimorphic; those developing in summer are much wider than those appearing with the flowers. Plant is smooth. Flowers are white.

May to July.

Bog pools in peaty soils, lakeshores.



Photo by Sean Blaney

Common in the southwestern half of the province, less frequent to Cumberland County and Cape Breton. Abundant on Sable Island.

Ranges from NF to ON, south to FL and TX; west coast.

***Viola macloskeyi* F. Lloyd**  
**Smooth White Violet**



Photo by Martin Thomas

The broadly ovate or cordate leaves are smooth. Flowers are borne on long recurving peduncles. Their petals are white or yellowish, with the lower flowers marked with purple nectar guides. The sepals may be lanceolate or ovate. Our material belongs to ssp. *pallens* (Banks ex Ging) MS Baker.

Flowers from early April to July. Our earliest white violet.



Photo by Sean Blaney

Moist soils in meadows, bogs and along shores of ponds and lakes, often in full sunlight.

Common throughout.

NL to AK south to GA and CA. Nearly absent from the arid southwest.

***Viola nephrophylla* Greene**





Photo by Sean Blaney

With its smooth ovate or kidney-shaped leaves, this species resembles several others, but for its later flowers. These are deep purple and do not exceed the leaves and sometimes even below them. Spurred petals are bearded. Lateral petals pubescent, but not with clavate hairs.

Flowers May to July.

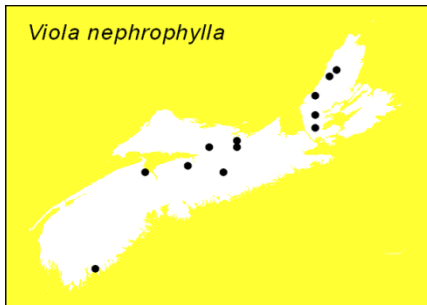
Cool, mossy sites: bogs, streamsides and wet woods.

Rare in Shelburne Co., Colchester and Cumberland counties northward. Generally a northern ranging species within NS.

NF to AK, south to CA, TX and WVA.



Photo by Martin Thomas



***Viola odorata* L.**, the English Violet may be found persisting for a short while after cultivation. It differs from *Viola cucullata* and *V. nephrophylla* in that its style is recurved, forming a hook, rather than swollen distally. It is usually associated with old gardens.

### ***Viola pubescens* Aiton**

#### **Yellow Violet**





Photo by David Mazerolle

One of our taller caulescent violets, it is distinctive with its yellow flowers. Plants may be finely pubescent or smooth. Leaves are broadly ovate, basally cordate and serrate or scalloped on the margins. Yellow flowers arise from the leaf axils, extending to or beyond the height of the leaves. Ours is referenced as ssp. *scabriuscula*. Schwein ex T. & G.

Flowers during April and May.

Rich deciduous forests and on wooded slopes; intervals.

Scattered and northern. North Mountain, Kings Co. and common in central NS. Typical in northern Cape Breton.

NS and PE west to SK, south to GA and OK.

### ***Viola renifolia* A. Gray**



Photo by Martin Thomas

Typically the leaves of this species are lightly pubescent on both surfaces. Usually round or kidney-shaped in outline, they are rarely acute distally.

Flowers white, from May to July.

Coniferous forests over gypsum. Only occasionally on deep soils beneath mixed woods, or on slopes.

Scattered on the northern side from Annapolis Co. to northern Cape Breton.

NF to AK, south to CO and PA.



Photo by David Mazerolle

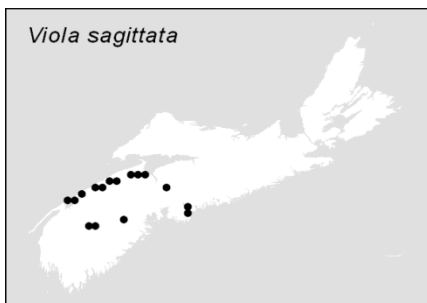
***Viola sagittata* Aiton**



Photo by Alain Belliveau



Photo by Alain Belliveau



***Viola selkirkii* Pursh**

Plant is densely pubescent. Its leaves are crenate, and sometimes basally lobed. Both characters are highly variable.

Flowers April and May.

Sterile woods, clearing and fields.

Common from Yarmouth to Halifax and Hants counties.

Hybrids form freely with *Viola septentrionalis*, producing robust plants with elongated leaves and fringed sepals. Often encountered on Cape Blomidon.

NS to ON, south to TX and GA.



Photo by Martin Thomas

Like many species, the leaves are ovate, cordate at the base. Differs in having the lobes on either side of the leaf sinus, overlapping. Flowers are several, only slightly exceeding the height of the leaves. It is often seen without flowers.

Flowers May to July.

Subalpine and alpine slopes and streamsides.

More northern than other violets, Kings and Cumberland County to northern Cape Breton. Local and rare.

NL to AK, south to PA, MI and CO: Greenland.

***Viola septentrionalis* Greene  
(= *V. sororia* Willd.)**



Photo by Sean Blaney

A finely-pubescent species, it has variable leaves, ranging from ovate and acute to kidney-shaped. Violet flowers are hirsute on the lateral petals, subtended by lanceolate, ciliate sepals.

Flowers around the middle of May.

Lighter soils in fields, forests and rocky open barrens.

Common throughout.

Ranges across Canada, south to VA and TN.



Photo by David Mazerolle

***Viola sublanceolata* House**



*Photo by Martin Thomas*

Leaves are distinctly wedge-shaped, broadly lanceolate and squared at the base, decurrent on the petiole. The species resembles *V. lanceolata*, but with small white flowers.

Damp soils of sand or peat, even gravel, especially on lakeshores.

Local, from Yarmouth and Kings to Halifax counties.

Limited to eastern North America, from NF to ON, south to MN and NY.

***Viola tricolor* L.**

**Johnny-jump-up**



*Photo by Andy Dean*



*Photo by Martin Thomas*

Compact little plants, they may be simple or branched, bearing lanceolate or elliptic leaves, basally lobed. Plants are glabrous. Under cultivation, flowers are large, showy and variously bicoloured. Readily self-sowing, they produce leafy plants with smaller flowers in violet, yellow and white.

Occasional escape on roadsides, in fields or persisting in old gardens.

Scattered localities throughout the province.

Reported across Canada. European introduction.

**Viscaceae**  
**mistletoe family**



Primarily tropical, there are 350 species worldwide but Nova Scotia hosts a single species. All are parasitic, with reduced opposite leaves, and unisexual flowers. Staminate perianth is five-lobed, while the pistillate perianth is bilobed, although the ovary may have 3–4 carpels. Fruit is a shiny berry containing a single seed.

### ***Arceuthobium* M. Bieb.**

#### **dwarf mistletoe**

North American in scope, there are 28 species included. Dioecious plants, their tiny flowers are solitary or in small clusters in the axils of scalelike leaves. Flowers are as described above. The fruit is pedicellate.

#### ***Arceuthobium pusillum* Peck**

##### **Eastern Dwarf Mistletoe; faux-gui nain**



*Photo by Sean Blaney*

A tiny shrub that parasitizes spruce trees, it buries its stems within the cambium of the host tree. Plants are brown or purple, the leaves reduced to scales. Flowers are borne on curved pedicels, each producing a single berry.

Flowers April to June.

Parasitic on the branches of spruce trees. Especially common in coastal black spruce forests.

Along the Atlantic from Yarmouth to Cape Breton; common. Scattered inland and north along the Minas Basin to the Gulf of St. Lawrence.

Ranges from NF to SK, south to PA and MN.

## **Vitaceae**

### **grape family**

Most are woody vines, with 700 species worldwide. Three species reach Nova Scotia. Flowers are regular and hypogynous, perfect or unisexual. They are 4–5-merous. Calyx is much-reduced or vestigial.



Corolla is also small, the petals opposing the stamens. Ovaries have two locules, sometimes inserted into nectary disk. Leaves are palmately compound or lobed and opposed by others modified into tendrils.

#### Key to genera

Leaves palmately compound; petals spreading at anthesis.

*Parthenocissus*

Leaves simple; petals connate above; petals deciduous before anthesis.

*Vitis*

### ***Parthenocissus* Planchon**

Of Asia and North America, the genus includes only 15 species. Unusual here, as Nova Scotia has only a few woody vines, trailing or climbing by tendrils. Flowers are five-merous, the petals distinct and spreading. They may be axillary or terminal. Fruit is a thin-fleshed berry, with 1–4 seeds.

#### Key to species

Tendrils branching; inflorescence with a central axis.

*Parthenocissus quinquefolia*

Tendrils with few branches; inflorescence bifurcate.

*P. vitacea*

### ***Parthenocissus quinquefolia* (L.) Planch.**

#### **Virginia Creeper**



Photo by Marian Munro

Vining shrubs, they are supported by freely-branching tendrils, adhesive at the tips. Leaves are rugose above and glaucous below. Leaves are compound on long petioles, the leaflets on short stems. Inflorescence is terminal, flowers producing black insipid fruit.

Flowers from late June to early July.

Common about fallow fields and edges; commonly cultivated.

From Digby to Victoria counties.

Ranges from NS to SK, south to TX and FL. Native.

***Parthenocissus vitacea* (Knerr) A. Hitchc.**

**Woodbine**

Resembling the first species, it is often confused with it. Tendrils of this species are less branched and have no adhesive disks at their tips. The inflorescence is bifurcate. Leaves are glossy above and lightly pubescent below.

Flowers during June and July.

Found in moist soils.

Collected from Shelburne County eastward.

Continental US, but for the southeast; NS. Native.

***Vitis* L.**

**grapes**

Northern in distribution, 60 species are scattered across the northern hemisphere, with two found in NS. All are woody vines, bearing simple leaves opposed by tendrils. Flowers are arranged in cymes or panicles; five-merous. Generally all species are functionally unisexual, but not fully dioecious. Calyx is much-reduced. Petals connate at the summit, soon deciduous. Staminate flowers bear a vestigial pistil; pistillate flowers carry sterile stamens. Fruits are juicy berries, with four or fewer seeds.

## Key to species

Leaves tomentose beneath; fruit dark-red to black.

*Vitis labrusca*

Leaves with pubescence on lower surface of mature leaves limited to vein axils and sometimes the veins; fruit blue.

*V. riparia*

### ***Vitis labrusca* L.**

#### **Fox Grape**



*Photo by Martin Thomas*

A high-clamouring vine, its leaves are cordate, coarsely dentate. There are three shallow lobes, each of which is acuminate. Lower leaf surfaces are densely white-woolly. Fruit ranges in colour from red to black. Provides one of the parent species for Concord, Champion and other cultivars of grape.

Flowers from May to July; fruit ripens late fall after leaves have dropped.

Frequently grows in thickets, wet or dry.

Spryfield, Halifax Co. in the Thornhill region; Wile Carding Mill property, Bridgewater.

NS, NB and ON, south to LA and GA; UT. Introduced from further south.



*Photo by Martin Thomas*

### ***Vitis riparia* Michx.**

#### **Riverbank Grape**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Another high-climbing vine, its stems may be glabrous or pubescent. Leaves acuminate and serrate; sparsely pubescent below. Grapes blue, 8–12mm across and glaucous.

Limited to shady thickets along streams.

Escaped throughout the Annapolis Valley (Berwick to Gaspereau and reported from Gaspereau; long known along the Gaspereau River Rd; reported from Bridgewater

Ranges from NS to MB, south to OR and LA. Native to eastern US and NB, now spreading into Nova Scotia.

## **Acoraceae**

### **sweetflag family**

A family of perennial wetland herbs containing aromatic oils, especially noticeable when the plants are bruised. Plants creep on horizontal rhizomes just below the soil's surface. Leaves are not differentiated into blades and petioles, swordlike. The inflorescence is a spadix borne terminally on an angled peduncle. It is subtended by a leaf extending beyond it; the spathe is absent. The spadix is nearly cylindric, tapering to the obtuse apex. The flowers are bisexual; tepals and stamens number six. The stamens are distinct; ovaries and stigmas are sessile (styles essentially absent), minute and the ovaries 1–3. Fruits are thin leathery capsules with 1–6 seeds.

### ***Acorus* L.**

#### **Sweetflag**

The plants are described above. The fruit is a dry indehiscent capsule with 1–3 seeds. The rhizomes are particularly aromatic when crushed.

#### Key to species

A single midvein prominently raised above leaf surface, other veins barely or not raised; mature fruits absent. *Acorus calamus*

Veins >1 equally raised above leaf surface; mature fruits present. *A. americanus*

#### ***Acorus americanus* Raf.**

#### **Sweetflag; belle-angélique; acore d'Amérique**



Slightly shorter than cattails, it may reach only 80cm in height. The leaves are less than 1cm wide. Spadix 4–6cm long and completely covered with tiny flowers. Perianth consists of six lobes and six stamens.

Flowers and fruits produced from May to August.

Marshes, pond edges and meadows, often near the coast. Commonly emergent.



*Photo by David Mazerolle*



*Photo by Sean Blaney*

Scattered across the province, especially in the northern areas.

Ranges from NF to AK, south to MT and VA.

***Acorus calamus* L.**

**Calamus; acore roseau**

A sterile plant it is easily distinguished on the basis of leaf venation. This species has a single raised midvein. It is similar to the native species in height and appearance otherwise. Spadix is present, but flowers do not produce fruit.

Flowers in early summer.

Marshes, meadows and lacustrine shallows.

Scattered localities from Yarmouth to Cape Breton.

Ranges from NS to MB, south to TX and GA; west coast. Introduced to Canada.

## Alismataceae

### water-plantain family

Associated with freshwater and wetlands, these herbaceous plants have sagittate or linear leaves. The flowers have showy white petals and six or more stamens. Pistils are numerous, and form a tightly packed ring or spiral. Fruits are achenes.

#### Key to genera

Leaves oblong to ovate, stamens 6–9; achenes in a dense ring.

*Alisma*

Leaves lanceolate to sagittate; stamens numerous; achenes in a dense globose head.

*Sagittaria*

### ***Alisma* L.**

#### water-plantain

Herbaceous perennials, these glabrous aquatic plants number nine worldwide, with five in North America. We have three native species. The leaves are petiolate, but sessile when submersed, and ovate to elliptic in outline. The small flowers are borne in a panicle on long scapes. The achenes are keeled.

#### Key to species

Sepals 3–4mm long; petals 3–6mm long.

*A. triviale*

Sepals <3mm long; petals less than 2.5mm long.

*A. subcordatum*

***Alisma gramineum* Lej.** was reported from Colchester Co. but we believe this to be an erroneous report. Its native range is QC to C, south to CA and NM; VA; MO.

### ***Alisma subcordatum* Raf.**

#### **alisma subcordé**

Flowers are generally smaller than in the following species. The leaves are at least rounded at the base and sometimes nearly heart-shaped.

Flowers throughout the summer, from June to September.

Ditches, marshes and muddy shores, in shallows.

Recently discovered in Colchester Co. where it was found in ditches at the summit at Biorachan (1100ft.)

Elsewhere ranges from NS to MB, south to TX and GA; OR to NM.

Note: the collection needs to be re-examined to confirm whether it is *A. subcordatum*. It appears to be intermediate between this and the next species.

### ***Alisma triviale* Pursh**

#### **Water-plantain; alisma commun**



*Photo by Sean Blaney*

Reaching 80cm in height, this species bears its basal leaves on long petioles. The inflorescence is a large panicle borne above the leaves.

Flowers from June to early September.

Muddy soils in ditches, ponds and edges of streams and sinkholes.

Common from Annapolis and Cumberland counties to Inverness Co.

Ranges from NF to AK, south to CA, NM, AR and MD.

### ***Sagittaria* L**

#### **arrowheads**

Generally perennial, the arrowheads are centred about North and South America and total about 20 species. Stoloniferous, their leaves may be aerial, emergent or submersed. Their outline is often sagittate with two basal lobes, although great variability exists and often the leaves appear unlobed. The scape is often sheathed by the petioles, at its base. The inflorescence is a panicle; each cluster has three flowers. The achenes are compressed, their edges membranous and winged.

#### **Key to species**

A. Leaves short, linear to lanceolate.

*Sagittaria graminea*

aa. Leaves on long petioles, sagittate or hastate.

B

B. Fruiting head smooth, beaks of the achenes horizontal.

*S. latifolia*

bb. Fruiting head rough; beaks of the achenes erect or reflexed.

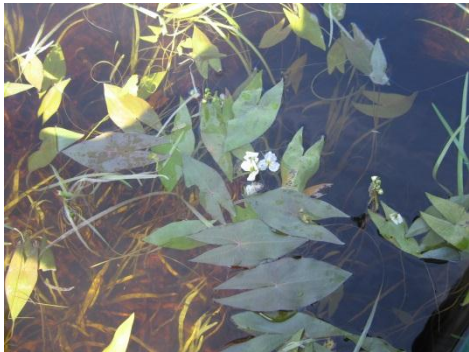
*S. cuneata*

***Sagittaria cuneata* Sheldon**

**Northern Arrowhead; sagittaire cunéaire**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

The leaves are small, 5–9cm long and deltate in outline. The bracts subtending the pedicels are lanceolate. The erect beaks of the achenes lend a rugose texture to the fruiting-head.

Flowers from June until September.

Freshwater shallows at the edges of marshes, ponds and small streams. Usually grows in mucky substrate and alluvial soils in gypsum areas.

Cumberland and Kings counties to northern Cape Breton.

Ranges from NS to AK, south to CA, TX and NJ.

***Sagittaria graminea* Michx.**

**Slender Arrowhead**



*Photo by Martin Thomas*

Smaller than its relatives, this species bears narrowly lanceolate or linear leaves. The scape is unbranched, rarely exceeding 40cm and bears terminal whorls of small flowers.

Flowering from May until September.

Sand or silty substrates around ponds and lakeshores. Sometimes in shallows over tidal mud.



Photo by Martin Thomas

Scattered throughout and more frequent from eastern and central regions.

NF to ON, south to AZ and FL; WA.

***Sagittaria latifolia* Willd.**

**Common Arrowhead; sagittaire à larges feuilles**



Photo by David Mazerolle

Plants may reach from 10–50cm tall. Its leaves are hastate or sagittate, the lobes widely divergent. The bracts at the base of the pedicels are ovate or nearly round. Mature plants exhibit smooth fruiting heads and beaked achenes. There is great variability in the width of the leaves. Former varieties are not recognized at present.

Flowers later, from June to September.





Photo by Sean Blaney

Lacustrine, muddy stream substrate and paludal.

Common throughout.

Found all over North America, but for the arctic and NV.

## Araceae arum family

A larger family with 110 genera, it is best developed in the tropics, with 1800 species worldwide. Nova Scotia hosts three distinctive plants in three genera. The small flowers are borne on fleshy spikes called spadices, each subtended and surrounded by a spathe. They may be perfect or unisexual. Fruits are berries or compound.

Key to genera

A. Leaves compound.

*Arisaema*

aa. Leaves simple.

B

B. Leaves smooth, glossy; spathe shining white.

*Calla*

bb. Leaves very large and rugose; spathe purplish.

*Symplocarpus*

### ***Arisaema* Mart**

A genus of 150 species, producing red berries. Flowers may be perfect or unisexual, covering the lower portion of the spadix, subtended by green or purplish spathe. The perianth is absent. Fruits contain 1–3 seeds.

***Arisaema triphyllum* (L.) Schott**

**Jack-in-the-pulpit; arisème de Stewardson**



Photo by Jamie Ellison



Photo by Beth Cameron

A colonial species, each plant is less than 60cm tall at anthesis, but may reach 1.5m at maturity. Leaves bear three leaflets, smooth around the margins although sometimes crisped. The lateral leaflets are unequal at the bases. Sometimes it is mistaken when young for poison-ivy. However in flower, these plants resemble no other species.

The spathe is heavily ridged, has green and white stripes and obscures the spadix (Jack) by folding over it.

Nova Scotia has two subspecies. Ssp. *stewardsonii* (Britt.) Huttleston has the spathe acuminate, prominently striped with white and fluted. The leaves are green below. The typical ssp. *triphyllum* has a less fluted spathe cap, wider and streaked reddish or brown, abruptly acute at the tip. The lateral leaflets are bluish green below.

Flowers from mid-May through July.

Wet woods, alluvial soils, oxbows and intervalles.

Common from Digby Co to Cape Breton.

Ranges from NS to MB, south to TX and FL, with ssp. *stewardsonii* more restricted in range.

## ***Calla***

### **water-arum**

A monotypic genus, its species is a perennial herb producing few-seeded berries. The basal leaves are petiolate. Lower flowers on the spadix are perfect, whereas the uppermost flowers may be staminate. The spathe is expanded, white and surrounds the spadix but does not enclose it.

#### ***Calla palustris* L.**

##### **Water-arum; Wild Calla; calla des marais**



*Photo by Ross Hall*



*Photo by Alain Belliveau*

Plants arise on stout stems, reaching 30–40cm in height. Often rooting at the nodes and forming small colonies, each plant has thick glossy green leaves. Conspicuous in flower, as the spathe is shining white, standing behind the spadix.

Flowers from May through July.

Bogs, streamsides, lakesides at the edge of swampy pools, usually in wet peat.

Uncommon in southern counties, becoming more so from Yarmouth through the Annapolis Valley and Cumberland Co. to northern Cape Breton.

Ranges across Canada and south to BC, IL and MD; Eurasia.

#### ***Symplocarpus* Salisb.**

##### **Skunk cabbage**

Another monotypic genus, including a species with the unmistakable odour of skunk. The flower is a fleshy purple spathe enclosing a rounded spadix. The perianth and style are persistent. Anthesis occurs before the leaves erupt. The large seeds emerge from the spongy spadix.

***Symplocarpus foetidus* (L.) Salisb.**

**Skunk Cabbage; chou puant**



*Photo by Sean Blaney*



*Photo by Eugene Quigley*

The hooded spathe stands 10cm tall erupting through the snow in some years. Its disagreeable self is long-persistent. Leaves emerge about six weeks after flowering, and are very large, sometimes 1m in length. The venation is prominent.

Flowers in May.

Frequents riparian swamps, swales, bogs, sphagnous spruce woods and wet thickets.

Found in Digby and Yarmouth Co. and Cumberland Co. Scattered in the southwest though abundant where found.

Ranges from NS to MB, south to TN, IA and NC; Asia.

## **Butomaceae**

### **flowering-rush family**

A monotypic family, its single species has been introduced into North America from temperate Asia. Typically, it is an aquatic emergent, bearing its perfect flowers on a long peduncle. The leaves are linear, scarcely wider than the peduncle. Flowers have three pink petals subtended by three bracts. Stamens number nine, while the pistils are six. The inflorescence is an umbel. Plants may reach 1–2m, with the leaves often exceeding 1m in length.

### ***Butomus* L.**

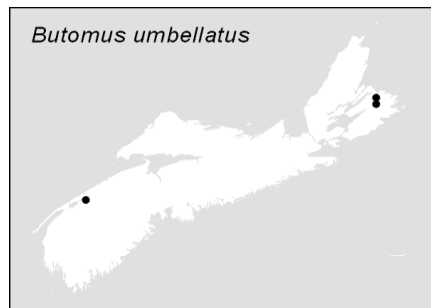
As above. Plants are rhizomatous, sometimes remaining vegetative. If so, the leaves tend to be lax and not stiffly swordlike.

***Butomus umbellatus* L.**

**butome à ombelle**



Photo by Sean Blaney



A perennial species, it arises from a stout rhizome. The pink flowers produce six straight and striated pods.

Flowers from June through September.

Emergent, rooting in muddy shallows.

So far known from Dartmouth, Sydney and Annapolis Royal areas. More recently found at Dempseys Corner.

Introduced to North America and persistent from NS to MB; AB and BC, south to ID, MN and PA.

## **Cyperaceae**

### **sedge family**

Grasslike in form, the sedges comprise a large group of genera, including 4500 species worldwide. Usually they are plants of wetlands or poorly drained soils. The leaves are often arranged in three ranks along the culms, which may or may not be triangular in cross-section. The flowers are singly borne in the axils of scales, which are usually (not always) clustered together in spikes or spikelets. Flowers are three-merous, with a single pistil. There are sometimes bristles at the base of the flowers. Fruit is an achene, naked or enclosed. Mature achenes are usually required to ascertain identity.

They may be separated from the grasses on the basis of the leaf sheaths. They are closed to the top.

These keys and those of the genera and species largely follow those of The Flora of North America: Volume 23, Cyperaceae



## Keys to genera

- |   |                     |
|---|---------------------|
| A. Flowers unisexual; staminate and pistillate flowers for the most part, on separate spikes; pistillate flowers enclosed in sac, open only at the top. | <i>Carex</i>        |
| aa. Flowers bisexual; flowers not enclosed in sac-like structure.   | B                   |
| B. Flowers with perianth of 1 or more hairs, bristles or scales usually persistent on the achene.   | C                   |
| C. Perianth of bristles or hairs much > floral scales in fruit, more than 2X as long as the achene, including persistent style base.                    | D                   |
| D. Perianth hairs strongly crisped, tangled in fruit (woolly).  | <i>Scirpus</i>      |
| dd. Perianth hairs straight and not twisted. (silky).   | E                   |
| E. Perianth hairs 10+ in each flower, barbed; spikelets >1cm; leaf blades to 25cm.  | <i>Eriophorum</i>   |
| ee. Perianth hairs usually 6 in each flower, not barbed; spikelets <1cm; leaf blades <1cm.  | <i>Trichophorum</i> |
| cc. Perianth scarcely exceeding the floral scales or not, no more than 2X as long as the achene, including the persistent style base, if present.       | F                   |
| F. Spikelets compressed laterally; scales 2-ranked at least in lower half and keeled.   | G                   |
| G. Achenes biconvex; styles bifid.  | H                   |
| H. Persistent style base on achene enlarged.  | <i>Rhynchospora</i> |
| hh. Persistent style base linear.   | <i>Dulichium</i>    |
| gg. Achenes trigonous; styles three-parted.   | <i>Eleocharis</i>   |
| ff. Spikelets generally rounded in cross-section; scales not keeled and spirally arranged.  | I                   |

I. Culms without bladed leaves; leaves absent or reduced to sheaths.	J
J. Style base enlarged, persistent in fruit and clearly differentiated;	<i>Eleocharis</i>
culms with 1 spikelet.	
jj. Style base not or barely enlarged, deciduous in fruit; culms with >1 spike in branching inflorescence.	<i>Schoenoplectus</i>
ii. Culms with bladed leaves; at least distal leaves with blades >5mm.	K
K. Style base enlarged persistent as a tubercle on top of the achene.	L
L. Culms simple, with 1 spikelet; 1 proximal floral scale empty.	<i>Eleocharis</i>
II. Culms distally branched, with >1 spikelet; spikelets with 2+ scales empty.	<i>Rhynchospora</i>
kk. Style base barely or not enlarged, deciduous or remaining merely as a beak on the achene.	M
M. Spikelets 2+ in a distichlous spike.	<i>Blysmopsis</i>
mm. Spikelets 1–500, paniculate, capitate or solitary.	N
N. Leaf blades and bracts with prominent midrib or blades folded; inflorescence obviously terminal.	O
O. Floral scales glabrous, never notched and awned; achenes minutely papillose.	<i>Scirpus</i>
oo. Scales puberulent, notched and awned; achenes smooth.	<i>Bolboschoenus</i>

nn. Bracts and leaf blades various; midrib not keeled; involucre bract erect, then inflorescence appears lateral.	P
P.Bracts >2, proximal 10+mm, exceeding spikelets; spikelets at least 2	<i>Schoenoplectus</i>
pp.Bracts <2, <10mm, shorter than or scarcely exceeding spikelet; spikelet solitary.	<i>Trichophorum</i>
bb. Flowers without perianth hairs, scales, etc.	Q
Q. Spikelets with floral scales in 2 rows, keeled; often compressed.	<i>Cyperus</i>
Q. Spikelets with scales unkeeled, spirally arranged, not compressed .	R
R. Style base enlarged, persistent as tubercle.	S
S. Culms with 1 spikelet; leaf blades absent.	<i>Eleocharis</i>
ss. Culms with inflorescence of >2 spikelets; >1 leaf blade exceeding 4mm.	T
T. Styles trifid; achenes trigonous; top of leaf sheath ciliate.	<i>Bulbostylis</i>
tt. Styles bifid; achenes biconvex; top of leaf sheath glabrous.	<i>Rhynchospora</i>
rr. Style base not or scarcely enlarged.	U
U. Leaves with 2 lateral tufts of hairs at the top of the leaf sheath.	<i>Bulbostylis</i>
uu. Leaves glabrous or with only short hairs at junction of blade and sheath.	V

V. Inflorescence apparently lateral; proximal bract erect, appearing as an extension of culm. *Schoenoplectus*

vv. Inflorescence definitely terminal; bracts ascending or spreading but not appearing as an extension of the culm. *Cladium*

### ***Blysmopsis* Oteng-Yeboah**

A monotypic genus, it is a perennial limited to the boreal regions of the Northern Hemisphere. Clump-forming, the culms are terete, or distally trigonous, the angles rounded. Leaves are ligulate and basal, their blades are flat. The terminal inflorescence is a spike, subtended by several leafy involucre bracts. There are from 2–25 spikelets per spike, each with 2–5 floral scales. Flowers are bisexual, the perianth reduced to 3–5 bristles. They are barbed and shorter than the achene. The styles are 2-fid, with persistent bases.

#### ***Blysmopsis rufa* (Hudson) Oteng-Yeboah**

(=*Scirpus rufus* (Huds.) Schrad.; *Blysmus rufus* (Huds.) Link)

Red bulrush; scirpe roux



*Photo by David Mazerolle*

The culms may reach 45cm arising from slender horizontal rhizomes. There are 1–3 leaves without a conspicuous midvein, obtusely tipped. The inflorescence comprises 5–8 spikelets in a loose spike, 1–2cm. The floral scales are deciduous and reddish brown, three in number. Achenes are yellowish brown.

Fruiting late summer.

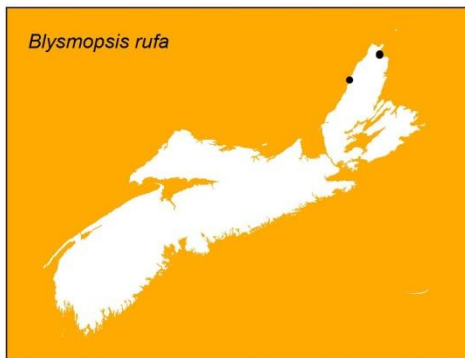


Saline habitats in coastal marshes or peatlands.

Known only from Dingwall, Victoria Co.; Cheticamp, Inverness Co. and Sand Beach, Yarmouth Co.

Ranges from NF to AK, south to NS, ON and AB.

*Photo by David Mazerolle*



## ***Bolboschoenus* (Asch.) Palla**

Perennial herbs arising from rhizomes, they may or may not be cespitose. The culms are sharply trigonous. Leaves are both basal and cauline and without ligules. The blades are flat or V-shaped and sharply keeled. The terminal inflorescences are umbellate, corymbose or capitate with up to 80 spikelets. There are 1–5 involucral bracts, overtopping the spikelets, leafy. Spikelets comprise 25 or more scales, with the tips notched and awned. Flowers are bisexual; the perianth reduced to 3–6 bristles. Stamens three; styles 2–3-fid, their bases are persistent.

Key to species



A. Floral scales membranous and hyaline; anthers yellow; achenes biconvex; leaf sheaths membranous at the mouth, veins diverging from the base leaving a wide deltate veinless area.

*Bolboschoenus maritimus*

aa. Floral scales papery and nearly opaque; anthers brownish orange; achenes mostly trigonous; leaf sheaths papery at the mouths, the veins reaching nearly to the summit.

*B. robustus*

***Bolboschoenus maritimus* (L.) Palla**

**(= *Scirpus maritimus* L.; *Schoenoplectus m.* (L.) Lye)**

**Saltmarsh bulrush; scirpe maritime**



Photo by David Mazerolle

Separated from the next species on a few characters: The leaf sheaths reach more or less to mid-culm. The widely diverging veins leave a wide triangular veinless area at the top, that often disintegrates. The widest leaf blade is 2–12mm wide. All the spikelets are sessile in the inflorescence. It is simply branched and no more than half of the spikelets are solitary, or in clusters of 2–10 on 1–4 rays. Floral scales may be bright orange-brown to stramineous. Bristles are not persistent on shed achenes.



Of the two subspecies, ssp. *paludosus* (A. Nelson) T. Koyama, with the styles bifid and the scales and achenes dark to medium brown, is found in NS.

Flowering and fruiting from mid-July to October.

Found on waste ground about ports and coastal towns; saltmarshes, brackish meadows and estuaries, etc.

Coastal areas throughout, including Sable Island.

Ranges from NS to AK, south to CA, TX and VA.

*Photo by David Mazerolle*

***Bolboschoenus robustus* (Pursh) J. Sojak**

(= *Scirpus robustus* Pursh; *Schoenoplectus r.* (Pursh) MT Strong)

**Sturdy bulrush; scirpe robuste**

Another tall perennial, the culms reach 150cm tall. The leaf sheaths reach beyond the middle of the culm. They are papery at the mouth, with the veins generally reaching the summit. No more than half the spikelets are solitary, the remainder are in pairs on 1–7 rays, each not exceeding 7cm. There are 2–4 involucre bracts exceeding the spikelets. Scales are medium brown to dark orange brown and nearly opaque. Bristles are not persistent or with only 1–2 adhering, dark reddish brown, shorter than the achenes.

Flowering and fruiting July to October.

An estuarine species.

Collected on the northern side from Annapolis and Cumberland counties to Cape Breton. Distribution remains unknown here and our collections may include hybrids of this and *B. maritimus*.

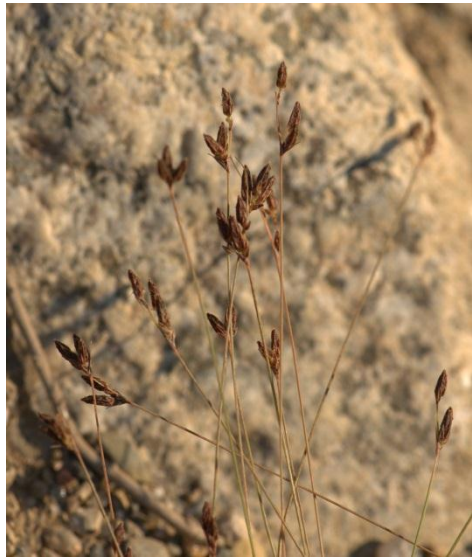
Ranges from NS; ME to FL and TX; CA.

***Bulbostylis* Kunth.**

Mostly tropical, this genus comprises 80 species. Our single species has linear basal leaves, each ciliate on the sheath. The inflorescence is terminal arising from the axils of the involucral leaves. The flowers are perfect; stamens 1–3, with a single style. The style is cleft into three, swollen below and persistent as a tubercle on the achenes.

***Bulbostylis capillaris* (L.) Nees.**

**Dense-tufted Hair Sedge; bulbostyle capilaire**



*Photo by Alain Belliveau*

Small in stature, rarely more than 10cm in height, it is often overlooked. Most of the filiform leaves are basal. The inflorescence is an umbel of small spikelets. Achenes are triangular and bear the minute tubercles.

Flowers and fruits produced from August through October.

Sandy open soil as roadsides and railways.

Scattered from Shelburne and Halifax Counties to Annapolis and Kings counties. Locally abundant.

Ranges from NS to ON, south to TX and FL, west to OR and CA.



*Photo by Alain Belliveau*

## Carex L. sedges

Grasslike species totalling 1500 worldwide, they are most diverse in the arctic and north temperate zones. All are herbaceous, bearing three ranks of leaves along the culm. The sedges produce their flowers in spikes. The staminate spikes are floral units consisting of three stamens in the axil of a scale. A pistillate flower has a single ovary and two or three styles within the perigynium, which may or may not be beaked. Each perigynium may be subtended by a scale, often used along with the perigynium to identify species. The culm may terminate in a leafy bract directly beneath the inflorescence. Staminate and pistillate flowers may be within the same spike or on separate spikes. The fruit is a trigonous or lens-shaped achene.

The genus is divided into numerous sections, an aid to grouping species. Where a single species is found in Nova Scotia within a section, it is placed in parentheses within the key. All keys follow those published in FNA Ed. Committee, 2002.

### Key to Sections

- |  |                |
|--|----------------|
| 1. Spikes solitary on the culm.  | 2              |
| 2. Perigynia 6–7mm long; 1–10 per spikelet. ( <i>C. pauciflora</i> )                             | LEUCOGLOCHIN   |
| 2. Perigynia mostly 2–4mm long; many per spikelet.   | 3              |
| 3. Perigynia pubescent, in a short dense spike. ( <i>C. scirpoidea</i> )                         | SCIRPINAE      |
| 3. Perigynia glabrous.   | 4              |
| 4. Perigynia loosely arranged terminally, erect.   | LEPTOCEPHALAE  |
| ( <i>C. leptalea</i> )   |                |
| 4. Perigynia, at least the lower, reflexed in compact, terminal spikes.                          | 5              |
| 5. Staminate flowers if present, at the apex; perigynia strongly reflexed. ( <i>C. dioica</i> ). | PHAESTOGLOCHIN |
| 5. Staminate flowers numerous, conspicuous at the base of the spike. ( <i>C. exilis</i> ).       | STELLULATAE    |

1. Spikes >1 per culm.	6
6. Stigmas 2; achenes lenticular.	7
7. Spikes often >10, numerous and crowded.	8
8. Perigynium 4–6mm long, long-beaked; culm sharply angled. ( <i>C. stipata</i> ).	VULPINAE
8. Perigynium 2–4mm long, beak short; culms not sharply angled.	9
9. Leafy bract below basal spikes to 5cm long; scales awned. ( <i>C. vulpinoidea</i> ).	MULTIFLORAE
9. Leafy bracts shorter than the spikes; scales merely acute.	HELEOGLOCHIN
7. Spikes <10, often widely separated.	10
10. Staminate spikes present.	11
11. Spikes sessile.	CHORDORRHIZAE
11. Spikes stalked.	12
12. Plants prostrate and lax; perigynia globose and fleshy, turning orange. ( <i>C. aurea</i> ).	BICOLORES
12. Plants erect and stout; perigynia not fleshy.	PHACOCYSTIS
10. Separate staminate spikes absent.	13
13. Spikes few flowered, (1)2(3); perigynia brown or purple at maturity, shiny; pistillate scales whitish.	DISPERMAE
13. Spikes with more than 2 flowers, or with achenes round, not lenticular; perigynia and scales not coloured as above.	14
14. Spikes ovate; perigynia compressed, numerous, and winged along the sides.	OVALES
14. Spikes not ovate; perigynia not winged, but may be thinner along the margins.	15



15. Spikes with staminate flowers (scales) terminal.	16
16. Perigynia strongly flattened; often >4 per spike.	PHAESTOGLOCHIN
16. Perigynia almost round, 1–3 in scattered delicate spikes.	GLAREOSAE, in part
15. Spikes with staminate flowers basal in the spike.	17
17. Perigynia appressed, 4–5mm long; serrated beak almost as long as body; lower ones not reflexed.	DEWEYANAE
17. Perigynia <4.5mm long, lower ones strongly reflexed.	18
18. Perigynia spreading to reflexed, spongy at the base; achene filling only upper half to 2/3.	STELLULATAE
18. Perigynia erect or ascending, plump; the achene filling it.	GLAREOSAE, in part
6. Stigmas 3; achenes triangular.	19
19. Perigynia with some degree of pubescence.	20
20. Perigynia beaks absent or vestigial.	21
21. Spikes with 1–8 perigynia; lowest involucre leaf forming long sheath. ( <i>C. pedunculata</i> ).	CLANDESTINAE
21. Spikes with many perigynia; lowest involucre leaf not long-sheathed.	POROCYSTIS
20. Perigynia with prominent beaks.	22
22. Leaves glabrous.	23
23. Perigynia often many-nerved, densely pubescent.	PALUDOSAE

23. Perigynia with 2 main nerves, sparsely pubescent.	ACROCYSTIS
22. Leaves rugose or pubescent.	24
24. Perigynia strongly nerved. ( <i>C. scabrata</i> )	ANOMALAE
24. Perigynia without nerves. ( <i>C. hirtifolia</i> ).	HIRTIFOLIAE
19. Perigynia glabrous.	25
25. Beak of the perigynia short or absent; etoothed.	26
26. Terminal spike half-pistillate.	RACEMOSAE
26. Terminal spike wholly or mostly staminate.	27
27. Spikes pendulous.	28
28. Pistillate spikes ovate or short.	LIMOSAE
28. Pistillate spikes long, linear.	29
29. Terminal spike partly pistillate.	HYMENOCHLAENAE
29. Terminal spike wholly staminate.	30
30. Leaf blades less than 5mm wide.	CAREYANAE
30. Leaf blades more than 5mm wide.	LAXIFLORAE
27. Spikes erect.	31
31. Perigynia with many parallel ridges.	GRISEAE
31. Perigynia with few ridges or none.	32
32. Perigynia few, to 4mm long.	PANICEAE
32. Perigynia numerous, <2.5mm long.	33
33. Pistillate spikes with <6 flowers; plants very small. ( <i>C. eburnea</i> ).	ALBAE
33. Pistillate spikes with numerous flowers.	34
34. Perigynia distinctly ridged.	POROCYSTIS

34. Perigynia without ridges.	THURINGIACA
25. Beak of the perigynia conspicuous and toothed.	35
35. Beaks weakly toothed.	36
36. Plants low, cespitose.	CHLOROSTACHYAE
36. Plants tall and slender.	37
37. Spikes linear, on long stalks, drooping.	SYLVATICAE
37. Spikes short, or spherical, sessile and erect.	CERATOCYSTIS
35. Beaks with stiff teeth to 1mm long.	38
38. Pistillate spikes ovoid to cylindrical, >25 perigynia.	39
39. Pistillate spike scales with long acuminate tips or barbed awns.	PSEUDO-CYPERAE
39. Pistillate spike scales merely acute, or if with awns, not barbed.	40
40. Pistillate spikes ovoid.	LUPULINAE
40. Pistillate spikes cylindrical.	41
41. Neck of perigynium short, with stout teeth. ( <i>C. lacustris</i> ).	PALUDOSAE
41. Neck of the perigynia long, sharply toothed.	VESICARIAE
38. Pistillate spikes spherical, with <15 perigynia.	42
42. Leaves <3mm wide. ( <i>C. oligosperma</i> ).	VESICARIAE, in part
42. Leaves >15mm wide.	ROSTRALES

## Section ACROCYSTIS

Rhizomatous or stoloniferous, these sedges are densely cespitose. The culms are conspicuously shorter than the leaves and red or brown at the base. The sheaths are fibrous, membranous and ciliate at the front. Blades measure from 2–4.5mm wide and glabrous. The racemes contain 2–6 spikes. The proximal bracts are scalelike or filiform. The lateral spikes are pistillate and pedunculate and the terminal spike is staminate. Pistillate scales are white hyaline or reddish-brown, marked with 1–3 veins and awnless. The perigynia are abruptly beaked and usually pubescent. The three-angled achenes fill the bodies of the perigynia. Styles are usually deciduous. Section contains some of our earliest flowering *Carex* species and most species occupy upland habitats unlike most other sections.

#### Key to species

- |   |                         |
|---|-------------------------|
| A. Some pistillate spikes produced on short stems at the base of the plant, amidst the leaves.  | B                       |
| B. Bracts of the distal pistillate spikes leaflike, equalling or exceeding the flowers; remnants of old leaves not fibrous, or barely so; pistillate scales shorter than the perigynia. | <i>Carex deflexa</i>    |
| bb. Bracts of the distal pistillate spikes scalelike, shorter than the flowers; old leaves in fibrous tufts; pistillate scales equal to or longer than the perigynia.                   | C                       |
| C. Perigynia <3.2mm long, beak 0.4–1mm.   | <i>C. umbellata</i>     |
| cc. Perigynia >3.1mm long, beak >0.9mm.   | <i>C. tonsa</i>         |
| aa. Basal pistillate spikes absent.   | D                       |
| D. Perigynia bodies globose to obovoid, length and width nearly equal.  | E                       |
| E. Plants densely cespitose; rhizomes short and not spreading outward; widest leaves >3mm wide.   | <i>C. communis</i>      |
| ee. Plants loosely cespitose, or with solitary stems; rhizomes long and spreading; widest leaves <3mm wide.   | F                       |
| F. Beaks of perigynia <.9mm; culms smooth, or slightly roughened at the top.  | <i>C. pennsylvanica</i> |

- ff. Beaks of the perigynia >0.9mm; culms strongly scabrous near the top. *C. lucorum*
- dd. Perigynia ellipsoid, longer than wide. G
- G. Leaves at least 3mm wide; pistillate and staminate spikes usually widely separated. *C. communis*
- gg. Leaves <3.3mm wide, but if wider than 2.9mm then spikes closely associated and near the staminate spike. H
- H. Lower 2 pistillate spikes wide-spaced, by at least 7mm, not overlapping; lower cauline bracts equal to or exceeding the height of the inflorescence. *C. novae-angliae*
- hh. Lower 2 pistillate spikes overlapping or adjacent to each other, separated by less than 7mm; lower cauline bract, shorter than the inflorescence. I
- I. Pistillate scales shorter than the perigynia which are conspicuous. J
- J. Perigynia <3.1mm; culms slender; leaves equal to or longer than the culms. *C. deflexa*
- jj. Perigynia >3.2mm long; culms robust; leaves shorter than the culms. *C. peckii*
- ii. Pistillate scales about equal in length to the perigynia, obscuring them. *C. albicans*

***Carex albicans* Willd.**

**White-tinged Sedge; carex à écailles marginées**





Photo by Sean Blaney

*var. emmonsii*



Photo by Sean Blaney

*Var. emmonsii*

A caespitose species it arises on culms 10–45cm tall; their bases are reddish brown to reddish purple and smooth to scabrous distally. The leaves are pale or bright green and no more than 2.5mm wide. Plants are bisexual; spikes are unisexual. The involucral leaf is shorter than the inflorescence. Cauline spikes are nearly overlapping, not exceeding 7mm apart. The pistillate scales are reddish brown with whitish margins. Perigynia are pale green and without veins or ridges, but ciliate or serrulate. Stigmas number three.

Var. *emmonsii* (Dewey) Rettig has the staminate spikes <8.4mm, their scales with the midrib extending beyond the tip. It is known from Yarmouth and Shelburne counties to Antigonish. (as *C. emmonsii*). Var. *albicans* has shorter staminate spikes and scales without the midvein extension.

Early-maturing, fruiting by June.

Elsewhere known from acidic, dry soils of sandstone or granite. Var *emmonsii* is characteristic of rich deciduous forests.

Scattered mainland collections.

Ranges from NS to ON, south to FL and TX.

***Carex communis* LH Bailey**  
**carex commune**



Photo by David Mazerolle

A densely cespitose species, its larger size should separate it from others in the section. Culms may reach 60cm tall, and are roughened just below the inflorescence. The leaves may be 5mm wide, scabrous or papillose on either surface. Cauline spikes are clearly distant from each other, the pistillate spikes have 3–10 green perigynia. Their beaks are ciliate or serrulate. Ours is the typical variety, with tiny apical teeth on the perigynial beaks and the scales less than 1.6mm wide.

Flowering and fruiting from May until July.

Found in dryish soils of forests, roadsides and even clearings. Cliff crevices in northern regions.

Common throughout NS.

Found throughout the continent.



Photo by Roger Lloyd

***Carex deflexa* Hornem.**

**carex déprimé**



*Photo by Martin Thomas*

This species with its pale green leaves no wider than 2.6mm, arises on arching culms to 31cm tall. The spikes are exceeded by the proximal leafy bracts. Pistillate spikes number 1–4, with one or two amongst the leaves at the base of the plant. The cauline spikes are overlapping or nearly so. Pistillate scales are light to dark reddish brown, with whitish margins, shorter than the yellowish to grayish-green perigynia. Their beaks may be bent.

Flowers and fruits from May to July.

Frequents dry sandy mixed or evergreen forests and rock crevices.

Scattered from Yarmouth to northern Cape Breton. Perhaps overlooked.

Ranges across the continent and variously south to SC and ID; Greenland.



*Photo by Martin Thomas*

***Carex lucorum* Willd.**

## Forest sedge



Arising on culms to 55cm, this species has fibrous remnants of old leaves persistent at the base. The single staminate spike is up to 2.2cm long. Below it are 2–3 pistillate spikes. The proximal leafy bract subtending the inflorescence is shorter than it. The beaks of the perigynia are half the length of the body and straight. Perigynia are yellowish to olive and nerveless.

Flowers early May to June.

Habitat is dry sandy and acidic soils as found beneath pines, open forest and recent clearings.

Western counties from Queens, Lunenburg and Kings and in northern Cape Breton.

Ranges from NS to ON, south to TN and GA.

*Photo by Roger Lloyd*

## *Carex novae-angliae* Schwein. carex de Nouvelle-Angloteerre



A loosely cespitose species, the slender culms are shorter than the narrow leaves, which may be only 1mm wide. Pistillate spikes 1–4, with reddish brown acuminate or acute scales. Lowermost leafy involucral bract is shorter than the inflorescence. The perigynia are light green and without veins; their beaks are straight.

Flowers and fruits from mid-May through early June.

*Photo by Sean Blaney*

Found in pastures, clearings and mixed deciduous forests.

Scattered throughout.

Ranges from NF to ON, south to WVA.



*Photo by Roger Lloyd*

***Carex peckii* Howe**  
**carex de Peck**





Photo by Roger Lloyd

A loosely cespitose sedge with slender ascending rhizomes, its glabrous culms reach to 47cm in height. Leaves are only up to 4mm wide. They are not persistent as fibres at the base of the culms, and are shorter than the inflorescence. Bracts are generally shorter than the inflorescence. There are 2–3 pistillate spikes, none at the base amongst the leaves. The lower two spikes are nearly overlapping, with 3–10 perigynia. Pistillate scales are reddish to pale brown, with wide white margins, two-thirds the length of the perigynia. Staminate scales are elliptic. The perigynia are light green with straight beaks, longer than wide. Re-examination of some material identified as *C. nigromarginata* places them here.

Flowers and fruits throughout its range from May through mid-July.

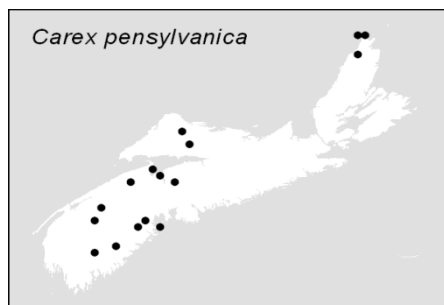
Dry or mesic slopes, mixed deciduous forests, rocky outcrops, old quarry.

So far known from White Rock, Kings Co., Rhodes Co., Lunenburg Co. and Halifax and the Pennants area, Halifax Co. (DAL herbarium only)

Elsewhere from NS to AK, south to CO and IN.

Considered to be ORANGE for Nova Scotia.

### ***Carex pensylvanica* Lam. check this one carex de Pennsylvanie**



Loosely cespitose, the culms reach 10–45cm tall, bearing leaves barely 3.6mm wide. Pistillate spikes 1–3 and cauline, rarely with one basal spike. Perigynia have beaks, shorter than one-quarter the length of the body. They are pale green, obovoid and veinless. The leafy bract nearest the inflorescence is shorter than it. A most distinctive character is the presence of stout woody rhizomes, reddish brown in colour, spreading horizontally.



Flowers and fruits produced early, to mid-May.

Grows in dry, rocky soils as in dry open woodlands.

Scattered from Annapolis and Lunenburg counties to northern Cape Breton.

Ranges from NS to BC, south to SC, KS and CA.

***Carex tonsa* (Fern.) EP Bickn.**



*Photo by Sean Blaney*

This sedge is another cespitose species, producing upright reddish brown rhizomes. The culms are only up to 16cm tall, often obscured by long bright green leaves and darker at the base. The inflorescence produces both staminate and pistillate scales. Peduncles of the basal pistillate spikes are erect. The involucral bract is scale-like and shorter than the inflorescence. The staminate spike is terminal. Pubescent perigynia usually number 3–10 on each spike. Ovate pistillate scales are brown with pale margins, which obscure the perigynia. Beak is straight and pale green,



Photo by Roger Lloyd

although it sometimes exhibits a reddish tinge near the apex. It is also pubescent. Stigmas number three. Our variety is var. *rugrosperma* (Mackenzie) Crins, collected as *C. rugrosperma* Mackenzie.

Flowering and fruiting by mid-June.

Grows in dry, acidic and often rocky or sandy soils on open land such as headlands, meadows and roadsides.

Scattered to common in Annapolis and Queens counties to Colchester; also found in northern Victoria Co.

Ranges from NF to BC and variously south in the east to GA.

***Carex umbellata* Schkuhr**  
**carex en ombmelle**



Photo by Sean Blaney

A densely caespitose species, it produces upright reddish brown rhizomes. The culms are 3–7.5cm tall, shorter than the leaves, whose pale green blades are less than 3mm wide. The involucral bract is scalelike and shorter or equal to the height of the inflorescence. Pistillate spikes number 2–5, and may have up to three buried amongst the leaves, at the base of the plant. The cauline spikes overlap with the staminate spikes. Pistillate scales are reddish brown with



*Photo by Roger Lloyd*

pale margins, at least as long as the perigynia and pointed. Perigynia are pale brown or green, nearly round and veinless. Their beaks are straight, weakly ciliate and strongly compressed.

Fruits produced until mid-July.

Grows in sterile sandy soils as in fallow fields and roadsides.

Collections from Queens Co. to Cumberland and Victoria counties.

Elsewhere, ranges from NF to BC, south in the east to LA and GA; Greenland.

## **Section ALBAE**

Plants are long-rhizomatous and cespitose. The culms are brown at the base. The leaves have filiform blades, V-shaped in cross-section; their sheaths are not fibrous. The raceme bears 3–5 spikes, the terminal one staminate. Involucral leaf is bladeless but sheathing. Perigynia are filled by the achenes, weakly ridged and glabrous. The styles are deciduous.

***Carex eburnea* F. Boott**

**carex ivoirin**



Photo by Sean Blaney



A small sedge rarely taller than 20cm, it bears many hairlike leaves. The staminate spikes are inconspicuous; pistillate spikes 3–7mm long and few-flowered.

Grows in cliffs and talus, especially in calcareous soils, under conifers.

May be locally abundant where found, scattered from Cumberland and Hants counties to Cape Breton.

Ranges across the continent, south to WY , TX and GA.

STATUS: YELLOW-listed in NS.

## Section ANOMALAE

Another monotypic section for Nova Scotia, these plants are also cespitose and bear stout rhizomes. The culms are reddish or purplish brown at the base and sharply angled (scabrous). The leaves have two prominent lateral veins, more marked than the midrib and often scabrous. The raceme has from 4–8 spikes subtended by leaflike bracts which are usually pubescent. The lower pistillate scales, at least, are awned. The terminal spike is usually staminate. The beaked perigynia are erect and sometimes spreading. The stigmas number three; the style is deciduous.

***Carex scabrata* Schweinitz**

**carex scabre**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

Ranging from 40–80cm tall, this cespitose species forms loose clumps of very rough culms and leaves. Lower leaves may reach 1cm wide. Pistillate spikes are several, 2–3cm long. The lowermost are borne on slender stalks. Scabrous ovate perigynia are marked by strong veins, etoothed, but with the beak nearly as long as the body.

Flowers and fruit from May to September.

Grows in alluvial soils along streams, in thickets and mucky shaded areas.

More frequently collected from north and central counties but scattered from Digby County to Cape Breton.

Ranges from NS to ON, south to MO, AL and GA.



## Section BICOLORES

Loosely cespitose, these sedges have the culms brown at the base. The leaves are smooth when young, V-shaped in cross-section, their sheaths not fibrous at the base. Racemes comprise 2–6 spikes, their rachis papillose. The lateral spikes and sometimes the proximal ones are pistillate. Pistillate scales are obtuse to acuminate. Perigynia are ascending to spreading, weakly marked and sometimes inflated. They are beaked or beakless but generally glabrous.

### Key to species

Lateral spike lax; mature perigynia orange; terminal spike usually staminate.

*Carex aurea*

Lateral spike dense; mature perigynia whitish,, terminal spike gynecandrous.

*C. garberi*

### ***Carex aurea* Nutt.**

#### **Golden Sedge; carex doré**



*Photo by Sean Blaney*

A slender species, usually under 40cm in height, growing in loose mats. The leaves are very narrow and the lowest involucral bract exceeds the height of the inflorescence. Perigynia are almost round and at maturity they are a bright orange or golden, a unique character amongst our sedges. They are borne in 2–3 ranks, forming loose spikes about 1cm long. The terminal spike is staminate.





*Photo by Sean Blaney*

Matures from June to July.

Grows in alkaline soils on slopes, in fields or streamsides.

Found from Annapolis and Cumberland counties to northern Cape Breton.

Ranges from NF to AK, south to PA, TX and CA

***Carex garberi* Fernald**  
**carex de Garber**

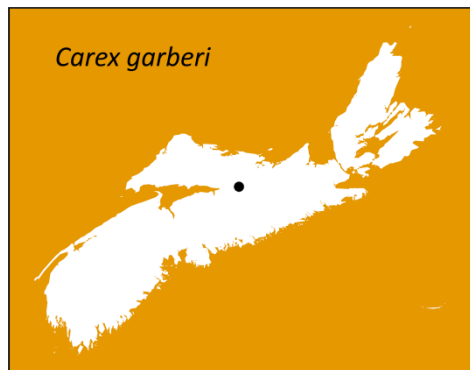


*Photo by Sean Blaney*

Another short sedge, bearing leaves no more than 2.5mm wide. The racemes are exceeded by the proximal involucral bract. Spikes have up to 30 perigynia, with the proximal ones distant from each other. The terminal spike is gynecandrous with at least one-third of staminate flowers. Pistillate scales are ascending, brown but lighter on the margins and midvein. The perigynia are ascending, white, densely papillose.



Photo by Roger Lloyd



Fruiting during the summer.

Found in moist soils on shores in meadows, fens especially in alkaline areas.

Recently discovered in Riversdale area of Colchester Co.

Ranges from NL and NS across the country and south to CA, WY, IL and PA.

STATUS: ORANGE-listed for Nova Scotia.

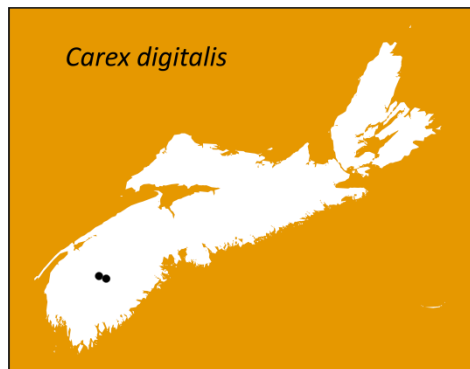
## Section CAREYANAE

The plants are densely or loosely cespitose arising from short rhizomes. Culms may be brown or purple at base. Leaves are often wider than 10 mm and the cauline leaves are sometimes bladeless. Inflorescences are racemose, with 3–6 spikes. The bracts may be leaflike or bladeless. Lateral spikes are pistillate, frequently basal, and sometimes with 1–2 staminate flowers proximally. Spikes are pedunculate,. The terminal spike is staminate . Perigynia are ascending, distinctly marked by at least 8-veins. They are sessile and glabrous; beak less than or more than 5 mm, not forked. There are three stigmas. Achenes are trigonous, smaller than bodies of perigynia; the style is deciduous.

## ***Carex digitalis* Willd.**



Photo by Ross Hall



These plants are densely cespitose. The erect or ascending culms may reach 52 cm. The basal sheaths of the leaves are white or light brown. The blades are up to 5 mm wide, shorter than or overtopping culm. There are usually four spikes per culm, the peduncles of pistillate spikes up to 10.2 cm long. Those of the staminate spike are shorter, 0.4–8.7 cm long. The pistillate spikes are proximal, usually basal and erect, ascending, or drooping. There is a single staminate linear or clavate spike. Pistillate scales are keeled; midribs are green. The margins are hyaline, apex acute, proximal scales of lateral spikes subtending perigynia. The achenes are obovoid, plane or slightly concave at maturity, tightly fitting the perigynia. Styles are slender, ascending through the entire orifices.

Fruits in early summer.

Generally found in forested habitats: deciduous or mixed deciduous over a variety of soils.

In Nova Scotia so far known only from Kejimikujik National Park.

Ranges from NS; QC and ON south to AR and GA.

STATUS: ORANGE-listed for NS.

## **Section CERATOCYSTIS**

A group of very common sedges, easily recognized as a section. All are densely cespitose bearing clusters of dimorphic culms. Some are less than 20cm in height producing smaller perigynia. The taller ones may be up to 40cm tall. The distal spikes are sessile and ovoid. The perigynia are tightly packed, spreading or reflexed, all terminating in long beaks.

## Key to species

A. Pistillate scales greenish yellow.

*C. cryptolepis*

aa. Pistillate scales brownish.

B

B. Staminate spike sessile or on short peduncles <5mm long; cauline leaves nearly as long as the culms; beak of the perigynium >1.3mm long, scabrous.

*C. flava*

bb. Staminate spike on peduncles >4.5mm; cauline leaves less than half the length of the culms; beak of the perigynium weakly scabrous, <1.3mm long.

*C. viridula*

### ***Carex cryptolepis* Mackenzie**

**carex à écailles cachées**



*Photo by David Mazerolle*

Leaves are narrower on this species, otherwise it resembles *C. flava*. The pistillate scales are the same colour and size as the perigynia, yellowish-green (hence “crypto” “lepis” is hidden scales).. Perigynia beaks are glabrous on the margins.

Generally associated with calcareous soils in meadows, fens and streamsides.

Northern in Nova Scotia, from Brier Island to Victoria Co.  
Not known from the Atlantic side.

Ranges from NF to SK, south to IL and NJ.

***Carex flava* L.**

**Yellow Sedge; carex jaune**



*Photo by David Mazerolle*

It is a common species and typical of the section. Forming dense clumps, the culms reach 50cm tall. Pistillate spikes 1–3, sessile and ovoid, usually less than 1cm long.

Inflorescence is burr-like in appearance because of the reflexed perigynia. Staminate spike is solitary, sessile or short-pedunculate, 2cm long. Variable in form, the previous varieties are now included here.

Flowers and fruits throughout the summer.

Found in wetlands and poorly-drained soils.

Common throughout and frequently found.

Ranges from NF to NU, south to IN and VA; YT and AK south to WY and ID.

***Carex viridula* Michx.**



*Photo by Sean Blaney*

A small species, it is very common in its habitat. Cespitose, its leaves are about 2mm wide. The erect pistillate spikes are less than 2cm long, of loosely packed perigynia, each may be up to 4mm long. Yellow in colour, they narrow to angled beaks less than half the length of the body. Several subspecies and two varieties are recognized, all present in NS.





Photo by Roger Lloyd

*Ssp. viridula* has the pistillate spikelets closely associated, arising on culms longer than 5cm. The staminate spike is longer than 7mm.

*Ssp. brachyrrhyncha* (Celak.) B. Schmid has succulent leaves and culms less than 5 cm long. Its staminate spike is less than 6.5cm long. Its distribution is strictly coastal on Brier Island and Eastern Shore islands. It has two varieties, var. *elator* (Schldtl.) Crins of alkaline, lime-rich soils and var. *saxilittoralis* (Robertson) Crins of rock crevices on exposed sea points.

The first variety has the culms to 85cm and the staminate spike's peduncle to 25mm. The latter is much smaller with the culms only to 5cm and the peduncle to 4mm. It is ORANGE-listed in NS. *Ssp. oedocarpa* (Andersson) B. Schmid has the proximal pistillate spike remote or basal. The leaves are dark or olive green.

Fruits and flowers from June to September.

Found in sphagnous swales, stony shores, coastal pastures or brackish pond edges.

Scattered throughout NS.

Ranges from NF to AK, south to NJ, IL, NM and CA; Greenland; Eurasia.

Forms hybrids with *C. flava*.

## Section CHORDORRHIZAE

This section is monotypic and only recently discovered in Nova Scotia. Typically they are not clumping plants. Arising on short rhizomes, plants produce long stolons. Basal leaves are wider than 1mm, M-shaped in outline. The basal leaf sheaths are not fibrous. Spikes count 2–7. The strongly veined perigynia are ascending



and may be unequally biconvex. They are glabrous and abruptly beaked, the beak nearly 1/5<sup>th</sup> of the body or less. The achenes are biconvex and scarcely smaller than the perigynia. Stigmas number 2 and the style is deciduous.

***Carex chordorrhiza* Ehrh. ex L. f.**



Photo by Sean Blaney



Photo by Sean Blaney



The smooth culms range in height from 5–35 cm, and may be scabrous distally. The vegetative stems ascend when young, becoming prostrate stolons at maturity reaching 120 cm. Spikes may be ascending or spreading.. Pistillate scales are brownish with green center and paler margins, ovate to broadly ovate. Staminate scales ovate, apex obtuse to acuminate. Perigynia are dark brown, with 12–28 veins and, glossy. The smooth achenes are silvery brown.

Fruits in early summer.

Grows in wetlands: bogs, fens and marshes.

It has been recently found in the Amherst area of Cumberland Co.

Ranges from NF to AK, south to OR, IL and PA; Greenland. Reported to be uncommon and local and often overlooked.

STATUS: Currently listed as ORANGE for NS.

## Section CHLOROSTACHYAE

Cespitose species arising from short rhizomes, their culms are brown at the base. The leaves are very narrow, no more than 4mm wide, V-shaped in cross-section or channelled. The lateral spikes are pistillate, the terminal spikes functionally staminate (in ours). The lateral spikes are pendent, or spreading and borne on long peduncles. The perigynia are ascending, not speckled nor veined, except for two strong marginal veins, smooth and tapering to a beak. There are three stigmas.

### ***Carex capillaris* L.**

#### **carex capillaire**



Photo by Sean Blaney



Photo by Roger Lloyd

A tussock-forming species, only to 30cm in height, it has mostly basal leaves. Culms are filiform with staminate flowers in the terminal spike. Perigynia, 2.5–3mm long, with beaks to 1mm. Pistillate scales are blunt-tipped, but for a tiny point on the midrib. They are shorter than the perigynia.

Flowering and fruiting in mid-summer.

Grows in cool, seepy rock faces, crevices.

Known only from Cape d'Or, Cumberland County and in northern Cape Breton.

A circumboreal species, ranging south in North America to NV, NM and NY.

STATUS: YELLOW-listed.

## Section CLANDESTINAE

The section is typified by having its culms red-purple at the base. The widest leaves are 2–4mm wide, with the distal leaves often bladeless. The leaf sheaths are also purple-tinged. The inflorescence is a raceme of 2–6 spikes. The lateral spikes are usually pistillate or androgynous and may be basal. The terminal spike is staminate or androgynous. The proximal pistillate scales are brown or black. The perigynia are veinless or strongly ridged on the margins. The apex is strongly contracted to a beak and pubescent. Stigmas number 3–4.

### *Carex pedunculata* Willd.

#### carex pédonculé



Photo by Sean Blaney



Photo by Sean Blaney

The culms may reach 28cm in height. Leaves are long, stiff and mostly basal. Cespitose, the plants are distinctive in having the lower pistillate spikes on slender branches, buried amongst the leaves. Pubescent perigynia are obovate, the hairs short, tapering to a short beak.

Flowering and fruiting from April through early July.

An early colonizer in calcareous areas.

Limited to the northern side, local from Digby Neck to northern Cape Breton.

Ranges from NF to BC; south to SD, AL and GA.

## Section DEWEYANAE

These species are cespitose, forming loose or dense clumps. The culms are brown at the base. Spikes 3–9, the lateral pistillate or gynaeandrous, their scales white to castaneous. Margins of the scales are hyaline, the

midvein is green, ending in an acute apex. The perigynia are erect or ascending, sometimes spreading and beaked. There are two stigmas. The deciduous style is enlarged at the base.

#### Key to species

Lowest bract under the inflorescence not conspicuous, shorter than the lowest spike; perigynia with strong ridges on inner and outer surfaces. *Carex bromoides*

Lowest bract conspicuous, longer than the lowest spike; perigynia weakly nerved on the outer surface only. *C. deweyana*

#### ***Carex bromoides* Willd.**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Culms are scabrous above, bearing no involucre bracts below the spikes. The perigynia are lanceolate, 4.5–6mm long, and with strong ridges on both surfaces.

Flowering and fruiting from May through July.

Grows in wet areas in forests and swamps.

Locally abundant from Annapolis County to Cape Breton.

Ranges from NS to ON, south to TX and FL; Mexico.



***Carex deweyana* Schwein.**  
**carex de Dewey**



*Photo by Sean Blaney*

This sedge has weak, lax culms, The spikes produce plump perigynia, without hyaline margins. They are loosely arranged in the spikes, about 4.5mm long with long beaks. There are no nerves or ridges on the inner face. Achenes fill only the upper portion of the perigynia.

Flowers and fruit produced from May until August.

Habitat is generally alkaline or calcareous in open woods, on banks in fertile forests.

Spread from Annapolis and Queens counties to northern Cape Breton.

Found across Canada and south to NV, NM and NJ.

## **Section DISPERMAE**

Represented by a single distinctive species, it is found in North America and Eurasia. Plants form loose clumps, the culms are brownish at the base and very slender, rising above the leaves. The spikes are androgynous, 1-6 and bear only bristlelike bracts. The widely spaced spikes are few-flowered.

***Carex disperma* Dewey**



*Photo by David Mazerolle*

A slender cespitose plant, culms are weakly erect. Leaves are narrow from culms to 60cm tall. Usually the flowers arise in clusters of fewer than three, with up to five spikes per culm. The pistillate scales are oval, translucent white with green centres, and long-pointed. They are shorter than the perigynia.

Flowers and fruit produced until August.



Shady moist woods, wooded swamps. Common on coniferous sites that have been cleared.

Ranges from Annapolis and Lunenburg counties to Cape Breton.

Elsewhere from NF to AK, south to NJ and CA; Eurasia.

## Section GLAREOSAE

Sedges of this section are cespitose and rhizomatous or stoloniferous, arising on culms with fibrous strands of persistent dead leaves. Their inflorescences are racemes of widely spaced spikes, subtended by scalelike or bristlelike involucral bracts. Perigynia are erect or ascending and veined on both surfaces. Beaked or beakless, they are usually smooth. The apex may be entire or bifurcate. Stigmas number two. Primarily, they are plants of woodlands, fens and bogs in Nova Scotia with the exception of *C. mackenziei*).

### Key to species

- |   |                        |
|---|------------------------|
| A. Spikes widely distant; proximal bract long and bristlelike, exceeding the sparsely flowered inflorescence; flowers 1–5 per spike.                          | <i>Carex trisperma</i> |
| aa. Spikes closely associated, at least at the top; proximal bracts scalelike or bristlelike but shorter than the inflorescence; spikes with several flowers. | B                      |
| B. Plants loosely cespitose; scales white-hyaline; perigynia without beaks or nearly so.  | <i>C. tenuiflora</i>   |
| bb. Plants loosely or densely cespitose; scales green or brown; perigynia beaked.   | C                      |
| C. Terminal spike clavate, at least half of the length staminate; scales equal to or longer than the perigynia.   | <i>C. mackenziei</i>   |
| cc. Terminal spike scarcely clavate; staminate for <1/2 its length; scales shorter than the perigynia.  | D                      |
| D. Leaves green-yellowish green; perigynia loosely spreading, beaked; beak abaxial suture visible.  | <i>C. brunnescens</i>  |

dd. Leaves gray-green; perigynia appressed-ascending; short-beaked; suture barely visible.

*C. canescens*

***Carex brunnescens* (Pers.) Poiret**  
**carex brunâtre**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Densely caespitose this slender species may reach 90cm in height. The culms are erect or ascending and exceed the height of the leaves, which are less than 1mm wide. The inflorescence is to 7cm long, with 5–10 spikes, each with fewer than 10 plump perigynia. Staminate flowers are nearly obscure, found beneath the perigynia on the terminal spike. Our plants may be divided as follows:

ssp. *brunnescens* has the culms nodding or erect and the leaves >1.5mm wide while ssp. *sphaerostachya* (Tuckerm.) Kalela has the culms ascending or arching and the leaves <1.5mm wide.

Flowering and fruiting to August.

Acidic soils in moist open forests and thickets.

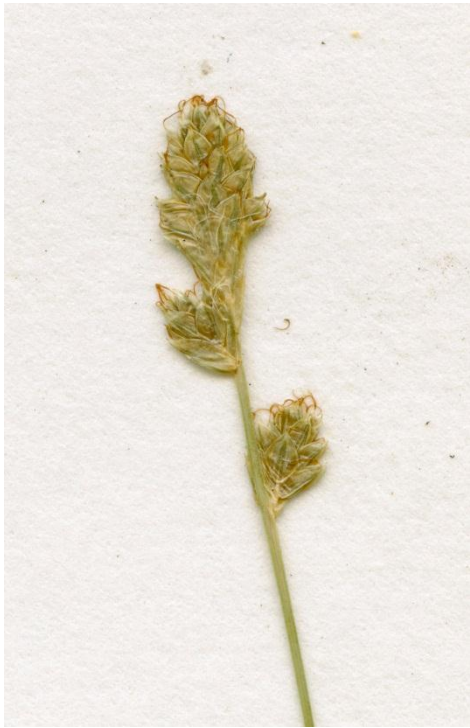
Scattered in southern NS and common from Kings to northern Cape Breton.

Ranges from NF to AK, variously south to NV and GA. Greenland; Eurasia.

***Carex canescens* L.**  
**carex blanchâtre**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

The largest and most common species of this section in Nova Scotia, it grows to a height of 70cm. The inflorescence is comprised of spikes crowded with perigynia. The terminal spike has a few staminate flowers at its base.

Both North American subspecies are found here. Ssp. *canescens* has its culms ranging in height from 15–60cm, with all its spikes but for the lower, closely associated on the culm. Ssp. *disjuncta* (Fern.) Toivonen has culms from 30–90cm tall and all but the distal spikes, remote, at least 2–5cm apart. Most of our material seems to belong to the latter subspecies. Ssp. *canescens* has been collected only from Homeville, Cape Breton.

Fruiting from May until August.

Found in wooded swamps and bogs.

Common throughout the province.

Ranges across the continent, south to CA, NM and variously south in the east to SC; Greenland and Eurasia.

***Carex mackenziei* Krecz.**

**carex de MacKenzie**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

Very slender in growth, this sedge ranges from 10–40cm in height, bearing leaves 1–3mm wide. Both stolons and rhizomes are present, the latter short, the former very long. Distinctive is the presence of staminate scales at the base of the terminal spike. Pistillate scales are reddish brown, nearly obscuring the gray-green perigynia. Their centres are pale. There are often reddish dots covering the surface of the perigynia, which tend to age to a paler brown. The grayish green leaves do not exceed the height of the culm.

Fruiting from June through August.

around the heads of saltmarshes or bordering brackish ponds.

Uncommon at scattered localities around the coast.

Ranges from NF to AK, south to BC and ME; absent from YT. Greenland; Eurasia.

***Carex tenuiflora* Wahl.**

**carex ténuiflore**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

Arising from long slender rhizomes, this loosely cespitose species produces weakly erect culms 10–50cm tall. Spikes 2–4, are closely spaced, forming an ovoid inflorescence. Each spike produces 10–15 perigynia. The pistillate scales have green centres and about equal the perigynia in size.

Fruiting from May to August throughout its range.

Found in wet woods, bogs and fens where pH is higher

So far local on Nova Scotia and limited to Little Harbour, Richmond Co.

Circumboreal, south to NY, OH and WA; CO.

STATUS: ORANGE-listed for NS.





***Carex trisperma* Dewey**  
***Carex trisperma***



*Photo by David Mazerolle*



A diffuse plant, this almost unmistakable sedge is cespitose. Its filiform culms are 20–30cm tall. Leaves are mostly basal, 1–2mm wide and shorter than the culms. Inflorescence is 5–10cm long, with only 1–3 spikes, each producing 1–4 perigynia. The lowermost spike is subtended by an involucral bract, 1–2cm long. Pistillate scales are ovate, acutely pointed and pale with green centres, shorter than the perigynia. Two varieties are present. Var. *billingsii* OW Knight is sometimes separated on its even smaller habit. Both forms occur here, with this variety perhaps found in more open organic soils of some wetlands.

*Carex disperma* is often found amongst this one. The two species are similar.

Fruiting from June to August.

Bogs, swamps and swampy forest, usually in the shade.

Scattered throughout.

**Section Granulares** is not included in the keys to sections. Two species were historically reported from Nova Scotia. Only the *Carex granularis* Muhl. Ex Willd. Record is supported by a collection, from Paradise, Annapolis Co. *Carex crawei* Dewey was proposed as present by a previous author (Scoggan, 1979). Both are calceophiles, with reddish-brown or yellowish perigynia, loosely enclosing the achenes. The lateral spikes may bear 25 or more perigynia.

## Section GRISEAE

This section of sedges may be caespitose and is rhizomatous. The culms are brown or purplish at the bases. The basal sheaths of the leaves are not fibrous. Their fronts are membranous, the blades M-shaped in cross-section when young. Blades are less than 6mm wide. The racemes have 3–6 spikes with a long sheathing leafy bract below. Pistillate spikes are lateral and there may be 1–2 basal spikes. The terminal spike is staminate. The perigynia are yellowish, ageing to dark brown. They are ellipsoid and glabrous, beaked or beakless. The lower pistillate scales are awned. Stigmas number three.

### *Carex conoidea* Willd.

#### carex conoide



Photo by David Mazerolle

A caespitose species and our only species of the section in Nova Scotia. It is 20–30cm tall, producing several pedunculate spikes, 1–2cm long. The ellipsoid perigynia are 3–4mm long, strongly nerved.

Habitat preferences include sterile and peaty meadows, fields and headlands.



Photo by Roger Lloyd

It is frequent from Yarmouth to Antigonish counties, but merely scattered about northern Cape Breton.

Ranges from NF to MB, south to MO and NC; AZ.

## Section HELEOGLOCHIN

These sedges are densely caespitose, producing short rhizomes. The culms are brown to dark brown basally and less than 1mm wide at the top. The basal leaf sheaths are not fibrous and may be spotted red or copper on the fronts. Their blades are glabrous. The compound inflorescences are panicles of numerous spikes. The bracts are awl-shaped, scalelike or bristlelike, or absent. The lateral spikes are sessile and functionally pistillate, the terminal spikes are androgynous. The pistillate scales are acute or cuspidate. The perigynia are spreading and strongly veined on the abaxial surface, leathery in texture. Their margins are angled, glabrous, and abruptly beaked.

### Key to species

Inflorescence little interrupted; mature perigynia nearly black.

*Carex diandra*

Inflorescence flexuous and interrupted; mature perigynia brownish.

*C. prairea*

***Carex diandra* Schrank**

**carex diandre**



*Photo by David Mazerolle*

Slender and erect, the culms may reach 60–90cm in height. The inflorescence is 3–4cm long, comprising 3–10 compact spikes, scarcely separated. Perigynia darken in colour with age. The leaf sheaths are white, coppery towards the margins, where they are conspicuously spotted red.

Fruiting from late May through August.

Freshwater marshes, bogs and cat-tail stands.

Northern in NS, where it is common, from Digby Neck to northern Cape Breton.

Ranges from NF to YT, south to CA, NM, MO and MD; Eurasia; New Zealand.

***Carex prairea* Dewey**

**carex des prairies**



The spikes are looser in this species than in *C. diandra*, their culms standing 50–100cm tall. The proximal spikes are widely separated. Leaf sheaths are strongly coppery towards their apices.

Fruiting from late May to July.

Grows in habitats such as cat-tail swamps.

A single record is extant from Centreville, Kings Co.

NS to BC, south to ID and VA

STATUS: ORANGE-listed in NS.

**Section HIRTAE** is not included in the key. The single species remaining in this section, *Carex hirta* L., has a distribution in Nova Scotia limited to a single locality, Annapolis Royal. Its culms are strongly three-angled, with their bases brownish purple. The leaves and sheaths are pubescent, the sheaths with tufts of hairs at their openings. Scales are also hairy. This sedge grows on dry sandy soil as on railroad embankments and in nearby fields.

## Section HIRTIFOLIAE

Plants form short rhizomes and loose clumps. The culms are reddish brown at the base. The pilose leaves are ridged on the adaxial surfaces by two prominent lateral veins. The basal sheaths are not fibrous. Racemes have 2–5 spikes, the nearly sessile lateral ones are pistillate. The terminal spikes are staminate. The ascending perigynia are nearly veinless, although their margins are strongly ridged. They are pilose and beaked, the beak bitoothed. Stigmas number three.

### *Carex hirtifolia* Mackenzie

#### carex à feuilles poilues



Photo by Sean Blaney

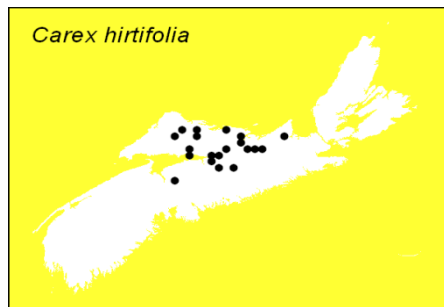
This sedge is a lax pilose species, 30–60cm tall, its culm is distally scabrous. The leaf blades are to 8mm wide, also pilose. The trigonous perigynia are finely pilose, their scales prominently awned. The terminal spikes are 20mm long and only 3mm wide.

Fruits during May and June.





Photo by Roger Lloyd



Habitat includes calcareous regions in thickets, deciduous forests and floodplains.

Scattered around the lowlands in the central counties as at Shubenacadie and Brookfield. Also along the Meander and Herbert rivers, Hants Co.

Ranges from NS to ON, south to KS, AR and VA

## Section HYMENOCHLAENAE

Colonial or merely densely cespitose, the plants arise on short rhizomes, both vegetative and flowering. The culms are often maroon at the base, less frequently brown or pale green. The lowermost basal leaves are generally without blades, sometimes fibrous. Widest leaves are less than 13mm across. When young the leaves have two lateral veins more prominent than the midvein. The racemes include 3–7 spikes, subtended by an involucral bract. The lateral spikes are pedunculate and pistillate. Terminal spikes are erect and functionally staminate (gynaecandrous in *C. gracillima*). The proximal pistillate scales are green with broad hyaline margins, sometimes awned; the margins are sometimes ciliate. The perigynia have two marginal ridges, 2–10mm long, much longer than wide. They may be beaked or beakless, smooth or pubescent, the orifice entire or bitoothed.

#### Key to species

- A. Perigynia >5mm long, narrowly lanceolate to ovoid; beaks may be elongate;  
leaves <5mm wide; achenes stalked. *Carex debilis*
- aa. Perigynia mostly 5mm or less, beakless or with a beak shorter than the body,  
leaves to 12mm wide; achenes not stalked. B
- B. Terminal spike gynaeandrous. *C. gracillima*
- bb. Terminal spike staminate. C
- C. Pistillate spikes linear; perigynia distinctly stipitate;  
leaf blades smooth. *C. arctata*
- cc. Pistillate spikes short-cylindric; perigynia acute at the  
base but not stipitate; leaf blades pilose. *C. castanea*

#### ***Carex arctata* Boott**

#### **carex comprimé**



Photo by Martin Thomas

The basal leaves of this densely cespitose species are wide at the base, often exceeding 1cm. Their sheaths are dark maroon to purple. The 2–5 lateral spikes are linear like *C. debilis*, but the achenes are not stipitate. Peduncles are shorter than the spikes, to 3cm. Scales whitish with dark green centres. Green perigynia are often marked with red spots.

Grows in shady sites in thickets, on forested slopes.

Common on the northern side from Digby to northern Cape Breton. Not collected along the Atlantic coast.

Found from NF to MB, south to NC and MN.

***Carex castanea* Wahl.**

**carex châtain**



Photo by David Mazerolle



Photo by Roger Lloyd



A loosely cespitose sedge, it arises on long slender culms to 90cm, much taller than the leaves and maroon at the base. The short tubular pistillate spikes are distinctive, arising on threadlike peduncles to 2cm long. The scales are chestnut coloured. Leaves are pilose. Perigynia are red-spotted and bear two ribs and several veins.

Usually in swamps and wet meadows, cliff crevices and ledges.

Collected from northern Cape Breton.

Ranges from NF to MB south to MN and NY.

STATUS: ORANGE-listed for NS.

***Carex debilis* Michx.**



Photo by David Mazerolle

A densely cespitose plant it is without the wide basal leaves of *C. arctata*. Culms may reach 1m in height and are dark maroon at the base. The lateral spikes, 2–5, are borne on slender peduncles to 5cm long. The achenes are stipitate, the stipe about 1mm long. Pistillate scales are white hyaline, with a broad green midrib. Ours belong to var. *rudgei* Bailey which has the lanceolate perigynia abruptly contracted to a beak and the scales with the margins reddish-streaked.

Flowers fruiting throughout the summer.

Open canopy, forests and meadows.

Scattered to common throughout.

Ranges from NF to ON, south to TX and FL.

***Carex gracillima* Schwein.**

***Carex filiforme***



Photo by Alain Belliveau

Tall and slender, this cespitose sedge may reach 80cm tall. Like those species above, the culms are purplish at the base. The lateral spikes are linear and lax, 3–5cm long and borne on short filiform peduncles. The terminal spike has a few pistillate flowers distally (gynaecandrous). The ellipsoid perigynia are beakless.

Flowering and fruiting from May to July.

Mesic forests, wet meadows or roadsides.



Found throughout, but common eastward, becoming less frequent westward. Absent from the southwestern counties.

Ranges from NF to MB, south to MO and GA.

*Photo by Ross Hall*

## Section LAXIFLORAE

These are densely caespitose woodland plants. Erect culms are brown or purple at the base. Tall species, they produce 3–6 erect pedunculate spikes, the terminal staminate. Perigynia are erect, and usually bear a short beak. They are yellow-brown to darker brown at maturity. The scales are acute or awned. Mature and ample inflorescences are required to confirm identity to species.

### Key to species

A. Perigynia with 8–18 veins, 2–3 prominent.

*Carex leptoneura*

aa. Perigynia with >22 veins, all prominent.

B

B. Basal leaf sheaths purple or purplish tinged.

*C. ormostachya*

bb. Basal leaf sheaths brown, not purplish.

*C. laxiflora*



***Carex laxiflora* Lam.**

**carex laxiflore**



Photo by Roger Lloyd



This species has short erect spikes, borne on densely tufted culms. The leaves are up to 2.6cm wide and sometimes appear corrugated. The perigynia are strongly nerved, 5–20 per spike and with straight beaks. Achenes are broadly ellipsoid.

Fruiting until early summer.

Frequents damp clearings and open rocky forests.

Collected from Annapolis to Hants County and Isle Haute.

Ranges from NS; QC to ON, south to FL and LA.

STATUS: ORANGE-listed for NS.

***Carex leptonervia* Fern.**  
**carex leptonervé**



Plants produce ascending culms, rarely decumbent and usually densely cespitose.. The leaves are flat with strong midveins and weaker lateral veins, serrulate. Overwintering leaves may be glabrous. The second distal bract often exceeds the height of the terminal spike. Spikes are short and crowded, four per culm. The terminal one arises from the same node as the lateral one and is also exceeded by the bract. Perigynia 5–14 per spike, overlapping or proximate, appear to have only 2–3 nerves, their beaks curved.

Flowers and fruits until July.

Rich and fertile deciduous or mixed forests and thickets.

Common throughout although less frequent in southwestern regions.

Ranges from NF to SK south to MN, TN and NC.

***Carex ormostachya* Wieg.**

(=*C. laxiflora* var. *ormostachya* (Wieg.) Gleason)

carex en chapelet



Photo by Roger Lloyd

A cespitose species producing tufts of culms, more or less ascending or erect. The basal leaf sheaths are purple, with the blades also erect or ascending. The midvein is prominent above and the lateral veins are prominent below. The inflorescence has 4–5 lateral spikes to 6cm long and a shorter terminal spike. Pistillate scales are aristate or apiculate. Spikes produce 6–18 perigynia per spike, separate or overlapping and with 30 or more prominent veins.

Grows in sandy or gravelly soils in mixed deciduous forest.

Known only from one locality: Rockland, Kings Co.

Ranges from NS to ON, south to MN and PA; VA.

STATUS: ORANGE-listed in NS.

## **Section LEPTOCEPHALAE**

A monotypic section, it contains a sedge of the widest range of any of our North American species. It is cespitose, the culms erect and brown at the base. The leaves are smooth. One spike per culm is produced with no bracts subtending it. The spike is androgynous. The pistillate scales are short-awned or acute. The ascending perigynia are weakly veined and have no beaks.

***Carex leptalea* Wahl.**  
**carex à tiges grêles**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

Arising from mat-forming rhizomes, the hairlike culms are loosely erect, to 70cm. There are only 1–2 cauline leaves. The oblong spike has 2–7 staminate flowers and 2–9 pistillate flowers. Pistillate scales are only half as long as the beakless perigynia. Staminate scales are hooded. The perigynia are overlapping and marked by a pair of marginal ridges and many finer veins.

Fruiting into August.

Grows in wet meadows, wooded swamps or seepy slopes.

Common along the northern side of the province to northern Cape Breton Less frequent on the Atlantic shores.

NF to AK south to FL and CA; St. Pierre-et Miquelon. Absent from the arid southwest.

## Section LEUCOGLOCHIN

Rhizomatous species, the plants may be cespitose. Culms are pale brown at the base. The basal sheaths are not fibrous and blades are smooth. The inflorescence is a terminal spike without involucre bracts. Pistillate scales are deciduous and shorter than the perigynia, which are narrowly beaked and glabrous. Stigmas number three; style is persistent. Generally these are plants of arctic, alpine or boreal conditions.

### ***Carex pauciflora* Lightf.**

#### **carex pauciflore**



*Photo by Sean Blaney*

Plants produce one or more culms, to 40cm tall. The leaves are short, 1–2mm wide. The inflorescence is a spike of 1–6 staminate flowers and 2–6 pistillate flowers. The reflexed perigynia are narrowly lanceolate, 8–10mm long.

Flowers and fruiting from June to September.

Found in sphagnum bogs, dry heaths and barrens, along the coast.

Common throughout but most collections are from the Atlantic side.

Ranges across the continent, south to WVA, IN and WA; Eurasia.



*Photo by Roger Lloyd*



## Section LIMOSAE

The sedges included here are low-growing plants, to 60cm tall, arising from long rhizomes. Their roots are covered by a dense yellow tomentum. Culms are a reddish brown or purplish at the base; the leaves are smooth and sometimes involute. The inflorescence comprises drooping pedicels bearing pistillate spikes 1–1.5cm long. The broadly ellipsoid perigynia are beakless or with very short ones. The scales are at least equal in length to the perigynia or obscuring them. Styles may be deciduous or persistent and sometimes exerted from the orifice.

### Key to species

Perigynia with minute beak 0.5mm; leaf blades bluish or grayish green, margins involute; culms without persistent leaf bases.

*Carex limosa*

Perigynia not beaked; leaf blades green, margins involute, dead leaf remains present.

*C. rariflora*

### ***Carex limosa* L.**

#### **carex des boursiers**



Photo by Sean Blaney



Culms range from 20–60cm tall and they bear whitish involute leaves. The old leaves are not persistent at the base. The pistillate spikes are lateral, drooping on slender pedicels. The staminate spike is terminal and nearly linear, barely wider than the culm, 3.5cm long. The perigynia are beaked and plump, almost obscured by the acute brownish scales. The involucral bract does not exceed the height of the inflorescence.

Flowers and fruits during July and August.

Found in floating mats on pond edges, in swamps or wet bogs.

More common in Cape Breton, but found as far south as Kings and Lunenburg counties.

Photo by Roger Lloyd

Ranges from NL to AK, south to DE, NM and CA; Eurasia.

***Carex rariflora* (Wahlenb.) JE Smith**  
**carex rariflore**



Photo by David Mazerolle

A shorter species than *C. limosa*, it bears a solitary culm to 35cm. It has reddish or purplish leaf sheaths. The leaves are also whitish and involute, but scabrous distally. Dead leaves are persistent at the base of the plant. There are 1–2 lateral pistillate spikes, with purplish brown scales, sporting a greenish midvein and obscuring the perigynia. Nerves on the perigynia extend to the summits; there are no beaks.

Summer-fruiting.

Limited to fens and calcareous bogs and heaths.

Known from Scatarie Island and Baleine, Cape Breton Co.

Ranges from MF to AK, south only to Lake Ontario and ME.

STATUS: ORANGE-listed for NS.



Photo by Roger Lloyd



## Section LUPULINAE

Densely cespitose, these species reach 50–80cm tall on culms, purplish or reddish at the base. The leaf sheaths and larger leaves are septate. The racemes contain from 2–6 spikes, with the lateral spikes pistillate and the terminal spike staminate or androgynous. Generally the pistillate spikes are globose, cylindrical and pedunculate. Pistillate scales may be awned or merely acute, ranging from 1–2cm long. The beak is conspicuously bitoothed. The styles are persistent. Stigmas number three.

### Key to species

Sheath of the distal leaf (not involucral) <1.5cm; beak of the perigynium <4.2mm long; achenes elliptic; spikes ovoid or nearly round.

*Carex intumescens*

Sheath of the distal leaf >1.7cm; beak of the perigynium >4.5mm; achenes nearly triangular; spikes nearly cylindric.

*C. lupulina*

***Carex intumescens* Rudge**  
**carex gonflé**



*Photo by David Mazerolle*



A leafy species, the inflorescence is most noticeable, reaching 15cm in length on robust individuals. Its 1–4 pistillate spikes carry from 3–12 flowers in a spiky globose display. Perigynia are smooth with a shiny lustre and several ridges. The staminate flowers are terminal and nearly linear. The pistillate scales are 1–3 nerved, acute or awned.

Flowering and fruiting commences as early as May.

Wet mossy woods and intervals.

Scattered to common.

Ranges from NF to MB, largely south to FL and TX.

Photo by Roger Lloyd

***Carex lupulina* Willd.**  
**carex houblon**



Photo by Sean Blaney



Photo by Roger Lloyd

Variable in size, although the inflorescence may reach 40cm tall. There are 1–2 staminate spikes. Pistillate spikes are tightly packed cylinders of up to 80 flowers. The perigynia are not obscured by the lanceolate awned scales, 1–7-nerved. Perigynia have long beaks and are clearly nerved.

Flowers and fruits in June.

Found in muck soils, in forests, swamps, swales and intervals.

Scattered and local from Shelburne to Cumberland Co.

Ranges from NS to ON, south to FL and TX.



## Section MULTIFLORAE

Plants with slender culms 1mm wide or less, arise from loose clumps. They are usually brown at the base. Basal sheaths are fibrous, their fronts membranous and often red-spotted. The blades are smooth. The inflorescence is paniculate, a condensed cluster of 8–20 androgynous spikes and usually more than 15. The pistillate scales are yellow or brown and with three midribs in the centre. The apex is acute or awned. The perigynia are ascending, spreading at maturity, their margins acutely angled. Beaks are bitoothed and smooth.

### ***Carex vulpinoidea* Michx.**

#### **carex vulpinoide**



*Photo by Sean Blaney*

A densely cespitose sedge, its culms may reach 1m in height. Leaves often exceed the culm in height. Inflorescence is 7–10cm long, with at least 12 tightly compressed spikes, barely separable distally. Pistillate scales are long-acuminate, a key character.

Flowers and fruits from June to August.

Saturated soils, seasonally flooded land.

Scattered to common in the western counties. Two Cape Breton collections.

Ranges from NF to BC, south to FL and CA.



*Photo by Sean Blaney*

## Section OVALES

Difficult to separate, these sedges require magnification to view the mature perigynia needed to make an identification. It is preferable to select perigynia from the middle of the spikes for observation of traits and measurements.(Voss & Reznicek; Arsenault, et al.....). Usually densely cespitose, culms arise from short rhizomes. They are brown at the base. The inflorescence is a raceme of 2–20 spikes, subtended by a scalelike or bristlike bract, less than 5cm long and sometimes taller than the inflorescence. The lateral spikes are sessile, pistillate or gynaeandrous and the terminal spikes, gynecandrous. The pistillate scales are acuminate, obtuse or awned. Perigynia are erect or spreading, smooth, sometimes veined; their beaks are bifurcate . Stigmas number two; styles are deciduous.

We acknowledge the difficulty and ambiguity in the following keys, given the easily accessible tools available to the field botanist.

### Key to species

(from FNA, 2002)

- A. Pistillate scales equal in length to perigynia or exceeding them, obscuring the beak; apex not awned. B
  - B. Pistillate scales as wide as the bodies of the perigynia, covering them; lowest bract subtending the inflorescence wide and flat at origin and almost as long as the inflorescence. *Carex adusta*
    - aa. Pistillate scales narrower than the bodies; lowest bract insignificant and not as above. C
      - C.Beak of the perigynium cylindrical and unwinged, the distal 0.4mm length entire. *C. ovalis*
      - cc. Beak of the perigynium flat, ciliate or serrulate its length. D
        - D. Main leaves stiff, glaucous, auriculate, maritime habitats. *C. silicea*, in part
        - dd. Main leaves softer, green, not auriculate, not limited to maritime habitats. E
          - E. Perigynia ascending or spreading, nerved on the adaxial surface, finely papillose; spikes 7–15, the distal ones closely associated. *C. argyrantha*
          - ee.Perigynia erect-ascending, may be veinless on adaxial surface or with uneven veins, smooth; spikes <7, distal ones often separated. *C. siccata*
    - aa. Pistillate scales shorter than the perigynia, apex narrower than the beaks and sometimes awned. F
      - F. Pistillate scales in the lower half of the spikes acuminate, subulate or awned. G

G. Perigynia >2.5 times longer than wide, bodies lanceolate, <2mm wide.	H
H. Perigynia <1.3mm wide; achenes 0.6–0.8mm wide; inflorescence dense, lower internodes 2–3mm.	<i>C. crawfordii</i> , in part
hh. Perigynia >1.2mm wide; achene 0.7–1.1mm wide; inflorescence may be dense or open; lowermost internode 2–17mm.	<i>C. scoparia</i> , in part
gg. Perigynia <2.2 times longer than wide, bodies not lanceolate, >1.8mm wide.	I
I. Achenes < 1.4mm long and < 0.8mm wide; inflorescence compact, headlike erect or stiffly bent.	<i>C. scoparia</i> , in part
ii. Achenes >1.5mm long and >0.8mm wide; inflorescence elongated, arched or nodding, lowermost internode >5mm.	<i>C. hormathodes</i>
ff. Pistillate scales in the lower half of the spike acute, obtuse or acuminate or inconspicuous.	J
J. Perigynia 2mm wide, or less.	K
K. Perigynia thin, not winged to the base; leaf sheaths expanded towards the apex, winged, the wing continuous with the midvein and edges of blade.	L
L. Inflorescence straight, spikes overlapping; perigynia more than 40; leaf sheaths firm at summit.	<i>C. tribuloides</i>
II. Inflorescence flexuous; lower spikes distant; perigynia <40; leaf sheaths firm or fragile.	<i>C. projecta</i>
kk. Perigynia thicker, winged to base; leaf sheaths not expanded.	M
M. Perigynia >2.5 times as long as wide, lanceolate.	N
N. Inflorescence dense, erect; lowest internode 3mm.	<i>C. crawfordii</i> , in part
nn. Inflorescence dense to open, lax or arching; lowest internode >2mm.	O
O. Pistillate scales acuminate; perigynia ascending; inflorescence arching.	<i>C. scoparia</i> , in part
oo. Pistillate scales acute; perigynia spreading; inflorescence nodding.	<i>C. tenera</i>
mm. Perigynia <2.5 times longer than wide; body various but not lanceolate.	P
P. Perigynium body obovate.	<i>C. longii</i> , in part
pp. Perigynium body ovate or elliptic.	Q
Q. Perigynia veinless; inflorescence <30mm.	<i>C. bebbii</i>
qq. Perigynia with 3 veins; inflorescence 12–60mm.	<i>C. tincta</i>

jj. Perigynia >2mm wide.

R

R. Inflorescence arching or nodding, 2.3–8.4cm; spikes clavate and distant; coastal.

*C. silicea*

rr. Inflorescence erect, 1–4.5cm; base of the spike rounded to acute.

S

S. Perigynia veinless on adaxial surface, widest leaves 3–6mm; sheaths truncate at summit.

*C. cumulata*

ss. Perigynia veined on adaxial surface; leaves 2–4mm at widest; sheaths concave at summit.

*C. longii*, in part

### ***Carex adusta* Boott**

#### **carex brûlé**



Photo by Sean Blaney



Tall and coarse, the culms may reach 80cm. The compact inflorescence is erect, less than 4cm long and subtended by a long bract. Perigynia are widely elliptic, 1.5mm wide and 4mm long. The scales are equal to them in length, but are slightly narrower.

Flowering and fruiting from June to September.

Found in dry, open forest or recent clearings on acidic, gravelly soils. Most frequent after fire

Scattered and not common, from Kejimikujik National Park to Cumberland Co.; northern Cape Breton. Recently collected from Williams Lake area of Halifax Co.

Ranges from NF to BC, variously south to ID and PA.

STATUS: YELLOW-listed in NS.

***Carex argyrantha* Tuckerm.**

**carex argenté**



*Photos by Sean Blaney*



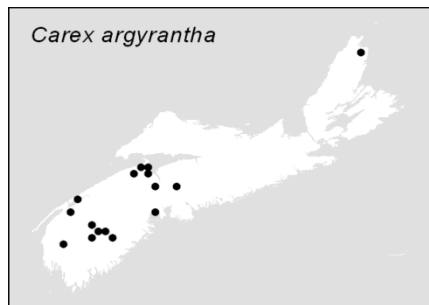
Arising on culms 30–80 cm in height, this sedge produces coarse but compact inflorescences. The distal spikes at least are proximate. Involucral bracts are absent. Ovoid perigynia are silvery green, less than 4mm long and 2.25mm wide. They are strongly veined on both surfaces.

Flowers and fruiting from June to August.

Sandy soils in thickets and clearing; dryish forests.

Distribution is patchy. Occasional from Annapolis and Cumberland counties to northern Cape Breton.

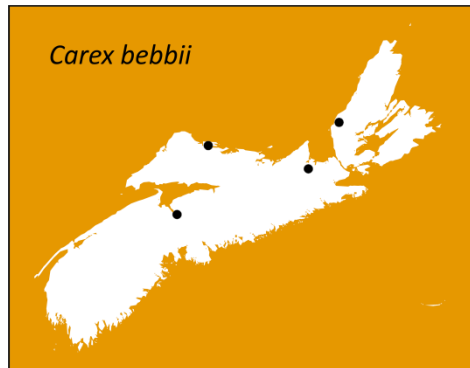
Ranges from NS to ON, south to NC and TN.





***Carex bebbii* (Olney) Fern.**

**carex de Bebb**



Densely cespitose, its culms reach a height of only 60cm. Its inflorescence is crowded and only to 2.5cm long. The small spikes are nearly round, producing widely lanceolate perigynia to 3.5mm long. Pistillate scales are shorter and narrower than the perigynia.

Flowers from June through August.

Alkaline soils in northern areas, usually in poorly drained sites.

Local and rare: Hants Co., Antigonish Co. and Inverness Co.

Ranges from, NF to AK, south to NJ and NV.

STATUS: ORANGE-listed for NS. Change colour

***Carex crawfordii* Fern.**

**carex de Crawford**



*Photo by Roger Lloyd*

Closely resembles *C. scoparia* but for the shorter inflorescence. It measures only 2.5–3cm long, comprising 7–9(14) obovoid spikes. Perigynia are lanceolate but usually only 3–3.5 (4.7) mm long.

Flowering and fruiting from June through September.

Peaty soils in swales and barrens. Damp sands and gravelly edges of lakes and ponds.

Found from Annapolis and Queens counties to Cape Breton.

Ranges from NF to AK, south to NJ and MO and OR.

***Carex cumulata* (Bailey) Fern.**  
**carex dense**



*Photo by Alain Belliveau*



*Photo by Alain Belliveau*



*Photo by David Mazerolle*

Stiffly erect, the culms terminate in an inflorescence measuring 2–4cm tall. Spikes are neat and ovoid, tightly clustered, each rounded at the base. The wide perigynia are 3mm long and nerveless on the inner surface.

Flowers and fruiting from June through September.

Grows in damp, acidic sands or gravels on open barrens, lakeshores and rock ledges.

Known from Yarmouth to Halifax and Cumberland counties.

Ranges from NF to MB, south to NJ and IL.

***Carex hormathodes* Fern.**  
**carex moniliforme**



*Photo by Roger Lloyd*

A slender species from 30–60cm tall, it produces an inflorescence from 4–7cm long. The lower spikes are usually distant. Staminate flowers are borne at the base of the upper spikes. The acuminate and awned apices of the pistillate scales are distinctive features.

Flowering and fruiting from late May through August.

Usually on poorly drained soils near the coast; saltmarshes.

Common.

Ranges from NF to QC, along the coast to NC.

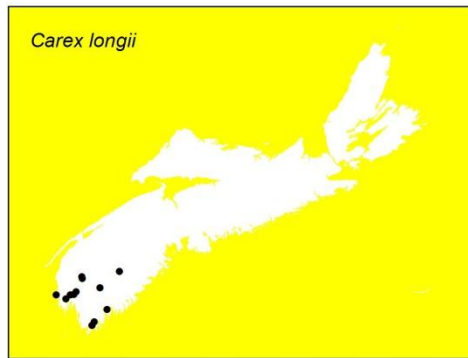
***Carex longii* Mackenzie**  
**carex de Long**



*Photo by David Mazerolle*

A densely caespitose plant, it is distinctive in having its lowermost leaves reduced to scales. The stiffly erect culms exceed the height of the leaves. The spikes are closely associated and the proximal bract below are bristle-tipped and scalelike. The perigynia may have many veins on both surfaces.

Flowering and fruiting mostly in summer.



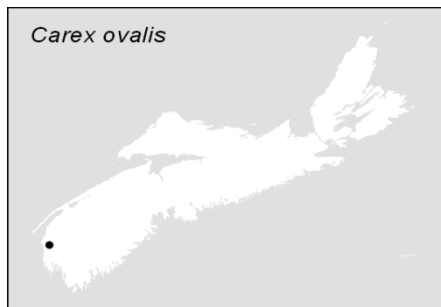
Found in swamps, bogs and other peaty sites near the coast.

Limited to Yarmouth and Shelburne counties.

NS; ON south to TX and FL. WA and OR.

STATUS: YELLOW-listed in NS.

***Carex ovalis* Good.**  
**carex des lièvres**



Cespitose, this sedge arises on slender nodding culms 20–60cm long. The perigynia are widely lanceolate and acuminate. The long beak is round in cross-section at the apex and 4–5mm long. Pistillate scales are brown, about equalling the perigynia in size.

Flowers June to August.

Grows in wet seepy soils, on hillsides or roadsides.

Known only from southwestern counties.

Introduced from Europe and naturalized in Canada. On both coasts from NF and QC south; BC to CA.

***Carex projecta* Mack.**  
**carex à bec étalé**



Tall and leafy, this sedge has a flexuous culm, with the lower spikes distant. Spikes are smaller than most, their lanceolate perigynia spreading.

Flowers and fruits from June to August.

Shaded meadows, thickets and swamps.

Common throughout.

Ranges from NF to SK south to GA; WA.

*Photo by Sean Blaney*

***Carex scoparia* Schkuhr**  
**carex à balais**



*Photo by Sean Blaney*

A variable species, these coarse plants reach only 30–50cm. The inflorescence is 3–5cm long. Spikes are crowded with narrowly lanceolate perigynia, to 6mm long. Under magnification, each perigynium can be seen to have a transparent winged margin.

Flowers and fruit from May to August.

Found in poorly-drained soils in fields and ditches,

Very common throughout and easily the most frequently identified of this section.

Ranges across the continent and south to CA, NM and GA.



*Photo by Roger Lloyd*



***Carex siccata* Dewey**  
**(=*Carex foenea* Willd.)**

**carex sic**

Taller than most Ovales sedges, the culms of this cespitose plant may reach 80cm. The inflorescence is 3–5cm long, with 3–6 coarse and clavate spikes. Staminate flowers are borne basally. The ovoid perigynia measure about 3.3–5mm, and are faintly ribbed on the inner surface. Pistillate scales equal the perigynia in length and nearly equal them in width, basically obscuring them.

Flowers from May to August.

Preferred habitat is dry and sandy soils as on barrens.

Scattered from Yarmouth to northern Cape Breton.

Ranges across the continent, south to WA, AZ and variously so to NC in the east.

***Carex silicea* Olney**

**carex silicicole**



*Photo by Sean Blaney*

A slender plant, its culms are generally less than 60cm tall. The inflorescence is flexuous, 5–7cm long. The prominently clavate spikes may be distant or barely touching. The staminate scales are borne basally. Pistillate scales are glabrous and papery and nearly obscuring the perigynia. The leaves are stiff and involute. The entire plant appears silvery.

Flowers and fruits from June to August.

Grows in sands, of barrier beaches and rocky shores on the coast.

From Yarmouth to northern Cape Breton, where it is associated with the shingle beaches.

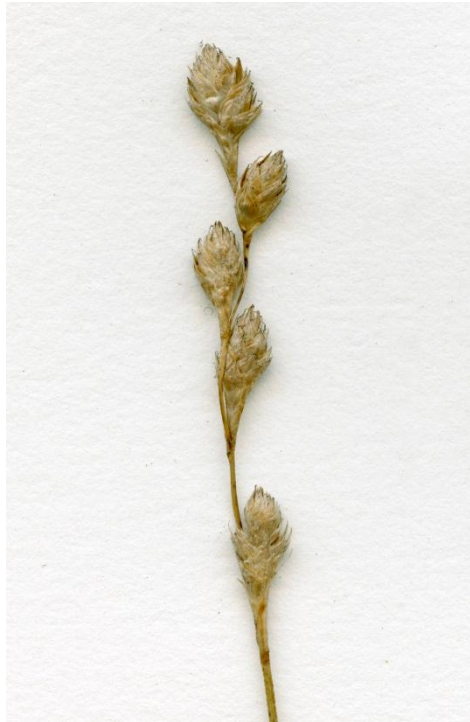
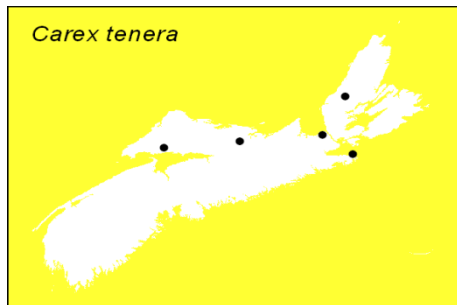


Photo by Roger Lloyd

Ranges from NF to QC, variously south to VA.

***Carex tenera* Dewey**  
**carex tender**



A very slender plant, the culms are flexuous with distant spikes. Perigynia are small, less than 4mm long. They are strongly veined on both surfaces.

Flowers and fruits from May through August.

Wide range of habitats: meadows, forests, moist or dry clearings, woodland vernal pools.

Uncommon and not often collected: mostly from Cumberland to Guysborough counties.

Ranges from NS to BC, south to WA, NM and GA.

STATUS: YELLOW-listed in NS.

***Carex tinctoria* Fern.**  
**carex coloré**



Photo by Roger Lloyd

Variable in height, the culms may be from 30–90cm tall. The tight leaf sheath may be roughened across and the blades are 2–4mm wide. Spikes are ovoid, 4–8 in each inflorescence. The perigynia are loosely ascending, subtended by brown pistillate scales nearly as long as the beaks of the perigynia.

Grows in rich, fertile soils.

So far known only from Bayfield, Antigonish Co.

Ranges from NS to ON, south to WI and CT.

ORANGE-listed for NS. Change map to reflect this



***Carex tribuloides* Wahlenb.**



*Photo by Sean Blaney*

A tall leafy species, resembling *C. projecta*. This species has the spikes closely spaced and crowded with erect lanceolate perigynia. The leaves are wider than those of *C. projecta* and it is less frequently seen.

Flowers and fruits from June to September.

Found in wet forest soils and swales.

Collected from Kings and Queens counties to Cape Breton.

Ranges from NS to MB, south to TX and FL; BC.



*Photo by Roger Lloyd*

## Section PALUDOSAE

These sedges are colonial, and arise from long rhizomes. The culms are reddish or purplish at the base. The basal leaf sheaths are fibrous and often spotted red. Blades and sheaths may be septate, the blades no more than 21mm wide. The inflorescence is racemose, bearing 2–10 crowded spikes. Involucral bracts are leaflike. Lower pedunculate spikes are pistillate with up to 200 perigynia. The distal few lateral spikes and the terminal one are staminate. Pistillate scales are veined, with the margins entire. Their apices are acute to acuminate or short awned. The ascending perigynia are brownish and maybe veined. Beaked, they may be smooth or scabrous. Stigmas number three.

### Key to species

- A. Body of the perigynium glabrous. *Carex lacustris*
- aa. Body of the perigynium pubescent. B
- B. Perigynia 4.5–6.5mm, puberulent. *C. houghtoniana*
- bb. Perigynia <4.5mm, densely pubescent. C
- C. Leaf blades flat or folded into an M, >2.2mm wide, tip not prolonged; midvein forming a prominent and sharply pointed keel. *C. pellita*
- bb. Leaf blades involute to triangular-channelled, <2.2mm wide, may have long filiform tip; leaves and bracts with low midvein, not prominently keeled. *C. lasiocarpa*

### ***Carex houghtoniana* Torr.**

#### **carex de Houghton**



Photo by Sean Blaney

Lateral, triangular culms are up to 80cm tall and scabrous on the angles. The leaves, sheaths and involucral bracts are glabrous in this species. Distal spikes are erect and staminate. Proximal spikes are ascending and pistillate. Beaks of the perigynia are less than half their length and bitoothed. The perigynia are sparsely puberulent.

Grows in sandy soils, along roadsides.





Photo by Roger Lloyd

Scattered localities from Queens to Colchester County.

Ranges from NS to AB, south to NY and MN.

***Carex lacustris* Willd.**

**carex lacustre**



Photo by Sean Blaney

A stout coarse plant reaches to 1m, the leaves are about 1cm wide. The 2–4 cylindrical lateral spikes are pistillate; they are distant. The strongly nerved perigynia are about 5mm long, toothed at the orifice. The involucral bracts exceed the height of the terminal staminate spike.

Flowers and fruits from late May to August.

Strongly colonial, it forms pure stands about the estuarine marshes and brackish swales.

Collected from Queens to Victoria counties.

Ranges from NS to AB, south to KS and TN; ID.



Photo by Roger Lloyd

***Carex lasiocarpa* Ehrh.**



Another tall species, but with fine, narrow leaves. The culms reach upwards of a metre, bearing involute leaves which taper to an acuminate tip. The inflorescence is 6–20cm long. The terminal erect spikes are staminate; the lateral ascending spikes are pistillate. The perigynia are relatively small, less than 4.5mm long. They are densely pubescent. Ours is var. *americana* Fernald.

Flowers and fruits from May through August.

Peaty soils in fens, bogs, swamps, marshes; frequently at the water's edge.

Common throughout.



Photos by Roger Lloyd

Ranges across Canada and south to NC, CO and CA.

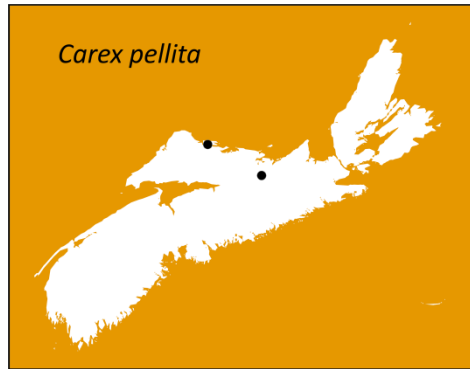
***Carex pellita* Willd.**

***Carex laevis***



Photo by Sean Blaney

A colonial species, arising on long creeping rhizomes, the lateral culms are three-angled and reach 100cm. Their angles may be glabrous or scabrous. The basal leaf sheaths are reddish purple, often fibrillose, with ligules. The flat leaves are keeled at the tip from an extension of the midvein as are the leafy bracts. Like the previous species, the terminal erect spikes are staminate; the lateral ascending spikes are pistillate. The pistillate scales are ovate to lanceolate, acute to acuminate. Perigynia are



densely pubescent obscuring the veins. Firm beaks are bitoothed.

Flowers and fruiting from May to August.

Wet soils in fields, meadows and marshes, especially in calcareous regions under successional conditions.

Known only from East River of Pictou, Pictou Co.

Ranges from NF to YT, south to CA, TX and TN.

STATUS: ORANGE-listed for NS.

## Section PANICEAE

These species may be loosely cespitose or colonial and rhizomatous. The culms are brown or purple at the base. The basal sheaths may be fibrous. The leaf blades have the lateral veins on the adaxial surface more prominent than the midvein and usually less than 5mm wide. The inflorescence is a raceme of 2–4 spikes, subtended by a leafy bract. The pistillate scales are obtuse to short-awned. Perigynia are spreading or ascending, maturing to dark brown and marked with two marginal ribs. Stigmas count three; style is deciduous.

### Key to species

Perigynia strongly ascending, beakless or tapering to a wedge-shaped apex; leaves glaucous and channelled.	<i>C. livida</i>
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Perigynia ascending to spreading, concavely tapering to a deflexed curved beak; leaves flat or folded, herbaceous, not glaucous.	<i>C. panicea</i>
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***Carex livida* (Wahlenb.) Willd.**

**carex livide**



*Photo by David Mazerolle*

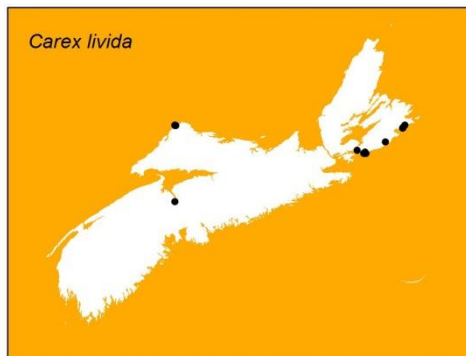
A glaucous plant, its culms may be scabrous just below the inflorescence. The densely flowered pistillate spikes are ovoid. Perigynia are green and unbeaked, but taper to a cuneate apex.

Flowers and fruits produced in early summer.

Habitat preferred is calcareous, bogs and meadows.

Rare and local in NS, collected only in eastern Cape Breton; more recently found on Brier Island (2014), Cumberland and in Kings Co.

Ranges from NL to AK, south to CA, CO and NJ; southward; Europe.





***Carex panicea* L.**

**Carnation sedge; carex faux-millet**



Photo by Roger Lloyd

This species may not be glaucous, although it is distinctively bluish-green. It bears stiff leaves, that are plicate at the base or flat. The culms are 14–75cm tall, with an inflorescence 3–21cm long. Pistillate spikes are ovoid and densely packed. The perigynia are subtended by reddish-purple scales, their midribs green and margins translucent. The tiny beaks of the perigynia are sharply deflexed.

Grassy seeps and peaty shores.

Local. Abundant in Yarmouth Co. and scattered eastward to Antigonish and Cape Breton counties.

Ranges from NF to NJ; Eurasia; Greenland; St. Pierre et Miquelon where it was first introduced to North America.

## Section PHACOCYSTIS

These are rhizomatous sedges on culms coloured brown or reddish at the bases. Leaf sheaths are sometimes red-spotted on the fronts. The racemes generally have 2–8 spikes, the terminal 1–3 are staminate and at least twice as long as wide. The perigynia are erect or ascending, papillose and beaked. The scales are long awned. Stgmas number two.

### Key to species

- |   |                    |
|---|--------------------|
| A. Spikes erect; scales with 1 vein; achenes small, not constricted.                            | B                  |
| B. Beaks of the perigynia twisted at maturity; along streams.                                   | <i>Carex torta</i> |
| bb. Beaks of the perigynia straight at maturity; of peatlands                                   | C                  |
| C. Basal leaves bladeless, remnant of sheath forming a fibrillose ladder around the lower stem. | <i>C. stricta</i>  |
| cc. Basal leaves on the culm with blades; no fibrillose ladder                                  | D                  |

around the lower stem.

D. Culms >50cm tall; perigynia smooth on the upper side. *C. aquatilis*

dd. Culms <60cm tall; perigynia with light ridges on the upper side. E

E. Pistillate spikes crowded in broomlike form; midvein of the scales as wide as the margins. *C. lenticularis*

ee. Pistillate spikes separate; midvein of scales very narrow. *C. nigra*

aa. Spikes pendent (except in *C. recta*); pistillate scales with 3 veins, long-awned; achenes large, sometimes constricted. F

F. Typical of tidal flats, individuals or in small stands. G

G. Spikes pendulous, elliptic; scales long-awned. *C. paleacea*

gg. Spikes erect, long and slender; scales short-awned. *C. recta*

ff. Associated with freshwater habitats; cespitose, >1m in height. H

H. Basal leaf sheaths glabrous on underside. *C. crinita*

hh. Basal leaf sheaths pubescent on underside. *C. gynandra*

### ***Carex aquatilis* Wahl.**

#### **carex aquatique**



Photo by David Mazerolle

Resembling *C. nigra*, it is much taller and more robust, often reaching 1.5m. The perigynia also lack the nerves on the upper side. The lower leaves have blades and form glabrous sheaths. The involucral leaf exceeds the height of the inflorescence. The perigynia are subtended by reddish to purple brown scales.

Flowers in spring producing fruit by mid-summer.

Frequents swamps and bogs in the Cape Breton Highlands; floodplains, meadows and lacustrine habitats in the south.

Common throughout.

Ranges across Canada and south to NC, NM and CA; Eurasia.

***Carex crinita* Lam.**

**carex crépu**



*Photo by Ross Hall*



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

A large cespitose species, individuals range from 40–150cm in height. Leaves reach 6mm in width. The spikes are pendulous; 1–2 terminal spikes are staminate. Perigynia are dull but glabrous, compressed and subtended by scales with long awns. At least one margin of the achene is constricted.

Flowers and fruit from May through September.

Freshwater wetlands, particularly edges of swamps.

Found throughout and abundant.

Ranges from NS to MB, south to GA and TX.

***Carex gynandra* Schweinitz**

**carex gynandre**



*Photo by David Mazerolle*



*Photo by Sean Blaney*  
*Staminate flowers*

Another cespitose species, up to 140cm in height, it bears slightly wider leaves than the previous species, to 10.5mm wide. There are 1–3 staminate spikes and 2–5 pistillate spikes, all lax or drooping. Pistillate scales are awned. The ovate perigynia are scarcely inflated, with up to five ridges on one side. The achenes do not fill the perigynia.

Flowers and fruiting in spring.

Wet soils in swamps and streamsides.

Common throughout.

Ranges from NF to NU. And variously south to AL and GA.

***Carex lenticularis* Michx.**



Photo by Sean Blaney



Photo by Roger Lloyd

Densely cespitose, this sedge is only 20–40cm tall and closely resembles *C. nigra*. The pistillate spikes are clustered together with the lower ones, so that the inflorescence resembles a broom. The central vein of the scale has a wide paler band adjacent to it, ending in an obtuse apex. The perigynia bear 5–7 nerves.

Flowers and fruits in summer.

Limited to gravelly or sandy lakeshores.

While found throughout NS, it is most common from Yarmouth to Halifax.

Ranges from St. Pierre et Miquelon west to AK, south to MA and MN in the east and CA and NM in the west.



***Carex nigra* (L.) Reichard**

**Black Sedge**

**carex noire**



*Photo by Sean Blaney*

One of our most common species, and certainly the most familiar in the section. It ranges from 10cm to 1m in height. The perigynial scales are marked by a very thin midvein and acute apex, purplish brown in colour. The perigynia have but a few nerves on both the outer and inner sides.

Flowers and fruits May to September.

Frequents poorly drained and open soils as in meadows, fields and streamsides. Often forms pure stands.

Common throughout the province.

Ranges from NF to QC, south to WI and NY; BC; Greenland.



*Photo by Roger Lloyd*

***Carex paleacea* Schreber.**

**carex paléacé**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

Ranging from 20–80cm in height, it bears short elliptical spikes, drooping from long stalks. The pistillate scales are long awned. Staminate spikes number 1–3, with 2–7 pistillate spikes below. The involucral leaves are brown or reddish-brown. Pistillate scales are yellowish-brown. The awns are rough.

Coastal habitats, often growing in pure colonies. Usually at the head of saltmarshes. May be found with other halophytes. Swales and cliff crevices near the coast.

Common in its habitat around the coast.

Ranges from NL to NT and south to ON and NH; Greenland.

***Carex recta* Boott**

**carex dressé**



*Photos by David Mazerolle*



A coarse sedge, the culms reach to 75cm. The erect spikes are sessile and dark brown, usually staminate at the top. The compressed perigynia are most often shorter than the scales, which are acute or short-awned. Distinctive is the indent on one side of the achene.

Fruiting in July and August.

Frequents brackish meadows, salt marshes and coastal swales.

Probably common around the entire coast, although there is only a single collection from the inner Bay of Fundy (Sunset Beach, west end of Long Island, Kings Co.). None from the Northumberland Strait.

Ranges from NF to NT, south to ON, and MA.

***Carex stricta* Lam.**

**carex raide**



*Photo by David Mazerolle*

The basal leaves of this sedge have only sheaths, no blades. Often the sheaths are broken into fibrous strands. The involucre leaf is shorter than the inflorescence or equal in height to it. Reddish brown scales subtend the perigynia, but are shorter.

Flowering from May onward, quickly forming fruit, often as early as May.



Photo by Roger Lloyd

Forms tussocks in fens and marshes, usually not in bogs.

Common throughout, but especially in the northern regions.

Ranges from NS to MB, south to WY, TX and GA.

***Carex torta* Boott**  
**carex tordu**



Photo by David Mazerolle

A slender species to 70cm, with long narrow lax spikes. The lowest leaves on the culm have blades, unlike those of *C. stricta*. Staminate spikes 1–2 with 3–4 pistillate spikes. Perigynia are green and glabrous, bearing a beak, that twists by maturity. Dark scales are shorter than the perigynia.

Flowers early, fruiting mid to late July.



Photo by Roger Lloyd

Found along streams, especially in rocky substrates.

Common from Annapolis County to northern Cape Breton.

Ranges from NS to ON, variously south to OK and GA.

## Section PHAESTOGLOCHIN

Clump-forming sedges, they have short rhizomes. Culms are brown below, rarely reddish. The basal leaf sheath is fibrous with the fronts membranous and sometimes rugose. Leaf blades are glabrous. Usually the inflorescence is racemose, or with two branches, producing 3–15 spikes. Involucral bracts are leafy or filiform. Lateral spikes are sessile and pistillate and the terminal spike is androgynous. Pistillate scales are hyaline and greenish with a single midvein. Perigynia are ascending or spreading, oblanceolate or obovate and smooth. The perigynia are usually beaked, and glabrous, bitoothed. Stigmas number two. Style is deciduous.

### Key to species

A. Inflorescence lax; lower internodes more than twice as long as the lower spikes.

B. Stigmas straight, twisted or loosely coiled.

bb. Stigmas tightly coiled.

aa. Inflorescence dense; lower internodes <2 times as long as lower spikes.

B

*Carex radiata*

*C. rosea*

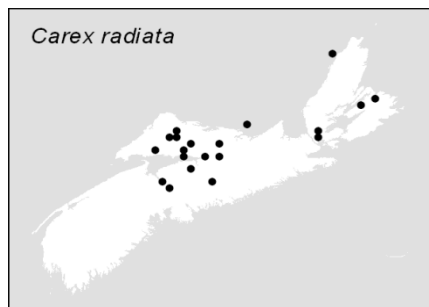
*C. spicata*



***Carex radiata* (Wahlenb.) Dewey**  
**carex rayonnant**



*Photo by David Mazerolle*



This very slender species is densely cespitose, its tenuous culms 20–80cm tall. Each of the 4–8 spikes has only 3–8 flowers. The long straight to slightly twisted stigmas are the best features for identification.

Fruits mature from late May to mid-August.

Moist soils in open woods, deciduous or mixed deciduous.

Collected from Hants, Cumberland and Colchester counties to northern Cape Breton.

Ranges from NS to MB, south to KS, AL and GA.

***Carex rosea* Schkuhr ex Willd.**  
**carex en rosacea**



*Photo by Sean Blaney*

Densely cespitose it is larger than the previous plant, reaching 90cm in height. The culms tend to be more erect or ascending. There are 4–8 sessile spikelets, each with 7–14 spreading perigynia. The stigmas are noticeably coiled. The staminate flowers are in the terminal spike, but are difficult to see.

Flowers from May to early July.

Grows in dry soils beneath deciduous forests and thickets.

Common from Annapolis Co. to northern Cape Breton.

Ranges from NS to MB, south to TX and FL.

***Carex spicata* Hudson**

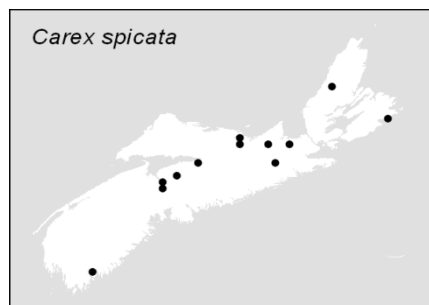
**carex à épi**



Photo by Sean Blaney



Photo by Roger Lloyd



A slender species, its culms reach from 10–85cm tall. The narrow leaves, 2–4mm wide are shorter than the culm. Spikes number three or more, closely arranged or even overlapping. Perigynia are green at maturity, 4–5mm long. Scales are equal in length to them, but reddish or purplish. Terminal spikes are androgynous, a few staminate flowers atop the 5–10 spreading perigynia.

Fruiting from May to July.

Alkaline soils in large polsters: fields, pastures, even roadsides. Common in Hants Co. Scattered eastward; Shelburne Co.

Ranges from NS; ON, south to VA and IL; locally introduced from Europe.

## Section PHYSOGLOCHIN

Loosely cespitose, these plants have yellowish-brown rhizomes. The culms are brown at the base. The basal leaf sheaths are membranous on the fronts and not fibrous. The smooth leaf blades are filiform or V- shaped in cross section, and less than 1mm wide. The inflorescence is a solitary spike, which may be unisexual or androgynous. It is cylindrical or ovoid. Bracts are absent. The perigynia are appressed, becoming spreading or reflexed at maturity, veined on the lower surface. The apex is contracted to a beak which is weakly serrulate and bitoothed. Stigmas two; style deciduous.

### ***Carex gynocrates* Wormsk.**

#### **carex à côtes**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Small in stature, its culms rarely exceed 30cm, arising from filiform rhizomes, in small clusters of 1–3. The leaves are filiform, to 30cm long. The inflorescence is unisexual or androgynous, the staminate spike 8–16mm; pistillate spike with 4–15 flowers and oblong. The pistillate scales are from light to dark brown with a pale or greenish midvein. The perigynia soon become reflexed or spreading, yellow to olive-green, maturing to chestnut brown. They are sometimes striated and beaked.

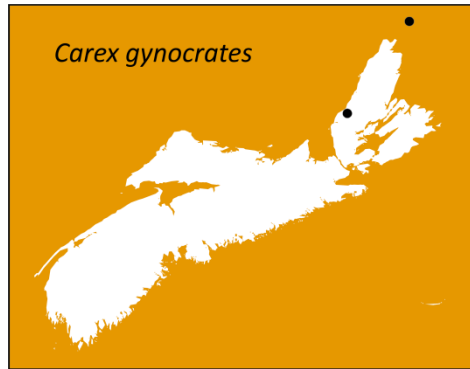
Fruiting from June to August.

Wooded swamps and saturated peat elsewhere.

Known from two localities, Saint Paul Island and near Lake Ainslie.

Ranges from NF to AK, south to NV and NJ. Greenland.

STATUS: ORANGE-listed in NS.



## Section POROCYSTIS

Another group of cespitose sedges, arising from short rhizomes, these have the culms reddish brown at the base. Leaves are usually pubescent and less than 8mm wide. Racemes comprise 2–6 spikes, each with 40–50 perigynia; the lateral spikes arise on slender peduncles and are pistillate. The terminal spike is staminate or gynaeandrous. Pistillate scales are usually acute or awned and smooth, or ciliate along the edges. Perigynia are veined, at least on one surface, but usually smooth and beakless. The opening is entire, not toothed. There are three stigmas and the style is deciduous.

### Key to species

- |  |                         |
|--|-------------------------|
| A. Terminal spike entirely staminate; perigynia glabrous.                | <i>Carex pallescens</i> |
| aa. Terminal spike about two-thirds staminate; perigynia densely pilose. | <i>C. swanii</i>        |

***Carex pallescens* L.**  
**carex pâle**



Photo by Roger Lloyd

A compact species, the culms may reach 80cm in height. The leaves are sparsely pilose below. Lateral spikes are cylindrical, each 1.5cm long, erect on slender peduncles. Each green perigynium is subtended by an ovate scale, nearly obscuring it. Terminal spikes are nearly 3cm long and are wholly staminate.

Flowering and fruiting from May through August.

Grows in grasslands and moist thickets.

A very common species.

Ranges from St. Pierre et Miquelon and NF, to ON, south to TN and VA; BC to WA and MT; Eurasia.

***Carex swanii* (Fern.) Mackenzie**  
**carex de Swan**



Photo by Sean Blaney

Culms are sparsely pilose, arising to 75cm tall; they bear pilose leaves. Terminal spike is about half pistillate, with the staminate portion below. It measures no more than 2cm. Perigynia are densely pilose and are beakless. Inflated, they are scarcely longer than the scales and only weakly nerved.

Matures early in summer.

Barrens, pastures and clearings where soils are acidic.

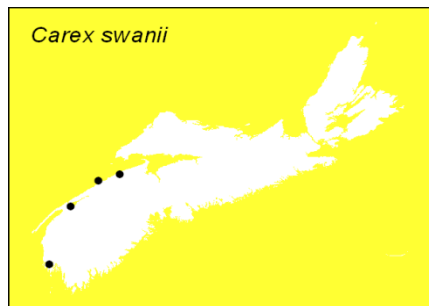
Local; Yarmouth Co. east only to Kings Co.

Ranges from NS to ON, south to MS and GA; BC.





Photo by Roger Lloyd



## Section PSEUDO-CYPERAE

Colonial or cespitose, these plants arise on culms variously coloured red, purplish or reddish brown at the bases. The leaf sheaths and blades are sparsely septate and generally wider than 5mm. Terminal spikes in the racemes are staminate; lateral spikes are cylindric and pedunculate, wholly pistillate. The pistillate scales are green to dark brown and sometimes awned. Perigynia are usually inflated and veined, glabrous and shiny. The styles are persistent; stigmas number three.

### Key to species

A. Pistillate scales awned, their margins ciliate.

B

B. Perigynia elliptic to round, with 5–12 veins, separate to end of the beak;

*Carex lurida*

achenes scabrous.	
bb. Perigynia lanceolate-ovoid to elliptic, with >12 veins, confluent at or below mid-beak; achenes smooth.	C
C. Perigynia spreading to ascending, herbaceous and inflated; veins many, separated by at least three times their width.	<i>C. hystericina</i>
cc. Perigynia reflexed and leathery, not inflated when mature, strongly ridged, the veins separated by less than twice their width.	D
D. Spikes >12mm wide; teeth on the beak strongly curved, to 2.1mm long.	<i>C. comosa</i>
dd. Spikes <12mm wide; teeth straight or slightly curving, longest teeth <1.2mm long.	<i>C. pseudocyperus</i>
aa. Pistillate scales without awns, their margins glabrous.	E
E. Leaves threadlike to involute, wiry; culms round or rounded trigonous.	<i>C. oligosperma</i>
ee. Leaves not as above, >1.5mm wide; culms round to trigonous.	F
F. Perigynia obscurely veined, often dark, beak <1mm long.	<i>C. saxatilis</i>
ff. Perigynia distinctly veined, to the beak, green or stramineous, beak >1mm long, toothed.	G
G. Widest perigynia >4.5mm wide; achenes deeply indented, asymmetric.	<i>C. tuckermanii</i>
gg. Widest perigynia <4.5mm wide; achenes symmetric, not indented.	H
H. Widest leaves <4.3mm; perigynium beak <4.2mm, finely scabrous near the tip and on teeth.	<i>C. bullata</i>
hh. Widest leaves 1.5–15mm wide; perigynium beak 1–4.5mm, smooth.	I
I. Lowermost involucre bract >3 times longer than the inflorescence; staminate spike 1, scarcely distant from the summit; perigynia reflexed.	<i>C. retrorsa</i>
ii. Lowermost involucre bract shorter than, or no more than twice as long as the inflorescence; staminate spikes 2 or more, well separated from summit; perigynia ascending or spreading.	J
J. Leaves strongly papillose on upper surface, whitish green; widest leaf <4.5mm; culms glabrous distally; ligule as long as wide.	<i>C. rostrata</i>
jj. Leaves smooth on upper surface, pale to dark green; widest leaf >3mm wide; culms scabrous distally; ligule shorter or longer than wide.	K
K. Plants colonial, rhizomes long and creeping; widest leaves 4.5–12mm wide.	<i>C. utriculata</i>

kk. Plants cespitose, rhizomes short; widest leaves <6.5mm wide.

*C. vesicaria*

***Carex bullata* Schkuhr**

**carex ballonné**



*Photo by Sean Blaney*

A slender sedge, its culms may reach 80cm tall. Pistillate spikes 1–2, are widely separated. There are 1–3 staminate spikes on a long peduncle. Involucral bract is leafy but barely exceeding the inflorescence in height. The wide separation between spikes and shorter bract will distinguish it from *C. retrorsa*. Beaks of the perigynia are scabrous, requiring a hand lens to see.

Fruiting from June to October.

Peaty marshes and fens, usually in riparian habitat.

Abundant from Yarmouth and Shelburne counties, scattered east to Lunenburg and Annapolis counties.

Ranges from NS; ME to GA and AR.



*Photo by Ross Hall*

***Carex comosa* Boott**  
**carex à toupet**



*Photo by Sean Blaney*

It resembles *C. pseudocyperus*, but with the exaggerated bottlebrush appearance. This is due to the recurved teeth on the perigynia beaks. The scales also have long acuminate tips.

Matures from June through August.

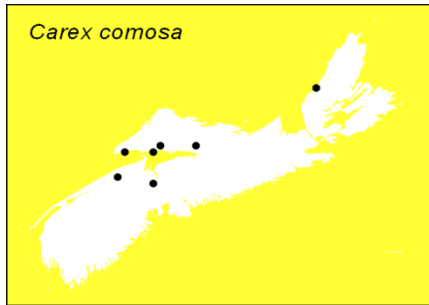
Marshes and swamp edges.

Scattered in the Annapolis Valley to Cumberland, Colchester and Inverness counties.

From NF to ON, south to TX and FL; west coast from BC to CA, inland to MT.



*Roger Lloyd*



***Carex hystericina* Muhl.**  
**carex porc-épic**



*Photo by Sean Blaney*



*Roger Lloyd*

This species resembles the more common *C. lurida*, but for the presence of many nerves on the perigynia, extending to the orifice. The spikes of this species tend to be shorter. Culms are noticeably scabrous below the inflorescence. Ligules are very short.

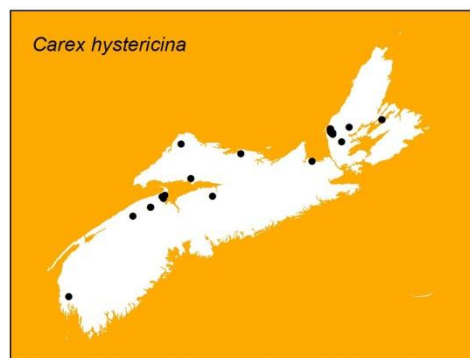
Frequents seeps, marshes and shoreline fens.

Scattered in Kings and Annapolis Co and in Victoria and Inverness Co.

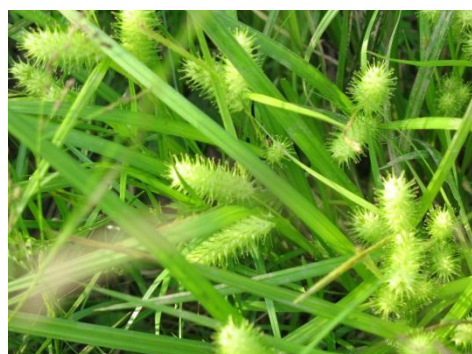
Ranges from NF to BC, south to GA and CA.

STATUS: ORANGE-listed for NS.





***Carex lurida* Wahlenb.**  
**carex luisant**



*Photo by David Mazerolle*

A caespitose species, its culms reach 40–80cm. The leaves have a long deltate ligule extending upward along the culm. Pistillate spikes are about 3cm long and ovoid, the scales ending in a long scabrous awn. Perigynia marked by only a few strong nerves.

Fruiting from June through October.

Found in swamps, meadows, damp thickets and pool edges.



Roger Lloyd

Common throughout but more frequent from Annapolis eastward.

Ranges from NF to ON, south to FL and TX.

***Carex oligosperma* Michx.**

***Carex oligosperma***



Very slender, this plant also has involute leaves, scarcely 1–3mm wide. Pistillate spike is often solitary or 2–3 at most, each distant. Perigynia number 1–10 per spike. The bract is nearly as long as the summit of the staminate spike.

Fruits from June through August.

A poor fen species.

Common along the coast from Yarmouth to northern Cape Breton.

Ranges from NS to YT, south to AB, IL and NC.

*Photo by Roger Lloyd*



*Sean Blaney*

***Carex pseudocyperus* L.**  
**carex faux-souchet**



*Photo by David Mazerolle*

Nearly 1m in stature, this species produces several drooping lateral spikes. Pistillate spikes are long and cylindric. There are many recurved perigynia, each with straight teeth.

Matures from June to August.

Paludal, meadows and swales.

Not abundant but scattered from Yarmouth to Cape Breton.



Photo by Roger Lloyd

Ranges from NF to AB, south to ND, IN and NJ; Eurasia and Africa.

***Carex retrorsa* Schweinitz**  
***carex réfléchi***



Photo by Sean Blaney

A coarsely tall species, reaching 1m in height and densely cespitose. There are 3–5 pistillate spikes clustered near the summit of the culm. The slender staminate spikes numbering 1–2, are terminal. Perigynia are widely divergent, 7–8mm long. The lowermost involucral bract is distinctive as it is several times longer than the raceme.

Fruiting from July to October.

Found in riparian zones and in wet meadows, where soils are fertile.

Uncommon to scattered from Annapolis and Cumberland counties to northern Cape Breton.

Ranges from NF to NT, south to NV and MD.

***Carex rostrata* Stokes**

**carex rostré**



Resembles the previous species, but this species has longer spikes. The pistillate spikes of this species are at least 6cm long and more distant. Perigynia are shorter and appressed, rather than spreading. Lowermost leafy bract is about the same height as the raceme.

Flowering and fruiting from July to September.

Found in bogs and swamps.

Known only from Saint Paul Island.

NL to AK, south to ID and IL.

STATUS: ORANGE-listed for Nova Scotia.

***Carex saxatilis* L.**

**carex saxatile**



A smaller species, barely reaching 50cm in height. Pistillate spikes, 1–2, are sessile on the culm. Beaks on the perigynia have barely no teeth. Leaves are 1–3mm wide.

A northern species, of damp peaty sands and gravelly soils.

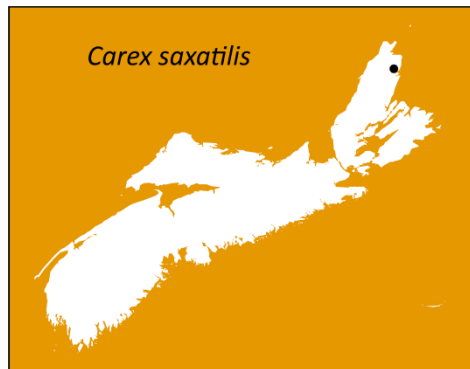
Collected but once from Warren Lake, Victoria.

Ranges from NF to AK, south to UT and ME; Greenland.

STATUS: ORANGE-listed for NS.



Photo by Roger Lloyd



***Carex tuckermanii* Dewey**  
**Carex de Tuckerman**



Photo by David Mazerolle

Plants may reach 120cm in height. Inflorescence may be 35cm long and the proximal bract overtops the inflorescence, sometimes reaching 70cm long. Each perigynium is inflated, at least 5mm wide at the base. The achenes bear a deep indent on one side, a key character to separate this species.

Fruiting from July to August.

Associated with vernal pools near streams.

An uncommon sedge. So far it has been collected at Sweets Corner, Hants Co, and along the Wallace and Pugwash Rivers, both in Cumberland Co.



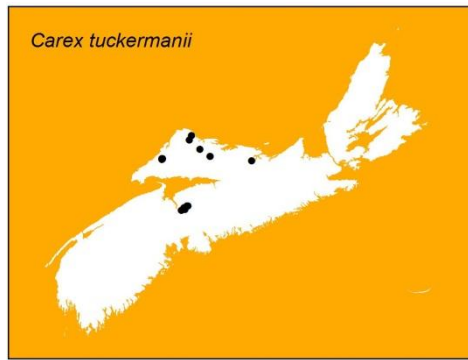
*Photo by Sean Blaney*

Ranges from NS to ON, south to IL and MD.

STATUS: ORANGE-listed in NS.



*Photo by Roger Lloyd*



***Carex utriculata* Boott**  
 (= *C. rostrata* Stokes, var. *utriculata* (Boott) LH Bailey)  
 carex utriculé



*Photo by Sean Blaney*

A colonial species, its culms arise from long rhizomes, to 100cm tall. They are smooth or barely scabrous distally. The basal sheaths of the leaves are brown or reddish and thickened. The ligules are nearly square. Blades are smooth and whitish green. The leafy bract is longer than the raceme. There are 2–5 erect or ascending pistillate spikes, with 2–5 terminal staminate spikes. Perigynia are green or straw-coloured. The beaks are smooth and bitoothed.

Fruiting from June through August.

Usually a marsh sedge in poor fens and riparian marshes.

Mostly southwestern in distribution.

Ranges from NF to AK, south to CA and variously to NC.



Photo by Roger Lloyd

***Carex vesicaria* L.**  
**carex vésiculeux**



Photo by David Mazerolle

Slender culms reach 80cm in height. The 2–3 pistillate spikes are sessile and distant, each with about six rows of perigynia. These spikes are only about 8mm wide. The species is highly variable and some authors separate varieties or species from the named species. More study is required to determine relationships.

Fruiting from June to August.

Grows in meadows, marshes and intervalles.





*Photo by Sean Blaney*

Found throughout although more frequent northwestward.

Across Canada and south to NC and NM, CA; Eurasia.



*Photo by Roger Lloyd*



## Section RACEMOSAE

Cespitose species, they may be long-rhizomatous or stoloniferous. The roots are brown or black and lack the feltlike covering. The culms are red or purple at the base. Proximal leaves are often red or purple-spotted and smooth or papillose. The racemes comprise 1–10 spikes. Bracts are filiform or scalelike. The lateral spikes are generally pistillate and pedunculate. The terminal spike varies. Pistillate scales are brown or black and not ciliate, sharply pointed. The perigynia are erect or ascending, sessile and with two prominent marginal ridges. It is beaked and smooth or papillose. Styles are deciduous.

### Key to species

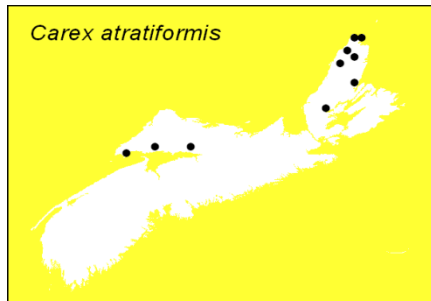
Proximal lateral spike spreading or pendulous.

*C. atratiformis*

Proximal lateral spike erect.

*C. buxbaumii*

### ***Carex atratiformis* Britton** **carex atratiforme**



Small in stature, it rarely exceeds 40cm. The basal leaves are short and only 2–3mm wide. There is no separate staminate spike. Terminal spike is gynecandrous. Short pistillate spikes have a reddish or purplish cast. The achenes are trigonous; stigmas number three.



Fruits throughout the summer.

Moist cliffs, streamsides, and associated rock crevices.

Common in northern Cape Breton. Collected from McAlese Brook, Cumberland Co.

Ranges from NF to AK, south to BC and NY; Greenland.

*Photos by Sean Blaney*



***Carex buxbaumii* Wahlenb.**  
**carex de Buxbaum**



*Photos by sean Blaney*



*Photos by Sean Blaney*

Very similar to previous species, but this one has tough sessile spikes, dark brown in colour. The perigynia are 2.5–3.5mm long, obovate and beakless.

Found in swamps and meadows in poor fens, brackish marshes and swales coastally.

Scattered throughout, but appears absent from the Northumberland region.

Ranges from NF to AK, south to GA and CA; Greenland; Eurasia.

***Carex norvegica* Retz.** is now considered Extirpated from Nova Scotia.

## Section ROSTRALES

A small section of cespitose and rhizomatous sedges, the culms are yellowish or brown at the bases, never reddish. The racemes comprise 2–6 spikes, subtended by a leafy bract. Lateral spikes are pistillate or with the distal lateral spike androgynous. Terminal spike if present, is staminate. The pistillate scales are acute or awned and bear 6–7 veins in the centre. Perigynia are spreading or reflexed, lanceolate and smooth in our species. In cross-section, they are round or trigonous, slightly inflated and nerved. The beak is bitoothed. Stigmas number three; style persistent.

### Key to species

Widest leaves <3.5mm wide; bract sheaths concave at the top.

*Carex michauxiana*

Widest leaves >5mm; bract sheaths truncate or convex at the top.

*C. folliculata*

### ***Carex folliculata* L.**

#### **carex folliculé**



*Photos by David Mazerolle*

Reaching nearly 1m in height, the culms bear wider leaves than the next species, often exceeding 1cm in width. The perigynia are acuminate to a long bitoothed beak. The scales abruptly extend into a long awn, extending from the midvein.

Fruiting from June through August.

Found in swamps, edges of swamps and thickets.

Common throughout.

Ranges from NF to ON, south to TN and GA.



*Photos by Roger Lloyd*

***Carex michauxiana* Boeckeler**  
**carex de Michaux**



*Photos by Sean Blaney*

Shorter in stature, its culms range from 30–60cm tall. Pistillate spikes 2–3, with 5–7 plump veined perigynia, 1cm long, tapering to a beak. They are finely veined and lustrous. Staminate spike is solitary and terminal, often hidden. The leafy bracts are much longer than the inflorescence.

Fruiting from June through August.



*Photos by Roger Lloyd*

Swamp, blanket fens and sphagnous beaches of sand and cobble.

Not common in southwestern counties, becoming more frequent and abundant, eastward to Cape Breton.

Ranges from NS to SK, south to MN and PA.

## **Section SCIRPINAE**

Like many, these plants are cespitose, the culms reddish-brown at the base. The old leaf sheaths are not persistent at the base. Usually, the inflorescence is a single spike. In our species, there is no involucre bract. Spikes are usually unisexual; species are dioecious. The pistillate scales are ciliate. Perigynia are borne erect, with a pair of marginal ridges, tapering to a beak and pubescent. Stigmas usually number three; style is deciduous.



***Carex scirpoidea* Michx.**



Photos by Roger Lloyd



Standing up to 40cm tall, the culm bears a single spike, 1–3cm long. Perigynia are pubescent, ending in a short beak. Pistillate scales are dark with a light centre.

Fruiting from June to August.

Streamsides in rock crevices or riparian cliffs.

Locally abundant along some of the rivers of northern Cape Breton: Cheticamp, Margaree and Lockhart Brook and Corney Brook. Near two small ponds in Jim Campbell Barren.

Ranges from NF to AK, south to NY, CO and CA.

## Section STELLULATAE

The cespitose species included here have culms exceeding the leaves, with brown bases. Their smooth leaves are less than 5mm wide. Racemes contain 2–6 spikes. The sessile lateral spikes may be pistillate, gynecandrous or staminate; the same holds for the terminal one. The apices of the pistillate scales are variously shaped but not awned. The perigynia are spreading, even reflexing at maturity, lending a starlike appearance to the short spikes. The beaks are short and smooth, although the margins may be serrulate, bitoothed. Stigmas number two; style is deciduous.

## Key to species

- |  |                     |
|--|---------------------|
| A. Spike solitary, terminal.   | <i>Carex exilis</i> |
| aa. Spikes 2+.   | B                   |
| B. Leaves 2.8–5mm wide.  | <i>C. wiegandii</i> |
| bb. Leaves <2.7mm wide.  | C                   |
| C. Pistillate scales shorter than the bodies of the perigynia;<br>perigynial beak half the length of the body. | <i>C. interior</i>  |
| cc. Scales equal in length to the body of the perigynia; beak more<br>than half as long as the body.           | D                   |
| D. Stems smooth; perigynium 1–2mm wide, oblong,<br>without nerves on upper surface.                            | <i>C. echinata</i>  |
| dd. Stems scabrous on the angles above; perigynium<br>1.5–3mm wide, strongly nerved on the upper face.         | <i>C. atlantica</i> |

### ***Carex atlantica* Bailey**



*Photos by David Mazerolle*

A tall species, its culms often exceeding 1m. Inflorescences range from 15–55mm long, with 3–8 small spikes diverging from a sessile base. Perigynia are ovoid with short bitoothed beaks and strongly nerved bodies. They are not strongly reflexed as others of the section. Two subspecies are found here, ssp. *capillacea* (Bailey) Reznicek has the perigynia 1.9–3mm long and the leaves less than 1.6mm wide. Ssp. *atlantica* has wider leaves to 4mm and the perigynia 2.3–3.8mm long.

Fruits from May to early August.

Frequents bogs, swamps and other peatland and sand barrens.



Photo by Sean Blaney  
*Ssp. capillacea*

Common from Yarmouth and Annapolis counties to Guysborough Co. and scattered to Cape Breton.

Ranges from NS; QC to ON, south to FL and TX.

***Carex echinata* Murray**  
**carex étoilé**



Photos by David Mazerolle

Highly variable, some forms have been given specific status or subspecific rank. Eastern material is now acknowledged to belong to the highly variable *ssp. echinata*, in all its extremes. Generally it may be separated on the basis of possessing acutely pointed scales and attenuate beaks on the perigynia. The beaks are strongly bitoothed and serrulate on the margins.

Fruits early, from May through July.

Found in a variety of wetlands including bogs, swamps and shorelines to ditches.

A very common species throughout.

Ranges from NF to YT, south to NC, NM and CA; absent from the prairie and plains districts.



Photo by Sean Blaney

***Carex exilis* Dewey**

**carex maigre**



*Photos by David Mazerolle*

A recognizable species, ranging from 30–80cm, with a single spike on a stiffly erect culm. The staminate flowers are conspicuous at the base of the spike, which is predominately pistillate. Unisexual plants are also common. Perigynia are dark brown, faintly ribbed and beak margins may be serrulate.

Fruiting from May through August.

Peatlands such as bogs and barrens.

Scattered throughout and more common adjacent to the coasts.

St. Pierre et Miquelon to ON, south to MN and MD; NC. Disjunct in the Gulf States.

***Carex interior* Bailey**

**carex continental**



*Photos by David Mazerolle*

A smaller compact species, its culms range from 10–95cm. Perigynia are ovoid, short beaked, scarcely serrulate. The surfaces of the perigynia are glabrous and nerveless on the inner face. Terminal spike is pistillate comprising 4–16 flowers.

Fruiting from May until early summer.

Wet soils and swampy woods; alkaline soils.



Photo by Roger Lloyd

Collected from Yarmouth to Cape Breton, with few coastal localities reported.

Ranges from NF to AK, south to CA and NM and TN; Mexico.

***Carex wiegandii* Mackenzie**  
**carex de Wiegand**



Photos by David Mazerolle

A coarsely cespitose species, its culms may exceed 1m in height. The stems are softer and glabrous, unlike those of *C. atlantica*. The thin leaves are less than 5mm wide, but still the wider than most species of this section. Spikes are small, 4–6 of them, each with 5–20 flowers. The broad ovoid perigynia are subtended by scales obscuring only half of them. The terminal spike is staminate only at the base.

Fruits during the summer.

Treed bogs, bogs, conifer and alder thickets.

Cape Breton Island and Port LaTour, Shelburne Co.

Ranges from NS to ON, south to MI and PA.

STATUS: YELLOW-listed in NS.



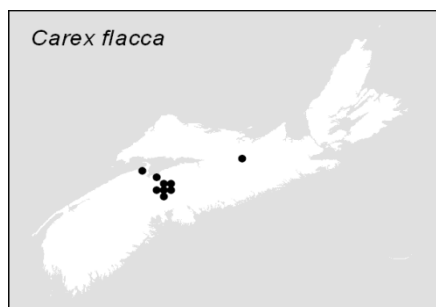
## Section THURINGIACA

Loosely cespitose, the long rhizomatous plants produce culms with reddish brown bases. The racemes include 3–6 spikes, subtended by a leaflike bract. The lateral spikes are pistillate, cylindric in shape. They may have more than 30 flowers. The terminal 1–3 spikes are staminate. The pistillate scales are acuminate or acutely pointed. Perigynia are spreading or ascending, smooth but for two marginal ridges, less than 1cm long. It is not toothed at the orifice. There are three stigmas; the style is deciduous.

### *Carex flacca* Schreber *carex glauque*



Photos by David Mazerolle



A slender plant, its culms reach upwards 20–50cm. The leaves are mostly basal. The inflorescence is subtended by a leafy bract. The two or more pistillate spikes are narrowly cylindric. Terminal spikes are staminate, 1–3 and may have a few pistillate flowers at their bases. Perigynia are numerous and crowded, each short-beaked, soon becoming inflated and almost round.

Fruits produced during June and July.

Variable in appearance and mostly of calcareous regions.

Collections from Kings Co., Hants Co. in the Windsor area, Pictou and Antigonish counties.

Naturalized in North America: NS; QC and ON, south to MI and NY.

## Section VULPINAE

Arising from short rhizomes, these sedges are also cespitose. The culms are dark brown to black at the bases. The leaf sheaths are often spotted yellow, red or brown at the base and may be fibrous. The inflorescence may be racemose or panicle, sometimes tightly packed with 4–20 spikes and subtended by a filiform or

scalelike bract. The lateral spikes are androgynous or pistillate and sessile; the terminal spike is androgynous. The scales are pointed or short-awned. Perigynia are spreading or ascending, veined or veinless, acutely angled on the margins and smooth. There are two stigmas and the style is deciduous.

#### Key to species

Perigynia without veins on the upper surface and not swollen at the base. *Carex alopecoidea*

Perigynia veined on the upper surface and swollen at the base. *C. stipata*

#### ***Carex alopecoidea* Tuckerm.**

#### **carex alopécoïde**



Culms clustered and reaching 80cm tall. The leaves extend beyond the inflorescence but only slightly. Old leaves are persistent as fibres. Inflorescence is 2–4cm long, packed with golden-brown perigynia. They are subtended by shorter coppery scales, ovate to deltate and with hyaline margins. Scabrous beaks are two-thirds the length of the body. Lower spikes may be distant.

Flowering in June and July.

Secondary successional coastal forest.

Collected from St. George's Bay area, Antigonish Co.

Ranges from NS; QC to SK, south to WY and TN.

STATUS: Considered to be ORANGE for NS.

***Carex stipata* Muhl.**



*Photos by Sean Blaney*



Densely cespitose, the stiffly erect culms may reach 120cm in height. Leaves are 5–10mm wide. Leaf fibres are not persistent from previous year. The culms are acutely trigonous, a character that readily separates it from *C. vulpinoidea*. Brown perigynia are lanceolate and acuminate and tightly packed into the spike. Each perigynium is 4–5mm long, with 7–15 reddish veins, subtended by a hyaline scale.

Fruiting from May through August.

Broad tolerance for habitats but usually in wet acidic sites.

Common and abundant where found.

Ranges from NF to BC and AK, south to CA, LA and FL.



*Photo by Roger Lloyd*

***Cladium* P. Br.**  
**twig-rushes**

About 50 species of twig-rushes are found worldwide; a single species is native to Nova Scotia. Inflorescence is corymbose or capitate, and of clusters of brown ovoid spikelets. The uppermost flower of each is perfect and the middle flowers are staminate or soon abortive. Ovoid achenes are pointed on either end, but without tubercles. Culms are solitary or not, round or terete. Leaves are cauline.

***Cladium mariscoides* (Muhl.) Torr.**  
**Twig-rush; marisque inerme**



*photo by Sean Blaney*



*Photo by Ross Hall*

A coarse perennial species, it has the culms 40–80cm in height. The light reddish-brown spikelets are arranged in an open cyme, slightly taller than the proximal leafy bract. Leaves are nearly involute and smooth.

Fruiting from August through October.

An emergent species of swales, boggy lacustrine edges and marshes.

Abundant throughout and forming large stands at times.

Ranges from NF west to SK, south to MN, MS, FL and TX.

## ***Cyperus* L.**

### **flatsedge**

Worldwide, these temperate and tropical herbs number more than 600 species. Nova Scotia is at the northern edge of the genus' range. But Nova Scotia has three native and one introduced member of these "C4" sedges, that have drought-resistant mechanisms of photosynthesis. Perennial or sometimes annual, these herbs may be cespitose, rhizomatous or stoloniferous. The culms may be solitary or not, round or angled. Leaves are usually basal and without ligules. Spikelets are arranged in palmate spikes or nearly umbellate. Leafy involucral bracts are present, 1–20, spirally arranged terminally on the culm, spreading or erect. Flowers are bisexual and in the axils of floral scales. Sometimes their bases are decurrent on the rachilla. Perianth is absent. Stamens number 1–3; linear styles are cleft 2–3; stigmas are 2–3.

#### Key to species

- |  |                          |
|--|--------------------------|
| A. Plants annual; stigmas 2.   | B                        |
| B. Inflorescence globose; achene oblong, scarcely compressed, truncated at the summit. | <i>Cyperus lupulinus</i> |
| bb. Inflorescence digitate; achene ovoid or ellipsoid, flattened, with rounded apex.   | <i>C. diandrus</i>       |
| aa. Plants perennial; stigmas 3.   | C                        |
| C. Spikelets long and round in cross-section, pinnately arranged along the rachilla.   | <i>C. esculentus</i>     |
| cc. Spikelets flattened, several to many digitately attached to the rachis.            | <i>C. dentatus</i>       |

### ***Cyperus dentatus* Torr.**

#### **Toothed flatsedge; souchet denté**



A compact and cespitose species, it is only 20–30cm tall. The trigonous culm bears an inflorescence of 4–9 rays, each of 2–6 compressed spikelets. The floral scales are reddish brown marked by 1–3 ribs. There are three stamens. Sessile achenes are reddish brown.

Fruits in summer.

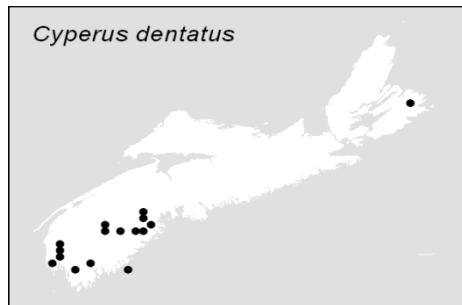
Typical lacustrine species of sand and peat shorelines.



photo by Sean Blaney



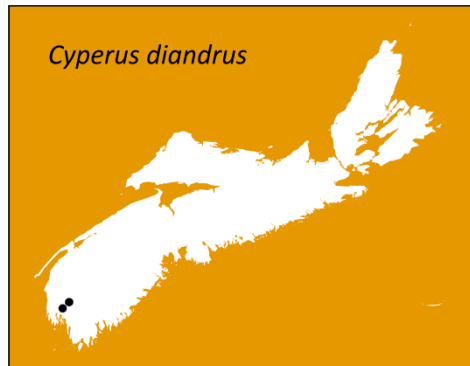
Photo by Alain Belliveau



Scattered from Yarmouth to Lunenburg Co.; Cape Breton Co.

Ranges from NS to ON, variously south to AL and GA.

***Cyperus diandrus* Torr.**  
**souchet diandre**



An annual species from fibrous roots, it is also cespitose. Short in stature, the trigonous culms range from 4–25cm tall. Leaves are flat and less than 3mm wide. Digitate flower heads have 3–6 rays subtended by 1–4 bracts. The compressed spikelets number 6–12, the scales tightly imbricate. They are stramineous to brown, with clear margins. Achenes are brown and honeycombed.

Matures in summer.

Grows along undisturbed shorelines of sand and peaty soils.

NS: Known only from Yarmouth Co. and only since 2000 collected from Ellenwood, Third and Bennetts Lakes.

Ranges from NS to ON, south to NE, TN and VA.

ORANGE-listed.

***Cyperus esculentus* L.**

**Yellow Nutgrass**



*Photo by Sean Blaney*

A stoloniferous species, it often produces tubers. The trigonous culms reach 50cm in height. Inflorescence is composed of rounded or ellipsoid spikes on 4–10 divaricate rays, ascending at a 75 degree angle from a persistent rachilla. Spikelets 5–10, linear and flattened, are subtended by light brown deciduous scales. Achenes are brown. Our material is referenced to var. *leptostachyus* Boekeler with ovate-lanceolate floral scales and strongly angled spikes.

Fruiting from August to October.

A noxious weed of sandy locations.

Collected from Kings Co to Truro. Perhaps not persisting.

An introduced weed ranging throughout the continent but for the Great Plains, Prairies and far north. From western Europe. Troublesome in other regions.

***Cyperus lupulinus* (Spreng.) Marks  
(=*C. filiculmis* Vahl)**

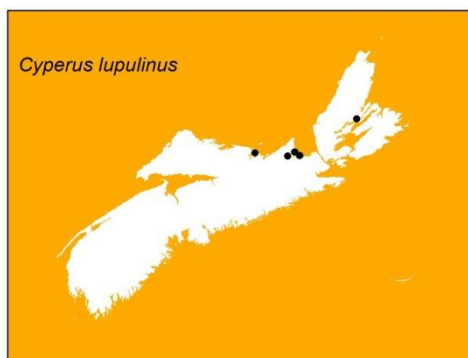
**Slender Flatsedge; souchet petit-houblon**



*Photo by Sean Blaney*

A small annual species, it differs from our other *Cyperus* species, by having globular heads of spikelets. The rays number from 0–6, 1–7cm long, subtended by 3–6 flat horizontal bracts. Spikelets number 6–20, with reddish brown or straw-coloured ovate floral scales, lacking ribs. The oblong achenes are brown. Our material belongs to ssp. *macilentus* (Fernald.) Marks.

Fruiting also from August to October.



Known only on the Northumberland shore from Antigonish Co.

Elsewhere from NS to ON, south to CO, TX and FL; WA and OR to ID.

STATUS: ORANGE-listed.

## ***Dulichium* Pers.**

### **three-way sedge**

A monotypic genus, it is endemic to North America. Perennial and rhizomatous, the terete culms stand to 1m in height, simple and jointed. Plants when viewed from above appear to have a triangular outline from the three ranks of the cauline leaves. Lower leaves are bladeless. Spikelets are cinnamon-coloured at maturity and borne on rachises arising from the upper leaf axils. There are 3–10 per spike. The flowers are bisexual, perianth is reduced to 3–9 bristles, exceeding the achene in length. Stamens number three; style is cleft in two with a persistent base.

## ***Dulichium arundinaceum* (L.) Britton**

### **Three-way sedge**



*Photo by David Mazerolle*

Reaching from 30–100cm tall, the culms, to 14 in number are jointed and terete. Inflorescence is lateral, the spikes arising from the upper leaf axils.

Fruits mature from July through October.



Photo by Sean Blaney

Found on muddy lakeshores and swamps, where it may be a dominant emergent sedge forming pure colonies.

Found throughout; especially common along the Atlantic and the upper Fundy marshes.

Across the continent.

## ***Eleocharis* R. Br.**

A genus of caespitose annuals or perennials, usually they are rhizomatous or stoloniferous. Culms are terete and angled or strongly compressed. Some species may be hollow and septate, with spongy tissue within. Leaves are basal, two per culm and bladeless. The inflorescence is terminal, a solitary spike without leafy bracts. The spikelets have from 4–500 brown scales, spirally arranged. Some of the proximal scales are empty. Flowers are bisexual. Perianth is reduced to 3–6 bristles, of various lengths and armature. Stamens number 1–3; the style is bi- or tri-fid, the base persistent on the achene as a tubercle.

Mature spikelets and achenes are required plus a 10–20X lens to confirm identity of most species.

### Key to species

- A. Culms hollow, septate; spikelet scales with >15 longitudinal nerves; *Eleocharis robbinsii*  
 achenes sculpted under 15X; spikelets cylindric to narrowly elliptic;  
 9–76mm long, as wide as the culms.
- aa. Culms rarely hollow with complete septa; spikelet scales with midrib only; B  
 achenes glabrous or sculpted under 10X; spikelets mostly ovoid, rarely as narrow  
 as culms.
  - B. Achenes with distinctly longitudinal ridges, separated by numerous *E. acicularis*  
 horizontal cross ribs, trigonous to circular; proximal scale of spikelet  
 subtending flower; distal leaf sheath membranous, hyaline and often  
 disintegrating; culms spongy, to 1.5mm wide.

bb. Achenes without longitudinal or horizontal ridges, biconvex to trigonous or circular; proximal spikelet scale empty or subtending a flower; distal leaf sheaths papery, persistent or not; culms to 5mm wide.	C
C. Tubercle similar in texture and form with the achene apex and merging with it; achenes apically narrowed to a beak, glabrous or reticulate under 10X; rhizomes present; spikelet scales 4–12 per.	<i>E. quinqueflora</i>
cc. Tubercle differing in colour, texture and form from the achene; achenes never ridged, rarely narrowing to a beak; rhizomes present or absent; scales 5–150 per.	D
D. Styles bifid; biconvex or rarely trigonous, smooth or finely rugulose at 10X; plants never stoloniferous.	E
E. Distal leaf sheaths disintegrating, thinly membranous, prominently inflated and wrinkled; culms <0.6mm wide.	<i>E. olivacea</i>
ee. Distal leaf sheaths evident, firmly membranous to papery, not inflated nor wrinkled; culms <5mm wide.	F
F. Plants annual, without creeping rhizomes; achenes green, stramineous, brown or black; distal leaf sheath apex acuminate.	G
G. Spikelets ovoid; tubercles 0.3–0.5mm wide.	<i>E. ovata</i>
gg. Spikelets broadly ovoid to ellipsoid; tubercles > or =0.5mm wide.	<i>E. obtusa</i>
ff. Plants perennial, with creeping rhizomes; achenes yellow to dark brown; distal leaf sheath apex truncate to nearly acute.	H
H. Proximal spikelet scale clasping at least 2/3 of culm; all spikelets with empty subproximal scale.	<i>E. palustris</i>
hh. Proximal spikelet scale clasping >3/4 of culm; subproximal scale subtending a flower or empty.	<i>E. uniglumis</i>
dd. Styles trifid or bifid; achenes trigonous (biconvex in <i>E. obtusa</i> ); smooth or variously sculpted at 10X; plants stoloniferous.	I
I. Plants tufted annuals;; achenes biconvex, smooth; tubercles strongly compressed dorsiventrally, much thinner than the achene.	<i>E. obtusa</i>
ii. Plants tufted perennials or annuals, rhizomatous or stoloniferous; achenes trigonous or nearly terete, smooth or sculpted; tubercles not strongly compressed.	J
J. Some or all culms with distal leaf sheath apex toothed, sheaths persistent.	K
K. Spikelets with some or all scales except the proximal emarginate to bifid.	L



L. Culms 4–5 angled or terete; achenes falling with the scales or before, yellow, brown or green; floral scales slightly notched or entire.	<i>E. tenuis</i>
II. Culms >5-angled, or occasionally terete, commonly compressed; achenes persistent after scales fall, yellow, orange or medium brown; floral scales incised, with few entire.	<i>E. elliptica</i>
kk. Spikelets with all scales entire.	<i>E. fallax</i>
jj. Culms without tooth on the distal leaf sheath; sheaths disintegrating or persistent.	M
M. Distal leaf sheath apices persistent, membranous to papery obtuse or truncate; perennials with creeping rhizomes or ascending caudex-like rhizomes.	N
N. Plants densely caespitose; creeping rhizomes absent.	O
O. Tubercles merging with achene in colour, form and texture or absent; achene smooth to rugulose under 10X, with a distinct beak, paler than the rest of the achene.	<i>E. rostellata</i>
oo. Tubercles clearly distinct from the achene; achenes smooth to rugulose but unbeaked.	<i>E. tuberculosa</i>
nn. Plants mat-forming or densely caespitose but with creeping rhizomes.	P
P. Boreal species; scales of the spikelets <1.3mm.	<i>E. nitida</i>
pp. Non-boreal species; scales >1.5mm.	Q
Q. Culms 0.5–1.5mm wide; achenes 1.1–1.5 X 0.95–1.25mm; rare.	<i>E. fallax</i> , in part
qq. Culms <0.8mm wide; achenes generally smaller; widespread.	R
R. Culms angled 4–5 or terete, or sometimes	<i>E. tenuis</i>

compressed; achenes falling with or before scales, yellow, brown or green.

rr. Culms with >5 angles or terete and

*E. elliptica*

sometimes compressed; achenes persistent, yellow, orange or straw coloured.

mm. Distal leaf sheath apices lanceolate, disintegrating; with short creeping rhizomes; tubers present.

*E. parvula*

### ***Eleocharis acicularis* (L.) Eoemer & Schultes**

#### **éléocharide aciculaire**



*Photo by Roger Lloyd*

Mat-forming this slender species arises on filiform culms less than 15cm tall. The spikelets are only 2mm long. Achenes are nearly globose in cross-section and marked with longitudinal ridges and fine transverse lines. The culms often form reddish or green mats along muddy shores and beaches.

Fruiting from July through October.

Found in muddy roadside ditches, meadows and lacustrine habitats.

Common throughout.

A circumboreal species found throughout the continent.

***Eleocharis elliptica* Kunth**  
**(=*E. tenuis* var *borealis* (Svenson) Gleason)**  
**éléocharide elliptique**



*Photo by Roger Lloyd*

A perennial mat-forming species, this has the culms with 6–8 angles, sometimes reaching 90cm in height. Distal leaf sheaths are persistent and intact. Ovoid spikelets produce bright yellow and persistent achenes, subtended by very dark brown and intact floral scales. Bristles absent or 1–3.

Fruiting late summer.

Found in ditches, on lake margins and meadows or bogs.

Infrequently found along eastern Atlantic counties to Cape Breton.

Ranges from NS to YT, south to WA, WY, MO and NJ. Absent from Great Plains.

***Eleocharis fallax* Weatherby**  
**éléocharide trompeuse**

A mat-forming species, its terete culms have 12 blunt angles and once dry, stand 30–75cm. The distal leaf sheaths persist without shattering; they are dark red near the base. Ovoid or spheric spikelets are acute to obtuse, the lowermost scale entire and surrounding the culm. The next scale subtends a flower. Scales are deciduous, spreading in fruit. Bristles of the perianth 1–5 and unequal in size. Dark yellow to brown achenes are not persistent.

Tubercles as high as wide and not compressed.

Fruits in late summer.

Grows on coastal sites near fresh or brackish waters.

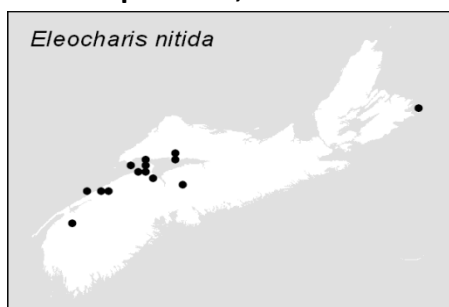
Only known from Cape Breton.

Found only in NS, QC; MA, NY and NJ south along the coastal plain to AL, LA and TX.

ORANGE-listed in NS.

***Eleocharis nitida* Fern.**

**Slender Spikerush; éléocharide brillante**



The culms of this spike-rush are usually less than 10cm tall. Achenes mature earlier than others and are a bright glaucous yellow. Smooth or merely rugulose, the ridges are minute and only visible under magnification.

Fruits mature as early as mid-June.

Moist soils, often associated with basalt.

Found along the North Mountain of Kings and Annapolis counties; Cape d'Or and Economy Mountain, Cumberland Co.; Scatarie Island, Cape Breton.

Ranges from NF to ON, NS; SK to BC north to AK; south in the east to NH and MN.

***Eleocharis obtusa* (Willd.) Schultes**

**éléocharide obtuse**



Photos by David Mazzerolle



Photo by Roger Lloyd

Generally from 3–50cm tall, the spikelets are broadly ovoid to lanceoloid, 5–13 mm tall. The floral scales are straw-coloured, elliptic and with unkeeled midribs. The bristles greatly exceed the deltoid tubercle.

Fruiting until fall.

In marshes, along mucky streambanks and wet disturbed soils.

Common throughout.

Ranges from NS to MB, south to FL and TX; west coast.

***Eleocharis olivacea* Torr.**

(=*E. flavescens* (Poir.) Urban, var. *olivacea* (Torr.) Gleason)

Capitate Spike-rush; éléocharide olivâtre

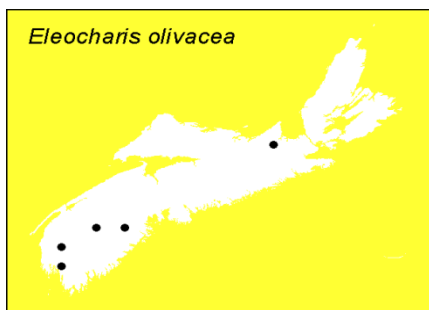




Photo by David Mazerolle



Photo by Roger Lloyd



Arising from creeping rhizomes, the culms range from 3–28cm tall, but are less than 0.6mm wide. The distal leaf sheaths soon disintegrate, their apices are truncated and often inflated distally. The ovoid spikelets have the lowermost scale without a flower. Perianth bristles are pale and usually number seven. The bristles are twice as long as the achene which is green to golden-brown at maturity. The apex may constrict to the tubercle. Fruiting culms are often bent over, with the spikelets touching the ground.

Fruits from mid-summer to October.

Mucky peat as on bog margins, and sandy lakeshores.

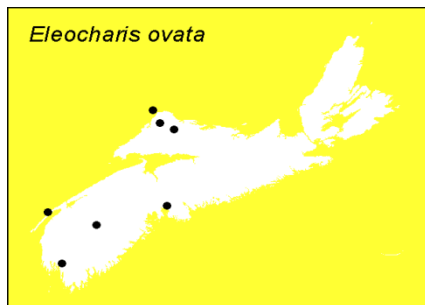
Local and mostly southwestern: Yarmouth to Digby and Lunenburg counties, with Cumberland and Antigonish Co. collections.

Coastal Plain from NS to ON, south to TX and FL; WY.

***Eleocharis ovata* (Roth) R&S**  
**éléocharide ovale**



Photo by Roger Lloyd



A variable but conspicuous spikerush, it is densely cespitose. Culms are reddish basally and only to 35cm tall. Spikelets are ovoid; their floral scales orange-brown, the midribs keeled. Tubercles are widely deltoid, the bristles exceeding them.

Fruiting from May through October.

Grows on muddy streamsides, streambeds and lakeshores, often in subsiding water.

Less common than the previous species, which it resembles somewhat.

In the east from NF to ON, south to MO and MD; western ranges extends from AB to BC and OR.

***Eleocharis palustris* (L.) Roem. & Schult.**  
**éléocharide des marais**



Photo by David Mazerolle

A perennial spike-rush forming mats. The culms exceed 50cm and arise from stout rhizomes. The plant's size and shape of the spikelets and their tubercles is highly variable. There are 2–3 sterile scales at the base of the spikelet. The lowermost does not completely encircle the stem. Achenes



Photo by Roger Lloyd

are not persistent. They are subtended by stramineous or green floral scales, often spreading at maturity. Four bristles may sometimes be absent, often shorter than the achene.

Fruits from June until September.

Found on lakeshores, in meadows, and even bogs. In lakes may form pure colonies emerging in shallows.

Scattered throughout NS.

Found from NF to AK, south to Mexico and absent only from GA and FL; Greenland.

### ***Eleocharis parvula* (Roem. & Schult.) Link**

#### **éléocharide naine**



Photo by Sean Blaney

Easy to identify based on its small, mat-forming habit and habitat. Culms are less than 10cm tall and the spikelets barely 2mm long. There are few flowers in the spikelets. The achenes are beaked, the slender beak nearly conical and of similar texture as the body.

Fruiting from July through October.



Photo by Roger Lloyd

Grows on brackish habitats, forming turfs around coastal ponds.

Scattered around the coast but for northern Cape Breton.

Circumpolar in range; disjunct in Cuba and Brazil.

***Eleocharis quinqueflora* (Hartm.) Schwartz.**

**(= *E. pauciflora* (Lightf.) Link.)**

**éléocharide à cinq fleurs**



Photo by Sean Blaney

Slender in stature, scarcely 30cm tall. Its culms arise singly or from creeping rhizomes and are not twisted nor constricted below the spikelet. Spikelets 4–8mm long, producing few flowers; the lowermost scale is usually fertile. The achene tubercle, is a slender beak, only slightly extending past the perianth bristles.

Fruiting until September.

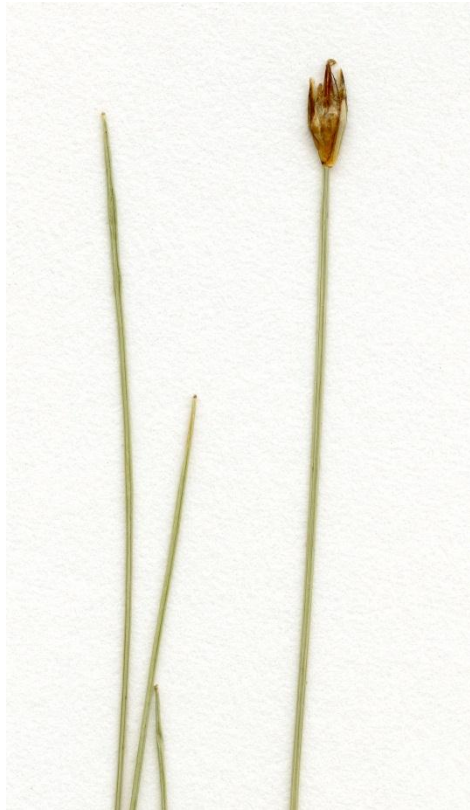


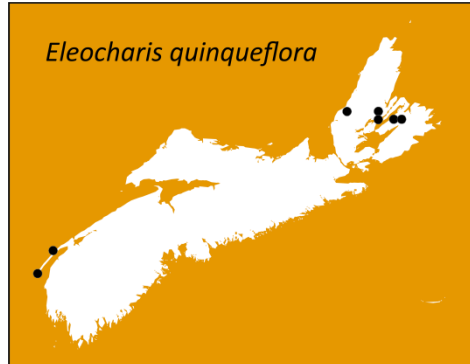
Photo by Roger Lloyd

Grows on alkaline substrates, in bogs and coastal cliffs.

Collected from Digby Neck and central Cape Breton.

Extends from NF to AK, south to CA, NM and PA; Greenland.

STATUS: ORANGE-listed in NS.





***Eleocharis robbinsii* Oakes**  
**éléocharide de Robbins**



*Photo by Sean Blaney*

Spikelet-bearing culms reach 70cm tall, and are sharply three-angled. The submerged culms may be flaccid and filiform, the spikelets scarcely wider than the culm. Bristles 6–7 stramineous to reddish brown, retrorsely spinulose. Tubercle on the achene pyramidal atop a short neck on the sculpted achene. Markings visible under 10–15X.

Fruiting later from August to October.

An emergent species from peaty shallows of lakes.

Common in southwestern NS, east to Halifax and scattered to Cape Breton.

Ranges from NS to ON, variously south to FL and MS.



*Photo by Roger Lloyd*

***Eleocharis rostellata* Torr.**

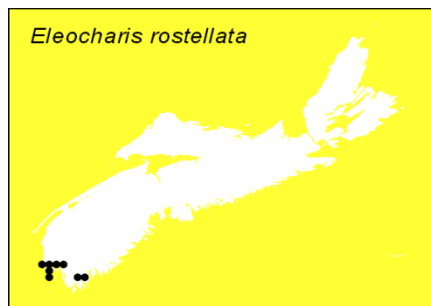
**éléocharide à petit bec**



Photo by Sean Blaney



Photo by Roger Lloyd



The culms reach 1m in height and differ from other species in being compressed and arching rather than terete or round and stiffly erect. The achenes are trigonous and there are three stigmas.

Fruiting from July to October.

Limited to saltmarshes and swales.

Of restricted distribution in Nova Scotia: several Yarmouth Co. localities and coastally to Digby Co.

Ranges from NS; ON; BC; variously south to south to CA, FL and TX; absent from the middle Mississippi floodplain; West Indies.

***Eleocharis tenuis* (Willd.) Schultes**



Photo by Sean Blaney

Slender culms (to 70cm) arise from purplish-red rhizomes. Spikelets are longer than those of other spike-rushes. Mature achenes are olive green, their surfaces reticulated. The tubercles are wider than tall. Var. *pseudoptera* (Weatherby) Svenson has the culms sharply 4–5 angled and nearly winged. The achenes are yellow. Grows on more calcareous substrates than the typical variety. Var. *tenuis* has the culms round and the achenes straw-coloured, lemon yellow to olive green.

General wet habitats such as lakeshores, ditches, meadows or bogs.

An infrequent species, collected throughout.

Ranges from NS to QC, south of the Great Lakes to SD, TX and GA.

***Eleocharis tuberculosa* (Michx.) Roemer & schultes**

**Tubercled Spike-rush; éléocharide tuberculée**

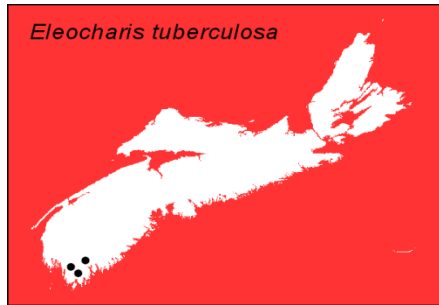


Photo by Sean Blaney

A caespitose species, producing stiffly erect culms, it bears large ovoid spikelets. Achenes are reticulated and topped by very large tubercles.

Fruits from June to September.

Found on sandy or peaty lake margins



Found only in southwestern NS on a small number of lakes including Harper's Lake, Gold Lake, Western, Mill, Barrington and Great Pubnico Lakes. Also along the Tusket River. Recently discovered at Little Ten Mile Lake in Queens Co.

Ranges only along the coastal plain: NS; ME to FL and TX.

RED-listed in NS.

***Eleocharis uniglumis* (Link) Schultes**  
**(= *E. halophila* (Fernald & Brackett) Fernald; éléocharide uniglume**



*Photo by Sean Blaney*

Resembles *E. palustris* but for the proximal scale, which completely encircles the culm. It is a perennial mat-forming species with terete culms, appearing ridged when dry. The subproximal scale contains a flower, while the proximal doesn't. The floral scales are brown to red-brown, the centres paler to green. There are four perianth bristles, unequal in size. The achenes are not persistent. The



Photo by Roger Lloyd

tubercles are much higher than wide and pale, sometimes marked with depressions.

Fruiting in summer.

Coastal or brackish habitats.

Found wherever suitable habitat occurs.

Ranges from NF to AK, south to OR, WY and RI.

## ***Eriophorum* L.**

### **cottongrasses**

Plants of wetlands, they are typified by the long conspicuous bristles of the perianth, persisting after maturity. Perennial and rhizomatous, they may also be caespitose. Culms erect, terete or trigonous. Leaves are both basal and cauline, filiform or flat, or reduced to sheaths. The terminal inflorescence is a panicle or of a solitary spikelet with 1-several leafy or scalelike involucre bracts. Floral scales subtend each flower with the lowermost one sometimes empty. The flowers are bisexual and the perianth is reduced to shining filiform bristles, much exceeding the achenes. Stamens 1–3; deciduous styles cleft 1–3. There are 25 species worldwide, mostly of temperate, alpine and arctic regions of the northern hemisphere.

#### Key to species

- |  |                             |
|--|-----------------------------|
| A. Spikelet solitary; leafy involucre bract absent.  | B                           |
| B. Plant densely caespitose; bristles shining white.   | <i>Eriophorum vaginatum</i> |
| bb. Plant arising on creeping rhizome; bristles chestnut.  | <i>E. russeolum</i>         |
| aa. Spikelets >1; leafy bracts 1 or more.  | C                           |
| C. Plant slender, to 80cm; involucre bract 1.  | D                           |
| D. Sheath of involucre leaf and floral scales dark; upper leaf blades round at the apex, 1–4cm long. | <i>E. gracile</i>           |



- dd. Sheath of involucral bract and floral scales pinkish; upper leaf blades acute, 3–18cm long. *E. tenellum*
- cc. Plant stout, to 1m; involucral bracts >1. E
- E. Spikelets tightly clustered; floral scales marked by several thick brown nerves; bristles tawny coloured. *E. virginicum*
- ee. Spikelets loosely clustered; scales tawny or greenish black, with a single midvein; bristles white. F
- F. Floral scales with flat and papery apices, midrib not extending to tip. *E. angustifolium*
- ff. Floral scales acutely tipped, midrib extending to the tip. *E. viridicarinum*

***Eriophorum angustifolium* Honckeney**



Photo by Sean Blaney



Photo by Roger Lloyd

This species resembles *E. viridicarinum* but for the floral scales. They are flattened distally, with widely obtuse ends, lacking a distinct midrib. Plant's appearance is somewhat ragged by the end of June. Ssp. *triste* (Fries) EOG Hulten is reported from the Fundy shores around to Bon Portage Island, Shelburne Co. It differs from ssp. *angustifolium* by the presence of completely scabrous peduncles and culms of 30cm or less. Ssp. *angustifolium* has culms from 20–100cm and the peduncles are scabrous only on the angles.

Flowers and fruits in early June.

Found in bogs, swamps, wet meadows.

Very common to common throughout.

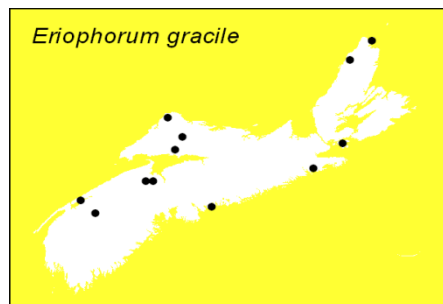
Ranges from the arctic regions south to NY, IL, NM and OR.

***Eriophorum gracile* Koch**

**linaigrette grêle**



Photo by David Mazerolle



A slender species, the inflorescence comprises several spikelets subtended by a single leafy involucral bract. It is grey or black at the base. Floral scales are dark in colour.

Flowers and fruits during early summer.

Grows in wet peat and inundated shores.

Scattered eastward from Annapolis and Halifax counties.

Ranges across the continent, south to DE, CO and OR  
Eurasia.

STATUS: YELLOW-listed in NS.

***Eriophorum russeolum* Fr. Ex Hartm.**

**(*E. chamissonis* CA Meyer, erroneous)**

**Rusty Cottongrass; linaigrette rousse**



Photo by David Mazerolle

Arising from creeping rhizomes, the culms are solitary. The basal leaf sheaths are persistent, purplish or brown. Spikelets are solitary, the flowers with reddish brown bristles. The proximal floral scale is purplish and usually empty. White forms have been reported from Cumberland Co.



Photo by Sean Blaney

Flowers and fruits in June and July.

Frequents coastal swamps, bogs.

Scattered from Hants and Cumberland counties northward.

Ranges from NL to AK, south to ON, MN and BC.

***Eriophorum tenellum* Nutt.**  
**linaigrette t  nue**



Photo by David Mazerolle

Colonial plants arise from long creeping rhizomes. Culms reach up to 90cm, are scarious beneath the inflorescence. Resembles *E. russeolum* but for the reddish colour in the involucral leaf. The floral scales are green or black. The distal cauline leaf is much longer, scabrous and acutely pointed.

Flowers and fruiting in late summer.

Found in swamps, bogs and swales.

Found throughout NS.

Ranges from NF to NU, south to NJ and IL.



Photo by Roger Lloyd

***Eriophorum vaginatum* L.**

**Hare's Tail**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

A densely caespitose species, it forms tussocks of culms, 10–60cm tall. Basal leaf sheaths are brown. Cauline leaves are bladeless, and number 1–3. Spikelets are solitary and capitate, the glistening white bristles straight. There are no involucral bracts. Our plants are ssp. *spissum* (L.) Fern.

Our earliest to fruit, as early as late May.

Bogs.

Scattered throughout the province.

Ranges from NF to AB, south to MT, IN and PA.



***Eriophorum virginicum* L.**

**Tawny Cottongrass; linaigrette de Virginie**



*Photos by Sean Blaney*



*Photo by Roger Lloyd*

Conspicuous in fruit, it may reach 120cm in height. Typically the bristles are tawny, fading to white at maturity. Spikelets are densely capitate, the floral scales have several well-marked ribs. Leaf blades are generally flat rather than channelled.

Flowers and fruits from late summer through the fall.

Bogs, swamps and marshes.

Very common throughout NS.

Ranges from NF to ON, south to GA; BC.



***Eriophorum viridicarinatum* (Engelm) Fern.**

**linaigrette verte**



*Photo by Sean Blaney*

A tidy compact plant, with several spikelets comprising the inflorescence. Culms number one or more, to 90cm tall. Leafy bracts 2–4, sometimes brown towards the bases. Bristles of the perianth are pure white to pale brown. Floral scales have thickened apices, with distinct midribs to the tips.

Flowering and fruiting in June and July.

Generalist in wetlands.

Ranges eastward from Digby Neck. Common from the Cobequids northward.

Across the continent and south to CO and NJ.



*Photo by Roger Lloyd*

***Rhynchospora* Vahl.**

**Beak-rushes**

These plants may be annual or perennial, sometimes cespitose and often have scaly rhizomes. The culms are erect or procumbent, wiry or not and trigonous. Both basal and cauline leaves are present, generally in three ranks. The inflorescence is terminal, of various forms and subtended by 1–5 involucre bracts. Floral scales subtend each flower, with at least one of the lower scales empty. Flowers are bisexual or at most only the distal one is staminate. Style base is persistent as a tubercle. Perianth is in the form of 2–12 barbed or plumose bristles. There are more than 250 species worldwide; only five reach Nova Scotia.

## Key to species

- A. Stem to 1.5m tall; perianth bristles at least twice the height of the fruit. *Rhynchospora macrostachya*
- aa. Stem <1m tall, perianth bristles usually equal to or shorter than the height of the fruit. B
- B. Bristles of the perianth >8; spikelets white, becoming tawny at maturity. *R. alba*
- bb. Bristles 6; spikelets brown. C
- C. Bristles upwardly barbed; achenes evenly pale. *R. fusca*
- cc. Bristles retrorsely barbed or smooth; achenes dark brown, at least at the centre. D
- D. Spikelets 3.5–5.0 mm long, numerous in a capitate inflorescence. *R. capitellata*
- dd. Spikelets 5–7 mm long; inflorescence loose, spikelets number 2–10. *R. capillacea*

### ***Rhynchospora alba* (L.) Vahl** **rhynchospoire blanc**



Photos by Sean Blaney

Culms weakly erect or procumbent, 30–40cm tall. Inflorescence has a few white spikelets, turning tawny at maturity. Leaves are very slender. Bristles on the achenes number 8–12.

Flowering and fruiting July to September.

Peaty substrates in bogs, swamps and wet meadows.

Common throughout.

Ranges across the continent and south to CA and GA. Absent in the continental centre.



***Rhynchospora capillacea* Torr.**  
**rhynchospoire capillaire**



*Photo by Sean Blaney*



A perennial species, its wiry culms reach only to 40cm. The rhizomes are stoloniferous. Culm exceeds the height of the leaves, which are involute rather than flat. Flower clusters 1–2, with the spikelets pale reddish brown, each flower subtended by six bristles.

Grows on alkaline bogs.

Limited to the southern end of Lake Ainslie and Baddeck Bay areas of Cape Breton.

Ranges from NF to BC, variously south to TX and AL in calcareous regions.

STATUS: ORANGE-listed in NS.

***Rhynchospora capitellata* (Michx.) Vahl**

**rhynchospore à petites têtes**



*Photos by David Mazerolle*

A slender plant that rarely branches, it stands only 30–50cm. Dark brown spikelets are borne in several glomerules. Each is subtended by a leafy involucral bract.

Flowers and fruits from July through to October.

Grows on lakeshores, seasonally flooded savannahs and peatlands.

Southwestern NS to Antigonish and Guysborough counties, where it may be abundant; Dewar's Lake, Cumberland Co.

Ranges from NS to ON, south to FL and TX; west coast.

***Rhynchospora fusca* (L.) Aiton.f.**

**rhynchospore brun**



*Photo by Ross Hall*

Perennial and cespitose, this beak-rush arises from slender stoloniferous rhizomes, the culms 10–50cm. They are leafy and filiform. Inflorescence is comprised of light brown spikelets, 1–2 of them lateral, their branches ascending. Involucral bracts overtop the flower clusters. The 5–6 floral bristles are antrorsely barbed and may slightly exceed the achene. Fruits are lightly marked longitudinally and horizontally.

Flowers and fruits from June through October.

Lake margins, and other open sandy peat shores.

Common in Digby to Shelburne counties, scattered to Cape Breton. Collected throughout.

Ranges from NF to ON; SK, south to IL and MD.





Photo by David Mazerolle

***Rhynchospora macrostachya* Torrey ex A. Gray**  
**rhynchospore à gros épillets**



Photo by David Mazerolle



This coarse beak-rush may reach 80–150 (170) cm in height. Culms are held stiffly erect and are leafy, trigonous. The flat blades are ascending and overtopped by the inflorescence. The inflorescence comprises clusters of tightly packed corymbs. The brown spikelets are lanceoloid and subtended by lanceolate fertile scales, with an excurrent midrib. The perianth bristles are fully twice the length of the fruit, antrorsely barbed.

The narrow inflorescence outline and long bristles serve to separate this species.

Favours sunny wetlands and acidic shores.

Two Canadian localities, both on marshy lakeshores of Queens Co.: Carrigan Lake (Blaney, 2011) and Molega Lake (Hill, 2012).

Ranges from NS; ME west to MI, south of the Great Lakes, variously south to TX and FL.

STATUS: ORANGE-listed for NS.



## ***Schoenoplectus* (Reichenb.) Palla**

Annuals or perennials they may be cespitose or rhizomatous, or neither. The culms are strongly trigonous or cylindric, smooth and spongy. The leaves are basal, plants rarely have a single cauline leaf. The inflorescence is capitate or paniculate, with 1–100 spikelets. There are 1–5 leafy bracts. The floral scales are deciduous. Flowers are bisexual, perianth is of 6–8 bristles. Stamens number three; styles are deciduous, 2–3-fid. There are 77 species worldwide.

### Key to species

- A. Inflorescence capitate or with a single spikelet. B
  - B. Culms nearly cylindric; leaves 3–20, flaccid and submerged; *Schoenoplectus subterminalis*  
spikelet erect.
  - bb. Culms trigonous; leaves 4–7; blades erect and about the height of *S. torreyi*  
the inflorescence.
- aa. Inflorescence of multiple spikelets. C
  - C. Culms cylindric or angled only distally; inflorescence branched. D
    - D. Awns of spikelet scales straight to bent; scales *S. tabernaemontani*  
orange or stramineous and spotted at 10X;  
spikelets solitary.
    - dd. Awns strongly twisted; scales mostly pale or partly pale *S. acutus*  
and spotted, sides scabrous; often with clustered spikelets.
  - cc. Culms trigonous throughout; inflorescence may be branched. E
    - E. Culm sides deeply concave; lowermost bract 1–6cm, other *S. americanus*  
bracts bladeless; notch at apex of spikelet scales very  
shallow.
    - ee. Culm sides shallowly concave to nearly smooth; *S. pungens*  
lowermost bract 3–20cm, other bracts with narrow blades  
exceeding spikelets; apical notch of scales to 1mm deep.

***Schoenoplectus acutus* (Muhl.) Löve and Löve**  
**(=*Scirpus a.* Muhl.)**



Photo by David Mazerolle

Growing to 4m in height, the culm is smooth and round. Leaves are basal and reaching only one-third the length of the culm. Spikelets are clustered 2–8, some are even solitary. Floral scales are dark red or orange-brown. Similar to *S. tabernaemontani*, it grows in more alkaline habitats. The open inflorescences branch 2–3 times on shorter peduncles than the other widespread species. The achenes are not exposed.

Fruits during August and September.

Wet alkaline soils.

Collected throughout.

Ranges from NF to AK, south to CA, TX and NC; Europe.

***Schoenoplectus americanus* (Pers.) Volk**  
**(=*Scirpus a.* Pers.)**  
**scirpe d'Amérique**



Photo by Sean Blaney

An erect species ranging in height from 0.3–2.5m tall. Culms are sharply trigonous and from 3–10mm thick. Most leaves are basal, less than half the length of the culm. Spikelets 2–20 overtopped by a stiff involucre 1–6cm long. Inflorescence is tightly clustered and appearing lateral.

Fruits from July to September.



*Photo by David Mazerolle*

Restricted to the upper edges of saltmarshes.

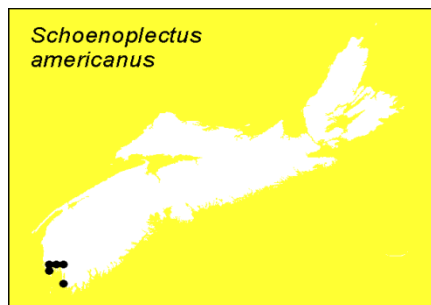
Yarmouth and Shelburne counties.

NS; CMA to MI, south along the Atlantic to FL and TX; AK to CA and NM.

STATUS: YELLOW-listed in NS.



*Photo by Roger Lloyd*



***Schoenoplectus pungens* (Vahl) Palla**

(=*Scirpus p.* Vahl)

**scirpe piquant**

Arising from firm rhizomes, the trigonous culms are convex to concave proximally and deeply concave or flat distally. The leaves are basal, with 2–6 blades, 2–5 times as long as the sheaths. Inflorescence is capitate with 1–5 spikelets subtended by an erect bract, 3–20cm. Floral scales are bright to dark orange, often spotted and with a paler midrib. Perianth is bristlelike brown and 4–8-merous.

Fruits July to September.

Found on fresh to brackish shores, marshes and often emergent.

Common in NS.

Ranges from NF to AK, south to CA and FL.

***Schoenoplectus subterminalis* (Torrey) J. Soják**

(=*Scirpus s.* Torrey)

**scirpe subterminale**



*Photo by Sean Blaney*

Aquatic or emergent, the culms are very weak, procumbent and from 20-150cm long. Leaves are narrow and also weak. Spikelet is small and solitary, subtended by a stiff leafy bract. Floral scales are pale brown with a green centre.

Fruiting from late July to October.

Emergent or aquatic in sandy peaty lake edges.

Found from Yarmouth Co. to northern Cape Breton.

Ranges from NF to ON, south to SC and MO; western.



*Photo by Ross Hall*

***Schoenoplectus tabernaemontani* (CC Gmelin) Palla**

**(=*Scirpus validus* Vahl)**

**scirpe des étangs**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

A tall perennial, reaching several metres, the culms are thick and soft, round in cross-section. Terminal spikelets on a branching inflorescence are subtended by a very short involucre leaf, that is erect and thickly crescent-shaped in cross-section. There may be up to 200 spikelets in clusters of 2–4, or they are all solitary. Achenes are exposed at maturity. Leaves are few and basal.

Fruiting from June to September.

Emergent in shallow waters of ponds and lakes, fresh and brackish. Forming pure colonies.

Throughout coastal NS, with fewer inland localities.

Ranges throughout the continent and further, except for NU.



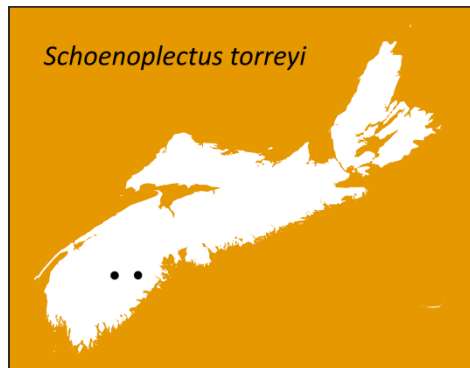
***Schoenoplectus torreyi* (Olney) Palla**  
**scirpe de Torrey**



*Photo by Sean Blaney*



*Photo by David Mazerolle*



This mat-forming species has sharply three-angled culms, reaching 1.5m in height. They may be 5mm in thickness, with noticeably concave sides near the top. Leaves number 4–7, with the proximal bract resembling them. Spikelets number 1–4 with the scales orange-brown to stramineous, sometimes green centred. Calyx is bristlelike, the six parts, only slightly exceeding the flowers. Styles are trifold. Achenes tend to be compressed-trigonus and brown, ovoid or obovoid.

Flowers and fruits during the summer.

Emergent in freshwater especially where water levels fluctuate.

NS: Recently found in southwestern areas at Long Lake, southeast of Molega Lake and Russell Lake, east of Kejimikujik National Park, both stations in Queens Co.

Ranges from NS to MB, south to MO and VA.

ORANGE-listed for NS.

## Scirpus L.

Perennial plants, they may be cespitose or rhizomatous, or neither. Culms are more or less angled and sometimes solitary. Leaves are both basal and cauline or all cauline, the blades flat or V-shaped in cross-section. The terminal inflorescences are corymbose-paniculate or even umbellate. Occasionally they may be axillary in the upper three leaves. Leafy bracts usually number three. Each spikelet has from 10–50 smooth floral scales, each with a flower. Perianth comprises 3–6 bristles, of various sizes and forms. The base of the style is persistent.

### Key to species

- A. Floral bristles always present with >3, smooth and often twisted, exceeding the achenes; lateral heads of small cymes pedicellate, all in open cymes. B
  - B. Plants with thick rhizomes ca 1cm dia., often forming an open arc or circular phalanx, unbranched; bracts of the inflorescence glutinous at the base; achenes reddish brown. *Scirpus longii*
  - bb. Plants tightly cespitose forming dense tussocks from short rhizomes; bracts not glutinous; achenes white to very pale brown. C
    - C. Spikelets pedicellate, mostly solitary; scales blackish at least at the apex; achenes maturing by early July. *S. atrocinctus*
    - cc. Spikelets solitary on pedicels, or sessile in glomerules; scales pale brown, reddish to black; maturing from July to Sept. D
      - D. Spikelets in open cymes, central spikelet of each cyme sessile, rest usually pedicellate; scales pale brown, no black pigment. *S. pedicellatus*
      - dd. Spikelets in cymes of 2–15; central one sessile, rest sessile or pedicellate; scales reddish brown to black; achenes maturing in Aug.-Sept. *S. cyperinus*
- aa. Floral bristles absent, or with 3 or fewer, with teeth or barbs, straight or contorted; exceeding or shorter than achenes all cymules sessile, all in dense glomerules. E

E. Floral bristles absent.

*S. georgianus*

ee. Floral bristles present, 1–3.

F

F. . Up to 90cm tall, perianth bristles persistent on the achene.

*S. microcarpus*

ff. Up to 1.5m tall, bristles readily detaching from the achene.

*S. expansus*

***Scirpus atrocinctus* Fern.**

**(previously included with *S. cyperinus*)**

**scirpe à ceinture noire**



Photo by David Mazerolle



Plants form dense tussocks, the short rhizomes branching. Fertile culms are upright. There are 4–7 leaves per culm. Inflorescence is terminal, the rays ascending or spreading. The leafy bracts have blackish bases, but they are not glutinous. Spikes are arranged in cymes, most are pedicellate but for the central spikelet. Floral scales blackish, the perianth bristles project beyond them. Mature inflorescences appear nearly woolly.

Fruiting from June to July.

Found in moist soils as in meadows, marshes and ditches.

Collected from Digby and Queens counties to Cape Breton.

Ranges from NF to NT and BC, southward.

Photo by Roger Lloyd

***Scirpus cyperinus* (L.) Kunth**  
**scirpe souchet**



Photos by Ross Hall

Spikelets are small, the bristles exceeding the scales lending a woolly appearance to this species later in the season as well. The involucral leaf bases are reddish brown, separating it from the previous species. The culms may be leafier, with 5–10 per culm.

Matures later in August and September.

Wet soils in meadows and swamps.

Common throughout.

Ranges from NF to MB, south to TX and FL; variously west.

***Scirpus expansus* Fern.**  
**scirpe étalé**

Arising from a reddish rhizome, this spreading bulrush has leafy erect culms. The proximal leaves and sheaths have many septae, the blades may be to 68cm long. Resembling *S. microcarpus*, it appears to have a larger divaricate or ascending inflorescence of sessile spikelets. Involucral bract bases are green or reddish, but not glutinous. Floral scales black with green midveins,. The achenes are trigonous. The sharply toothed bristles are brittle, easily separating.

Fruiting in August and September.

Lacustrine and ditches.

Fundy shore, limited to shoreline of Lily Lake and roadside ditches in Sandy Cove, Digby Co. It was once thought to be abundant locally in Queens, Shelburne and Yarmouth counties.

Ranges elsewhere from NS to ON, south to LA and GA.

Although some consider it extirpated, we feel it will be found again.

***Scirpus georgianus* R. M. Harper**  
**(=*S. atrovirens* Willd.)**



*Photo by Roger Lloyd*

Coarse, it stands about 60cm in height. The inflorescence comprises numerous small spikelets, bearing very short bristles on the perianth. Generally cespitose.

Fruiting until late summer.

Wet soil as in swamps and in roadside ditches.

Common from Yarmouth to Guysborough counties and in eastern Cape Breton. Occasionally seen through the Annapolis Valley.

Ranges from NF to AB, south to GA and AR.

Many of our *Scirpus atrovirens* collections should be examined for possible inclusion in *Scirpus hattorianus*.

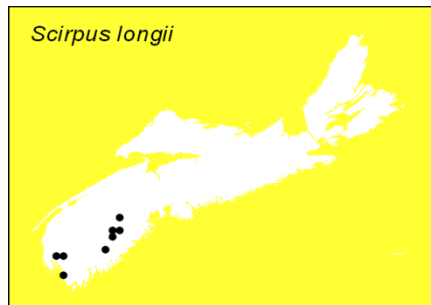
***Scirpus longii* Fern.**  
**Long's Bulrush**  
**scirpe de Long**



A tall plant, the culms bear a terminal ascending or spreading inflorescence of small spikelets arranged in an open cyme. The lateral ones are long-pedicellate. Involucral leaves are black at the base and glutinous. Often seen vegetative, the large thick creeping rhizomes form large circular colonies. Bristles of the perianth are persistent and



Photos by David Mazerolle



long exceed the reddish achenes, lending a woolly appearance to the fruiting heads of mature plants.

Fruiting June and early July.

Peat and muck on shores, fens and stillwater meadows.

With few stations, although it may be locally abundant in Queens, Shelburne and Yarmouth counties.

Ranges from NS to NJ.

***Scirpus microcarpus* J. Presl & C. Presl.**  
**scirpe à noeuds rouges**



Photos by Ruth Newell

A stout and leafy species, this mat-forming bulrush spreads from reddish rhizomes. Leafy culms only reach 50cm in height, bearing from 4–11 leaves. The lower leaf sheaths have a prominent red tinge. Inflorescence has the rays divaricate or ascending, the proximal branches glabrous, those distal scabrous. Spiklets are sessile and in dense clusters. Floral scales are green or black, Persistent bristles number four per flower and are straight or curved, densely toothed.

Fruiting from July to early August.

Grows on swamps, meadows, ditches and streamsides.



Locally abundant from Digby Co. to northern Cape Breton.  
Rare along the Atlantic.

Ranges from NF to AK, south to CA, NM and KY; Asia.

***Scirpus pedicellatus* Fern.**  
**scirpe pédicellé**



*Photo by David Mazerolle*

A rhizomatous species, it forms dense tussocks, the culms each with eight leaves. The ascending rays of the terminal inflorescence are scabrous throughout. Involucral bracts are green to black at the base but not glutinous. Spikelets are arranged in open cymes, the floral scales usually pale brown. The six perianth bristles are persistent, much longer than the achenes and extending past the sales. Styles are 3-fid. Inflorescence has a woolly appearance.



Photo by Sean Blaney

Fruiting in July.

Grows on lowlands such as marshes, swales, and swamps.

Recently collected from River Inhabitants, Inverness Co. Our older material collected as *S. cyperinus* should be re-examined.

Ranges from NF to ON, south to MO, KY and NJ.

### ***Trichophorum* Pers.**

These herbs are perennial, the trigonous or terete culms arising from rhizomes, or not. Leaves are mostly basal, the sheaths bladeless or with blades only 5mm long. Ligules are present. The terminal inflorescence comprises a single spikelet, subtended by a single involucre, a scalelike bract. There are 3–9 scales in the spikelet, spirally arranged and each subtending a flower. Flowers are bisexual, with 0–6 straight bristles, which may exceed the achene by as much as 20 times its length.

#### Key to species

Culms smooth, terete.

*Trichophorum cespitosum*

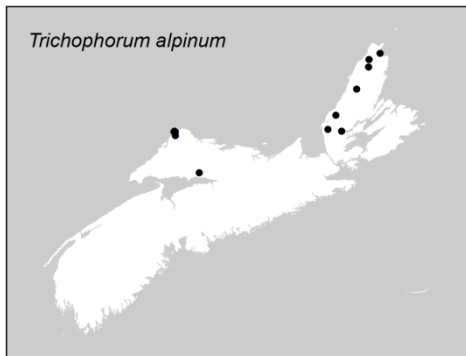
Culms trigonous, with scabrous angles.

*T. alpinum*

***Trichophorum alpinum* (L.) Pers.**  
**(=*Scirpus hudsonianus* (Michx.) Fern.)**  
**trichophore des Alpes**



*Photos by David Mazerolle*



A slender species arising from short rootstocks. The bristles of the perianth are long and silky.

Fruiting from June to August.

Wet cliffs, in bogs and poorly drained swamps.

Occasionally abundant and seemingly replacing the next species on the northern side of the province. From Digby Neck to northern Cape Breton.

Ranges from NL to AK, south to NY and ID; Eurasia.



***Trichophorum cespitosum* (L.) Hartman**

**(=*Scirpus c.* L.)**

**Deergrass; trichophore cespiteux**



*Photos by Sean Blaney*



Plants develop lawns of tussocks formed of bladeless sheathed stems hidden in the mossy substrate. Slender culms range from 10–40cm tall, channelled but smooth. Solitary spikelets comprise 3–9 flowers, the involucre bracts about as long.

Fruiting from June to August.

Dryish, peaty soils in barrens and dry bogs.

Abundant along the Atlantic side, from Digby to Cape Breton. Scattered to uncommon inland and along the Fundy shores.

Ranges from NL to AK, variously south to GA and UT; northern Eurasia.



## Eriocaulaceae

### pipewort family

Twelve hundred species split among 13 genera comprise this family. Only one reaches Nova Scotia. They are small tufted submerged plants with acutely pointed basal leaves. The flowers are borne atop a scape, in a lead-coloured button. Vegetative plants are often seen, forming colonies over the substrate.

### *Eriocaulon* L.

#### Pipewort

It is described above. There are no other aquatic plants resembling this one.

### *Eriocaulon aquaticum* (Hill) Druce

#### Pipewort; ériocaulon aquatique



Photo by Sean Blaney

Cespitose species, these plants often form mats in the silty sandy substrate of shallow waters. The long filamentous scape extends above the water surface, bearing a round waxy button of the inflorescence. The vegetative plants are easily separated from other aquatics by the presence of horizontally banded roots. The leaves are also marked by crossveins. The scape is surrounded by a sheath extending upwards for several cms. Sterile plants often form mats in water as deep as 2m.

Flowers and fruits from mid-July through September.

Frequents sandy-silty soil of lakeshores, rarely in flowing water.



Photo by Sean Blaney

Common throughout the southwestern and Atlantic regions.  
Found throughout the province.

Ranges from NF to MB, south to NC; western Scotland and Ireland.

## Haemodoraceae

### bloodwort family

Worldwide, there are about 100 species of these mostly southern hemispheric plants, in 16 genera. Two reach Nova Scotia, both with very limited distribution. Typically, ours are 30–60 cm tall and unbranched with long linear leaves, reducing in length upwards along the stem. The inflorescence is a panicle, freely branching and comprising woolly yellowish flowers.

#### Key to genera

Stamens 6; ovary only half inferior.

*Lophiola*

Stamens 3; ovary wholly inferior.

*Lachnanthes*

### ***Lachnanthes* Elliott**

#### **redroot**

A monotypic genus, this herb has a restricted distribution in Nova Scotia. It may be distinguished on the presence of red sap and the pale yellow flowers.

***Lachnanthes caroliana* (Lam.) Dandy**  
**(=*L. tinctoria* (JF Gmel.) Elliot)**  
**Redroot; lachnanthe de Caroline**



Photo by Sean Blaney



Photo by David Mazerolle



Photo by Sean Blaney

The inflorescence is compact and thinly tomentose. Flowers are light yellow, with loosely spreading corollas, almost concealing the branches of the inflorescence. They are regular and three-merous. Ovaries are inferior. Plants have a yellowish-green cast.

Flowering from July through to September.

Grows in lacustrine marshes and shores.

Very rare and known only from shorelines of eight lakes of the Medway River system.

Range includes NS; MA, south to FL, LA and TX.

STATUS: RED-listed in NS; Species of Concern in Canada.



*Lachnanthes carolina*

## ***Lophiola* Ker-Gawlor** **golden-crest**

Distinctive in appearance, this herbaceous wetland species is also a monotypic genus. The inflorescence branches and flowers are covered in a white tomentum. Flowers are brilliant yellow. The long narrow leaves are erect. Like *Lachnanthes*, it is a representative of the coastal plain flora in Nova Scotia.

## ***Lophiola aurea* Ker-Gawlor** **Golden-crest; Goldcrest; lophiolie dorée**



*Photo by Ross Hall*



*Photo by David Mazerolle*

About 50cm tall, its leaves are mostly basal and only 30cm in length. The freely branching inflorescence contains numerous white-woolly flowers, with six stamens. Upon first opening, they are showy, but soon close or contract.

Grows in wet acidic soils on lakeshores and fens.

Rare and known only in southwestern counties, from Digby Neck around to Lunenburg counties.

Limited to NS; NJ, DE; NC; GA south to FL and LA.

Nationally listed as a Species of Concern; RED-listed in NS.



## Hydrocharitaceae

### tapegrass family

A family of about 80 species, arranged in 17 genera, these annuals or perennials are wholly or partly aquatic. The leaves may be aerial, floating or submersed, whorled or in two ranks. Stems are sometimes absent. If present they may be rhizomatous, The flowers are unisexual, with both monoecious and dioecious species represented. The fruits are berrylike with many seeds. Only two genera reach Nova Scotia, including three species. Some species of other genera have invaded waterways of North America and may be expected to reach our waters.

#### Key to genera

Stems present; leaves numerous, short, less than 2cm long.

*Elodea*

Stems absent; leaves few and basal, may reach 1m in length.

*Vallisneria*

### ***Elodea* Michx.**

Truly aquatic herbs, these plants are known from both temperate and tropical fresh waters. Two species reach Nova Scotia and are occasionally reported. The leaves are whorled and ribbed. Flowers are unisexual, and the species are dioecious.

#### Key to species

Leaves oblong to ovate, obtuse.

*Elodea canadensis*

Leaves lanceolate and acute.

*E. nuttallii*



***Elodea canadensis* Michx.**

**Waterweed; élodée du Canada**



*Photo by Sean Blaney*

The leaves are sessile and mostly in threes. They range in width from 2–5mm. Inflorescences are unisexual, the peduncles of the staminate ones often abscising at anthesis. Stamens 7–9, joined proximally forming a tube, pedicels dropping before or during anthesis. The pistillate flowers are larger, forming fusiform seeds to 5mm long.

Supposedly flowering throughout the summer, rarely seen in our material.

Calm sluggish waters. Calcareous.

Common in Colchester and Cumberland counties. Known from Kings Co.

NS to SK; BC to AK, south to CA and FL



*Photo by Ross Hall*

***Elodea nuttallii* (Planch.) St. John**

**Western Waterweed; élodée du Nuttall**

Differing mainly in leaf shape, this species has sharply pointed lanceolate leaves.

Flowering from July to September.

Sluggish streams and tolerant of brackish estuarine waters.

So far known from a site near Truro. (Catling and Wojtas, ----). No extant collections in Nova Scotia.

Elsewhere from NS to MB south to NM and AB; western.

***Vallisneria* L.**  
**tapegrass**

A genus of about 10 species of wholly submersed plants, sometimes forming underwater lawns of stoloniferous and rhizomatous plants. Perennial, they bear basal linear leaves, sheathed at the base. There are several rows of lacunae on either side of the midvein. The inflorescence is long-pedunculate and cymose. The staminate and pistillate flowers are on different plants.

***Vallisneria americana* Michx.**  
**Tapegrass; vallisn rie d'Am rique**



*Photo by Ross Hall*



*Photo by Ross Hall*

The long ribbonlike leaves are only 3–8mm wide. Tiny flowers are borne on slender pedicels, the staminate ones very short and remaining submerged. The solitary pistillate flower scapes project to the water surface. After pollination they become coiled, pulling the fruit below the surface.

Flowers from July to October.

Found only in quiet waters.

Locally abundant: Shortts Lake, Colchester Co. Along the Musquodoboit River, Halifax Co.; Lake Killarney, Cumberland Co. Reported from northern Cape Breton.

Ranges from NS to MB, south to SD, TX and FL; west coast.

ORANGE-listed in NS.



## Iridaceae

### Iris family

A family of about 1800 species, it is centred about South Africa. Many cultivars have been formed of the crocus, iris and gladiolus genera, and are widely planted here. All have showy regular flowers and may be distinguished from the liliaceous plants by their possession of only three stamens and an inferior ovary. Most are perennial herbs with straplike leaves arising from creeping rhizomes or fibrous roots. Leaves in our species are oriented edgewise to the stem. Flowers are arranged in a spicate inflorescence or solitary and usually subtended by a floral bract if solitary, or by two bracts if in a spike. The perianth has two whorls of three tepals. Fruits are firm capsules with three locules containing round seeds.

#### Key to genera

Flowers 6–12cm wide; plants 40–100cm tall.

*Iris*

Flowers less than 2cm wide; plants 10–50cm tall.

*Sisyrinchium*

### ***Iris* L.**

#### **iris**

*Iris* is a genus of mostly northern-hemisphere perennials totalling about 200 species. Stems arise from rhizomes or bulbs, enlarging above to produce vegetative leaves, branches and stems, which may be simple or branched, terete or flattened. Leaves are smooth or ridged and sometimes thicker in the centre, with the cauline leaves resembling the basal leaves and all sheathing. Flowers have two spathes, which may persist and enclose capsule. They are sessile or pedicellate, the perianths epigynous and ranging in colours from pink, blue, yellow and brown, with contrasting colours and petals distinctly different from the sepals and from 4–18cm across.

Key to species

- |   |                         |
|---|-------------------------|
| A. Flowers yellow, 1–1.5m tall; capsule >5cm long.                      | <i>Iris pseudacorus</i> |
| aa. Flowers blue, plant to 80cm tall, capsule about 5cm long.           | B                       |
| B. Leaves long, linear, 3–7mm wide; capsules sharply 3-angled.          | <i>I. prismatica</i>    |
| bb. Leaves 5–30mm wide; capsule bluntly three-angled, or with 6 angles. | C                       |
| C. Petals $\frac{1}{4}$ length of the sepals, tubular.                  | <i>I. setosa</i>        |
| cc. Petals $\frac{1}{2}$ length of sepals, flat.                        | <i>I. versicolor</i>    |

***Iris prismatica* Pursh**

**Slender Blue Flag; iris prismatique**



Photo by John Crabtree

The long linear leaves are distinctive, as they rarely reach 7mm wide. Petals are oblanceolate. 3–4cm long and flat. The sharply angled capsule is especially distinctive when fresh, appearing almost winged.

Flowers mid-July.

Grows on wet substrate near the coast.

Historically collected from Annapolis, Guysborough (1960s) and Inverness counties (1980s). So far elusive from other counties.

Ranges from NS; ON; ME to GA and TN.

STATUS: ORANGE-listed in NS.

***Iris pseudacorus* L.**

**Yellow Iris; iris faux-acore**



*Photo by Martin Thomas*



*Photo by Ross Hall*

Taller, this iris has long slender stems that reach upwards of 1m in height. Flowers are bright yellow, the narrow petals about half the length of the sepals. Capsules are six-angled, a feature that separates them from the blue-flowered native species.

Flowers in June and July.

Spreading from gardens to nearby wetlands, streamsides and meadows.

Established from Yarmouth, Digby and Annapolis counties and also at several Cape Breton stations.

Naturalised from Europe. Found from NF to MB: BC, and variously south and west to CA, TX and FL.

***Iris setosa* Pallas**

**Beach Blue Flag; iris d'Alaska**

It is much shorter than our other irises, barely reaching 30cm in height. Petals are tubular and relatively undeveloped. The capsule is acute at the apex and blunt on the angles. Our variety is smaller and distinguished as var. *canadensis* Foster.

Flowers about mid-June.

Found only along the coast: beaches, headlands, cliffs.

Common along the Bay of Fundy and around the Cape Breton coast. Scattered along the south shore, but uncommon from the Strait of Canso through the Northumberland area.

Ranges from NF to ON, south to NH. AK south to BC.



***Iris versicolor* L.**

**Blue Flag; iris versicolore**



Photo by Martin Thomas



Photo by Sean Blaney

A robust iris, 50–80cm tall, its leaves are about 1.5mm wide. Petals are well-developed with an obvious blade, more than half as long as the sepals. This is our most common native iris. Albino forms have been collected at Aulds Cove, Guysborough Co. and on Seal Island, Yarmouth Co.

Flowers during June and July.

Found in meadows, swamps and along streams; weedy in pastures.

Common throughout the province.

Ranges from NL to MB, south to VA and IL; ID.

***Sisyrinchium* L.**

**blue-eyed grass**

A genus of about 80 species, mostly new world, although one is native to NZ. They are annual or perennial herbs, caespitose or rhizomatous. The stems are scapose or branched and compressed, with two wings. The leaves, 2–6 may be basal or both basal and cauline. They are usually edgewise to the stem, glabrous and sometimes glaucous. The inflorescence usually produces from 1–11 flowers with two opposite spathes. The flowers are not fragrant. Tepals are divergent or reflexed, bluish to pinkish and yellow, and without claws. Filaments and styles are connate at the base or forming a tube. Fruits are capsules, rounded at the apex and with many rounded black seeds.

**Key to species**

A. Spathe sessile distally, generally solitary.

*Sisyrinchium montanum*

aa. Spathes on long slender stalks from the axil of a leafy bract.

B

B. Stem narrowly winged, 0.5–2mm wide.

C

bb. Stem broadly winged, (2)2.5–4mm wide.

*S. angustifolium*

C. Leaf bases not becoming tufts of bristles.

*S. atlanticum*

cc. Leaf bases persisting as tufts of fibrous bristles.

*S. fuscatum*

***Sisyrinchium angustifolium* P. Mill.**

**bermudienne à feuilles étroites**



Photo by Martin Thomas

Broadly winged stems may reach 50cm, with the wings wider than the central portion of the stem. The pedunculate spathes have the outer bract evidently longer than the inner bract.

Flowers from June to August.

Found in moist areas.

Common in Yarmouth and Shelburne counties, scattered eastward to southern Cape Breton.

Ranges from NS to ON, south to FL and TX; WY; BC to OR. A coastal plain species.

***Sisyrinchium atlanticum* EP Bicknell**

**bermudienne de l'Atlantique**



Photo by Martin Thomas

A slender species, it barely reaches 50cm tall. The narrow leaves are ascending to spreading. Two or more spathes are borne on slender pedicels from the bracteal leaf axil. The two bracts forming the spathe are nearly equal in size. Flowers are much like those of *S. montanum* but smaller, 3–4mm long. The ovary and capsule are black. Its taller, flexuous habit is distinctive in the field.



Photo by Martin Thomas

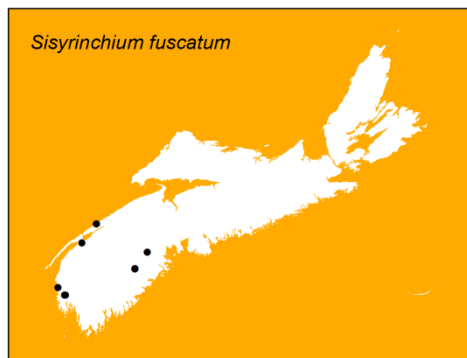
Flowers in June.

Found in damp peat, sandy soils that are poorly drained.

Common from Yarmouth and Shelburne counties east to Lunenburg Co. Scattered elsewhere.

Ranges from NS; ME to WI, south to TX and FL. A coastal plain species.

***Sisyrinchium fuscatum* EP Bicknell**  
**bermudienne fauve**



Distinct from our other species, it may be separated on the basis of persistent brown leaf base fibres. The plant is said to turn dark upon drying. While fresh it is not glaucous. The stem has a single node. Ovary is green, same as the leaves while the capsule turns brown.

Flowers from May to early July.

Grows on sandy soils.

Rare. Collected only from western counties.

Ranges from NS; MA south to FL. Rarely inland. A coastal plain species.

STATUS: ORANGE-listed in NS.

***Sisyrinchium montanum* Greene**  
**bermudienne montagnarde**



Photo by Sean Blaney



Photo by Sean Blaney

Grasslike and reaching only 20–30cm tall, this species has the leaves mostly basal and shorter than the culm. Flowers are violet-blue, arranged in an umbellate inflorescence, opening sequentially. They are about 1.5cm wide, yellow in the centre. The spathe is usually solitary and sessile, comprising two unequal bracts, the larger, several cms long. Capsule is ovoid, 4–5mm long.

Two varieties are recognised, scarcely separable

var. *crebrum* has the margins of outer spathe connate basally for 4–5.7 mm; plants drying dark brown or bronze. The typical variety has the margins of outer spathe connate basally for only 1–3.5 mm; plants drying green to olive.

Our material should be assessed to determine which material belongs to which variety.

Flowers late May through June.

Habitat preferences are wide, from fields, meadows, open forests to roadsides.

Very common throughout.

Ranges from NF to AK, south to BC; ID and TX in the west, and NC in the east.

## **Juncaceae**

### **rush family**

There are about 300 species of rushes worldwide, split amongst eight genera. Nova Scotia hosts only two genera. Resembling grasses and sedges, a closer examination reveals the presence of a three-merous perianth. A superior ovary forms three (or many) seeds within a capsule. The inflorescence is generally of

tight clusters of heads or cymes, subtended by an involucral leaf. The culms are simple, round or flattened and sometimes septate. Plants are rhizomatous or caespitose.

Seeds are required to confirm identity. The persistent stamens are also important characters.

#### Key to genera

Plants of wetlands; never pubescent. *Juncus*

Plants of dry soils; generally pubescent especially on the stems and leaves. *Luzula*

### ***Juncus* L. rushes**

A worldwide genus of 200 species, these plants are perennial wetland species borne on simple hollow or solid stems. Leaves are linear with revolute margins. The cymes comprise green or brown flowers, producing capsules with many seeds, which may have appendages. Tepals are present, 4–6 in two whorls. Stamens number 2–6.

#### Key to species

- |  |                       |
|--|-----------------------|
| A. Inflorescence appearing lateral.                              | B                     |
| B. Culms caespitose; stamens 3.                                  | <i>Juncus effusus</i> |
| bb. Culms erect from creeping rhizomes; stamens 6.               | C                     |
| C. Inflorescence about midway on the stem.                       | <i>J. filiformis</i>  |
| cc. Inflorescence much closer to the top.                        | <i>J. arcticus</i>    |
| aa. Inflorescence terminal.                                      | D                     |
| D. Leaves flat or rounded, channelled, never hollow nor septate. | E                     |
| E. Annual; inflorescence half or more the entire height.         | <i>J. bufonius</i>    |
| ee. Perennial; inflorescence one-quarter or less entire height.  | F                     |
| F. Plant with creeping or floating stems; forms dense mats.      | <i>J. bulbosus</i>    |
| ff. Culm erect or almost erect.                                  | G                     |
| G. Inflorescence of 1–2 heads, each with 1–4 flowers.            | H                     |
| H. Capsule <3.5mm long; northern Cape Breton.                    | <i>J. trifidus</i>    |
| hh. Capsule >6mm long; bogs throughout Cape Breton.              | <i>J. stygius</i>     |



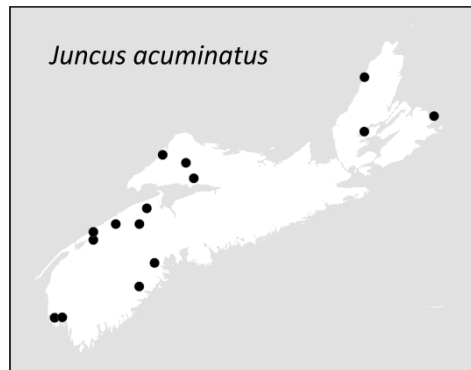
gg. Inflorescence much-branched, of numerous flowers.	I
I. Culms with at least 1 leaf on the upper half.	J
J. Leaves flat, to 3mm wide; capsule 2.5mm long; sepals bristled or acuminate; freshwater marshes, meadows.	<i>J. marginatus</i>
jj. Leaves <1mm wide, becoming revolute; sepals inrolled at the tip; capsule 2.4–3.3mm long; salt marshes.	<i>J. gerardii</i>
ii. Leaves strictly basal, except for the involucre.	K
K. Leaves flat.	L
L. Capsules with 3 locules.	<i>J. secundus</i>
II. Capsule with a single locule or incomplete multiples.	M
M. Leaf sheath auricles pointed, membranous, extending at least 1mm above leaf base.	<i>J. tenuis</i>
mm. Leaf sheath auricles rounded, leathery and not extending beyond leaf base.	<i>J. dudleyi</i>
kk. Leaves round.	N
N. Capsules greenish; seeds with long white appendages.	<i>J. vaseyi</i>
nn. Capsule brownish; seeds with short appendages only.	<i>J. greenei</i>
dd. Leaf blades, round, hollow and septate.	O
O. Flowers single or paired along the branches of the inflorescence.	<i>J. pelocarpus</i>
oo. Flowers in glomerules or heads.	P
P. Seeds with white appendages.	Q
Q. Leaves and stems rough; seeds 2–2.3mm long.	<i>J. caesariensis</i>
qq. Leaves and stems smooth; seeds <1.9mm long.	R

R. Capsule barely exerted; appendage at least 2/3 length of seed body.	<i>J. canadensis</i>
rr. Capsule strongly exerted; appendages <1/2 length of seed body.	S
S. Inflorescence with erect branches, to 5 times tall as wide.	<i>J. brevicaudatus</i>
ss. Inflorescence open, diffuse, its branches spreading.	T
T. Appendages 1/5 length of seed body; tepals blunt.	<i>J. brachycephalus</i>
tt. Appendages 1/3 length of seed body; tepals narrowly acuminate.	<i>J. subcaudatus</i>
pp. Seeds without white appendages.	U
U. Stamens 3; seeds tiny <.4mm long.	<i>J. acuminatus</i>
uu. Stamens 6; seeds >.4mm long.	V
V. Heads spherical.	<i>J. nodosus</i>
vv. Heads not spherical.	W
W. Lower leaf on the culm, erect, exceeding the inflorescence; culm to 1m.	<i>J. militaris</i>
ww. Lower leaf on the culm not exceeding the inflorescence; culm to 20cm tall.	X
X. Branches of inflorescence spreading.	<i>J. articulatus</i>
xx. Branches strongly ascending.	<i>J. alpinoarticulatus</i>

***Juncus acuminatus* Michx.**  
**jonc à tépales acuminés**



Photo by Roger Lloyd



A slender rush, not exceeding 80cm in height, it bears septate leaves. Densely packed flower heads comprise the inflorescence, each with at least 10 flowers. Stamens number three. The lanceolate tepals are about equal in length to the stramineous capsule. Seeds are without tails, a character that separates it from *J. canadensis*.

Flowers and fruit produced from late May until August.

Frequents sand and mud flats, clay soils as in sterile meadows or ditches.

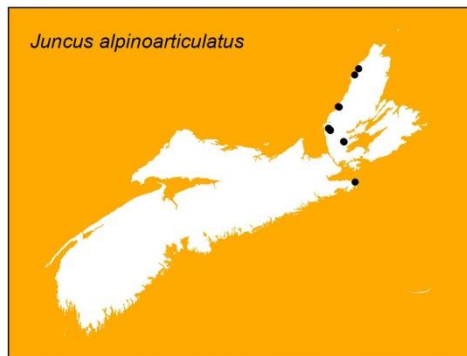
Scattered and local from Yarmouth Co. to Lunenburg, Kings and Cumberland counties and infrequent to Baddeck, Victoria Co.

Ranges from NS; QC to ON, south to FL, TX and CA. West coast. Absent from the prairies and plains.

***Juncus alpinoarticulatus* Chaix**  
**Richardson's Rush; jonc alpin**



Photo by Sean Blaney



Rarely exceeding 50cm in height, this slender species produces a narrow inflorescence at least twice as long, as it is wide. The branches bear few flower-heads, each with 1–10 flowers. The tepals are lanceolate and blunt-tipped and of similar length as the mature capsule. Stamens six.

Forms hybrids with *J. articulatus* called *J. alpiniformis* Fernald which is known from NB and not yet reported from NS.

Flowers and fruit produced during July and August.

Frequents wet shores, marshes, especially in calcareous substrate.

An uncommon species, known only from northern Cape Breton and a Guysborough Co. locality.

Ranges from NL to AK, south to UT, MI and PA.; Greenland; Eurasia.

STATUS: ORANGE-listed.

***Juncus arcticus* Willd.**

**jonq arctique**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

This rush is a slender plant, 30–50cm tall arising from creeping rhizomes. It forms dense colonies. The inflorescence arises from one side of the culm and is overtopped by an involucre leaf. 5–12cm tall. Leaves are absent. Tepals are lanceolate, marked by a purplish stripe on either side of the midrib. Capsule is brown and tapers to a narrow beak, equal to the length of the perianth.

Ours belongs to var. *balticus* (Willd.) Trautvetter.

Flowers early, from May to September.

Frequents bogs, meadows and upper reaches of saltmarshes.

Common, especially along the coast.

Ranges from NF to AK, south to CA, TX and VA.



***Juncus articulatus* L.**

**jonc articulé**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

Short in stature, it ranges from 20–40cm, bearing 2–4 narrow septate leaves. The inflorescence is 2–5cm tall, its branches irregularly spreading and with many heads of flowers. Capsules are dark brown, exerted beyond the acuminate tepals. Appendages are absent. Stamens number six.

Hybrids formed with *J. brevicaudatus* are known as *J. x fulvescens* Fern. and those with *J. canadensis* are known as *J. x lemieuxii* B. Boivin.

Flowers and fruits produced during July and August.

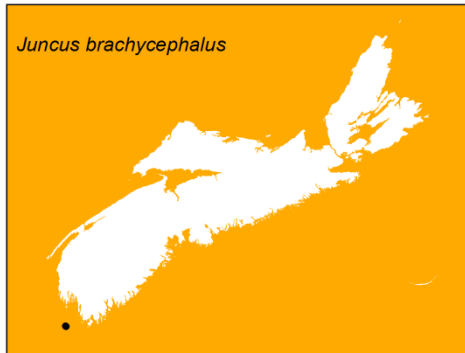
Found in wet soils in fields, ditches, muddy shores and swamps.

Found throughout and one of our most common *Juncus* species.

Elsewhere from NF to AK, south to NC, TX and CA; Eurasia.

***Juncus brachycephalus* (Engelm.) Buchenau**

**jonc à têtes courtes**



A slender species to 70cm in height, it has a large expansive inflorescence. The sepals are noticeably shorter than the petals, and have papery margins

Produces flowers and fruits from July to September.

Habitats are calcareous, meadows and shorelines.

Collected from Seal Island, Yarmouth Co. and reported from mainland Yarmouth Co. and Cape Breton.

Ranges from NS to ON, south to GA, AL and OK.

STATUS: ORANGE-listed.

***Juncus brevicaudatus* (Engelm.) Fern.**

**jonc bréviaudé**



Photo by Roger Lloyd

A slender cespitose species, it rarely exceeds 50cm in height. The inflorescence has strongly ascending branches, taller than wide. The tepals are shorter than the exerted capsule. Seeds bear tails about half as long as the seed body.

Flowers and fruits produced June to September.

Found in damp substrates in ditches, meadows, swamps, estuaries and fresh water beaches.

Common throughout.

Ranges from NL to BC, variously south to NC and MN.

***Juncus bufonius* L.**

### Toad Rush; jonc des crapauds



Photo by Sean Blaney



Photo by Roger Lloyd

A highly variable annual species, 10–15cm in height, it has very slender leaves less than 1mm wide. The flowers are single or paired along the branches. Capsule is exceeded in length by the tepals. Smaller and more compact than *J. pelocarpus*, it also has no leaves amongst the flowers.

Flowers and fruit produced from June through to November.

Found in open areas, especially roadside and in farmyards where soil compaction is evident. Also tolerates peatlands and lakeshores.

Common throughout.

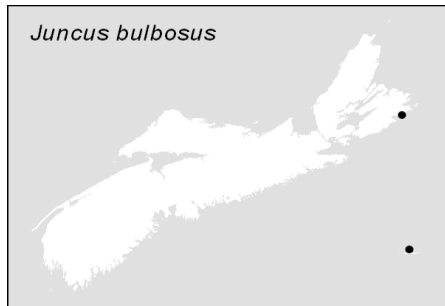
Ranges across the continent; Greenland and Eurasia.

***Juncus bulbosus* L.**

**jonc bulbeux**



Photo by Roger Lloyd



Stems of this small rush creep along the substrate or form tangled mats of vegetation. The culms arise from the nodes, bearing a simple inflorescence of 1–6 small heads, each with only a few flowers. The capsules are shorter than the tepals. *J. compressus*, another introduced rush, is very similar to this. It has been reported from Guysborough Co., but requires verification. The only character difference, is in the exerted capsules of *J. compressus*.

Flowers and fruits produced late July until September.

Found along the edges of fresh water: ditches, ponds, canals, and especially in disturbed alkaline conditions.

Sable Island; eastern Cape Breton.

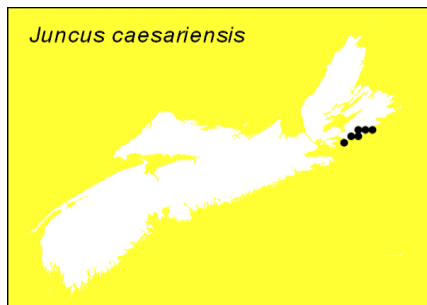
Elsewhere listed from NF, NS, MA;BC to OR. Introduced from Europe.

***Juncus caesariensis* Coville**

**New Jersey Rush; jonc du New Jersey**



Photo by Roger Lloyd



This caespitose rush reaches from 40–70cm in height. Panicle branches bear clusters of small greenish flowers, each with six stamens. The involucral bract is inconspicuous. Fruit is acutely pointed at maturity and exerted from the perianth. They are dark brown. Seeds bear well-developed appendages. Culm and leaves are rough to touch, like sandpaper, the leaves distinctly marked by septae.

Flowers and fruits produced from July through October.

Grows in peatlands, such as bogs and fens along Cape Breton's southeastern coastal plain.

Known from Gracieville, Lower L'Ardoise to Fourchu, inland to Loch Lomond, all in Cape Breton.

Elsewhere known from NJ to NC; NS.

STATUS: YELLOW-listed.



***Juncus canadensis* J. Gray**  
**jonc du Canada**



*Photo by Roger Lloyd*

More robust and coarser than most rushes, it may reach 1m in height. The inflorescence is variable, the branches ascending or spreading. Flower-heads are often hemispheric. Brown capsules equal to or only slightly exceed the length of the perianth, containing long-tailed seeds. Leaves are marked by septae.

Flowers and fruits produced from July until October.

Found in wet soils, and often emergent from shallows.

Abundant and common in NS.

Ranges from NF to MB, south to FL and LA; BC to OR.

***Juncus dudleyi* Wieg.**  
**(=*J. tenuis* var. *dudleyi* (Wieg.) FJ Hermann)**  
**jonc du Dudley**

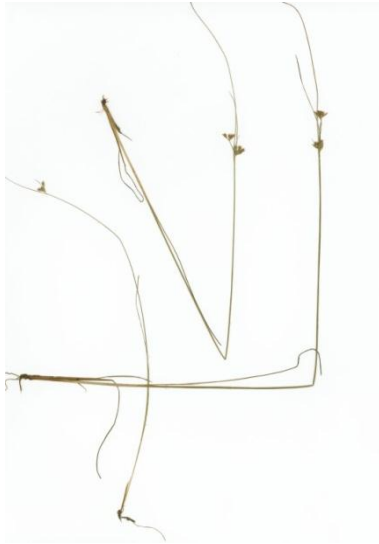
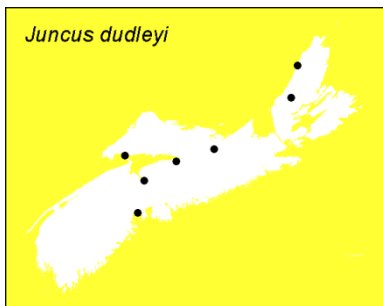


Photo by Roger Lloyd



A perennial species to 1m in height, it has densely branching rhizomes. Culms number up to 20 per plant. There are 2–3 basal leaves, their blades flat. Sheaths have yellowish leathery auricles. The inflorescences are compact to loose and lax, with up to 80 flowers in heads. The involucral bract usually exceeds the flowers. Tepals are nearly equal in size and spreading in fruit. Capsules are tan.

Flowers and fruits midsummer.

A generalist in habitat.

Known from Annapolis, Hants and Lunenburg counties.

Elsewhere known from NL to YT, south to CA, TX and AL; SC.

***Juncus effusus* L.**

(incl. *J. pylaei* Laharpe and *J. conglomeratus* L.)

Soft Rush; jonc épars Darbyshire



Photo by Roger Lloyd

A highly variable species, it now includes those forms listed above, based upon inflorescence form and pedicel length. Culms are densely cespitose and may exceed 1m in height. The culm above the inflorescence is much shorter than that below. Towards the base, there are at least 30 fine longitudinal lines. Leaves are absent.

North American material requires further study from a continental perspective prior to suggesting appropriate species or subspecies from this complex.

Frequents peatlands, such as swamps, thickets, pool margins.

Scattered throughout and fairly common.

Ranges from NL to MB, south to TX and F; AK to AZ. Absent from the high arctic and some of the plains region.

***Juncus filiformis* L.**

jonc filiforme



Photo by Roger Lloyd

A slender perennial species, its stems arising in rows from short rootstocks, no taller than 50cm. The inflorescence is lateral and has much fewer flowers than does *J. effusus*, arising about midway along the culm. The tepals are light brown or green, to 4.2mm long. Seeds have no tails.

Flowers and fruiting from June through August.

Found on lakeshores, in meadows, ditches and swales.

Scattered throughout Nova Scotia.

Ranges from NF to AK and variously south to OR, NM and WVA; Greenland.

***Juncus gerardii* Loisel**

**Black Grass; jonc de Gérard**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

A small colonial rush, it rarely exceeds 30cm in height. Its 1–4 leaves arise from below the middle of the culm.

Inflorescence is terminal, 3–7cm tall, the tepals borne on erect or ascending branches. In fruit the sepals curve inward over the fruit. Seed capsules are longer than the perianth, tepals dark brown and even black.

Flowering and fruiting from June to September.

Brackish soils of the upper saltmarshes around the coast; dykelands. May form pure stands.

Common throughout.

Ranges from NF to MB; BC; variously south to OR and VA; Greenland.

***Juncus greenei* Oakes & Tuckerman**  
**Greene's Rush; jonc de Greene**



Photo by Roger Lloyd



A tall and slender rush, it bears short basal leaves, round in cross-section. The mature capsules exceed the perianth in length. Seeds are barely 0.5mm long and bear no tails at either end.

Flowers and fruits produced from June through October.

Found only on sandy soils and in dune hollows.

Frequent where found but known so far only from Shelburne, Halifax, Cumberland and Antigonish counties.

Elsewhere, ranges only from NS to ON, south to IL and NJ.

STATUS: ORANGE-listed in NS.



***Juncus marginatus* Rostk.**

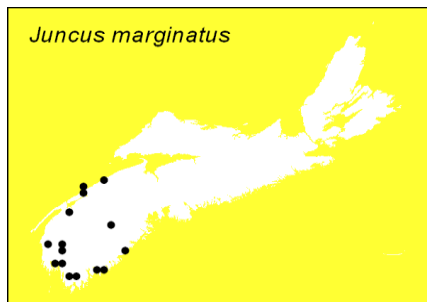
**jonc marginé**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*



Reaching a height of 20–40cm, this rush has compressed stems and flattened leaves 2–3mm wide. The involucral leaf is much shorter than the inflorescence. Branches of the inflorescence are widely divergent but few. The obovate capsules are crowded into heads, brown or brown-spotted on inconspicuous perianths. Seeds are yellow or light brown.

Flowers and fruits from June through September.

Found in clay soils, along streamsides, or in fields and roadsides.

Local in Yarmouth and Shelburne counties north to Annapolis Co.

Ranges from NS; ON; BC, south to TX and FL; BC to AZ.

***Juncus militaris* Bigelow**

**jonc militaire**



*Photo by David Mazerolle*

Distinctive in its size, this rush reaches up to 1.5m in height. The culms are strongly septate. Generally there is at least one leaf arising midway and extending above the flowers. The inflorescence is crowded, freely branching and with many hemispheric flower heads. Capsules are prominently beaked.

Flowers and fruits from late June to September.

Lacustrine: sand and peaty shallows where it is emergent, often forming large colonies.

Common in the southwestern counties and eastward along the Atlantic. Infrequent in the northern waters.

Ranges from Atlantic Canada; ON, south to IN and MD.



*Photo by David Mazerolle*



Photo by Roger Lloyd

***Juncus nodosus* L.**

**jonc noueux**



Photo by David Mazerolle

Rarely exceeding 50cm in height this slender species has septate leaves. Leaf sheaths have auricles 1mm high, yellow green in colour. The inflorescence may have a few divergent branches bearing nearly spherical heads crowded with flowers, producing narrow capsules only scarcely longer than the perianth.

A northern species, producing flowers and fruits only in July and August.

Frequents sand and mud, on cobbly shores of lakes and in swales.

From Yarmouth Co. to northern Cape Breton. Few Atlantic collections.

Ranges from NF to AK, south to CA. TX and VA



*Photo by Roger Lloyd*

***Juncus pelocarpus* E. Meyer**  
**jonc à fruits bruns**



*Photo by David Mazerolle*

A slender, colonial species, reaching no more than 50cm in height. The leaves are very narrow and septate. Cymes are freely branching bearing solitary or paired flowers. Sometimes, bulblets replace the flowers in the inflorescence.

A rush of bogs and peatlands with fluctuating water levels.

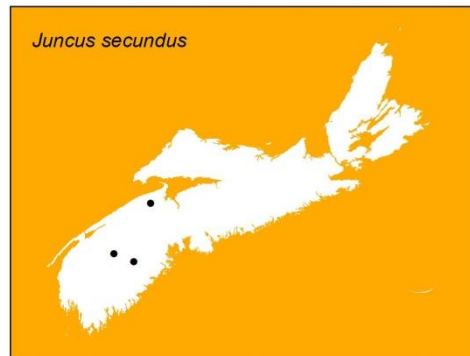
Found throughout the province and especially common in western counties.



Photo by Roger Lloyd

Ranges from NL to ON, south to MN, IN, FL; west coast.

***Juncus secundus* P. Beauv.**  
**jonc à fleurs unilatérales**



Leaves on this rush are short, extending less than a third of the height of the culm. Their sheaths have pale auricles. Involucral leaf is shorter than the inflorescence. Tepals are green and acuminate. Seeds are unadorned by tails. Flowers appear to arise from the inner side of the branches only.

Grows on sterile clay or sandy soils.

Collected only from Kings and Queens counties.



Ranges from NS; ON, variously south to OK, LA and GA.

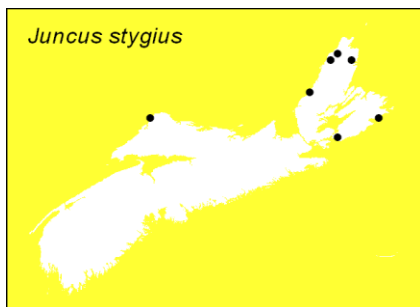
ORANGE-listed in NS.

***Juncus stygius* L.**

**Moor Rush**



Photo by David Mazerolle



A slender rush, rarely more than 20cm but may reach 40cm tall. One or two short leaves are usually present, marked by imperfect septae. Inflorescence comprises 1–4 flowers in each of 1–2 heads. Capsules are about 6mm long; the seeds may have tails as long as or slightly exceeding their length.

Usually solitary or cespitose, fruiting by July or August.

Bogs, bog pools and wet moss.

Limited to Cape Breton localities, where it may be common but local.

Ranges from NF to AK, south to MN; NY; WY; Eurasia.

STATUS: YELLOW-listed in NS.

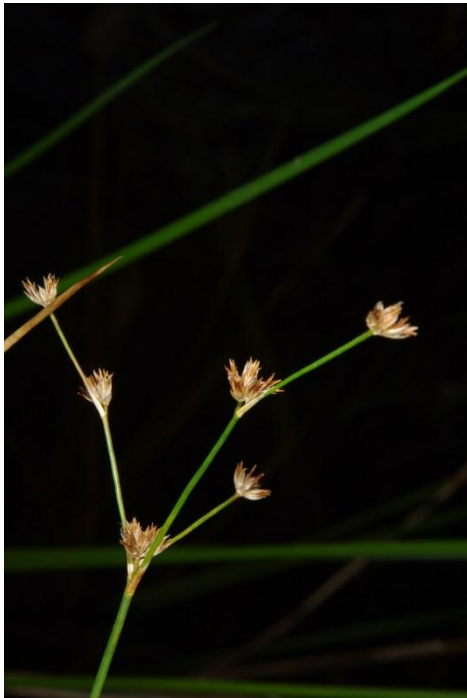
***Juncus subcaudatus* (Engelm.) Covile & Blake**

**jonc subcaudé**



A taller rush, from 30–80cm but slender. The inflorescence is diffuse, its lowermost branches nearly horizontal. Flower clusters may have few flowers or many. Perianth has acute petals and short sepals. The capsules are exserted beyond the perianth. Although similar to *J. canadensis*, it differs in having smaller seeds to 1mm long and shorter tails.

Flowers and fruits produced from July through October.



*Photos by Martin Thomas*

Conifer woods and spruce swamps, where substrate is soggy.

Scattered from Yarmouth to Kings and Halifax counties.  
Richmond Co.

Ranges from NF; NS; ME to MO, AL and GA.

YELLOW-listed in NS.

***Juncus tenuis* Willd.**

**jonc grêle**



Another slender species, ranging from 20–40cm tall and bearing narrow leaves below the middle of the culm. The sheath has a papery projection above the leaf base. The inflorescence has divergent branches; the flowers are secund.

Flowers and fruits from June through September.

A generalist found in fields, along roadsides and in meadows.

Abundant throughout.

Found throughout the continent.

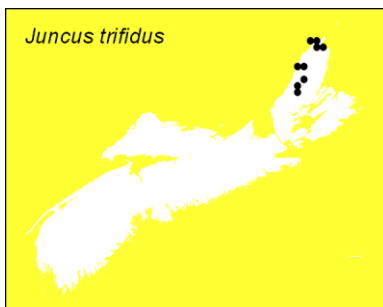
Photo by Roger Lloyd

***Juncus trifidus* L.**

**Highland Rush; jonc trifide**



Photo by Roger Lloyd



Arising on slender culms at least 20cm in height, this rush produces 2–4 leaves at most. The leaf sheaths are persistent at the base. Inflorescence is usually a solitary flower head, of 2–4 brownish flowers. The involucre extends above the flowers. Capsules are slender and beaked, the beak extending beyond the tepals.

Flowers and fruits from June through August.

Found in dry crevices of cliffs and headlands; barrens on the plateau.

Limited to northern Cape Breton.

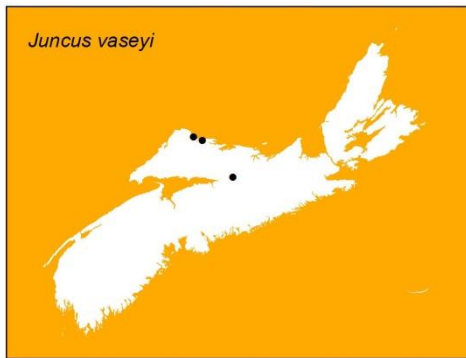
Found from NU south to NC and TN; Greenland; Eurasia.

***Juncus vaseyi* Engelm.**

**Vasey's Rush; jonc de Vasey**



*Photo by David Mazerolle*



Standing about 50cm tall, this rush produces basal leaves, round in cross-section. The inflorescence is short and compact terminal on the culm and subtended by an involucral leaf extending above it. Capsules are about 5mm long, extending beyond the perianth at maturity. Seeds bear whitish tails at both ends, a distinguishing feature of this species.

Flowers and fruits in July.

Grows on acidic substrates as on lakeshores and in bogs.

Found only once so far as known, at Linden Cumberland Co.

Ranges from NS to NT, south to UT, IL and VT.

STATUS: ORANGE-listed in NS.

***Luzula* DC**  
**wood-rushes**

Resembling the genus above, they differ mainly in the presence of pubescence in the axils of the leaves. Flowers also tend to be thin and papery in *Luzula* rather than green and substantial. Seeds number three.

## Key to species

- A. Flowers solitary, less frequently in pairs in each head. B
  - B. Inflorescence an umbel; early spring flowers. *Luzula acuminata*
  - bb. Inflorescence diffuse, with many branched rays; mid-summer flowers. *L. parviflora*
- aa. Flowers >2 in each cluster or head. C
  - C. Flowers white, 3–6 per head. *L. luzuloides*
  - cc. Flowers few to many per cluster; pale to dark brown. D
    - D. Inflorescence small and interrupted; arching or nodding. *L. spicata*
    - dd. Inflorescence not interrupted, erect. *L. multiflora*

### ***Luzula acuminata* Raf.**

#### **luzule acuminée**



*Photo by Sean Blaney*

Ranging from 15–30cm tall, this wood-rush produces basal and cauline leaves, the lower ones to 8mm wide. The leaves, stems and flowers are pubescent at their bases only. Straw-coloured flowers bearing three stigmas are arranged in an umbel, 1–2cm in diameter. Pedicels elongate and become lax in fruit. Capsules exerted from the perianth.

Becomes conspicuous in early May in flower and fruit.

Mixed or deciduous forests, along banks and in thickets.

Scattered to common throughout.

NL to AB, south to SD, LA and FL.





*Photo by David Mazerolle*

***Luzula luzuloides* (Lam.) Dandy and Wilmott**

**Forest Wood-rush; luzule blanche**



*Photo by Roger Lloyd*

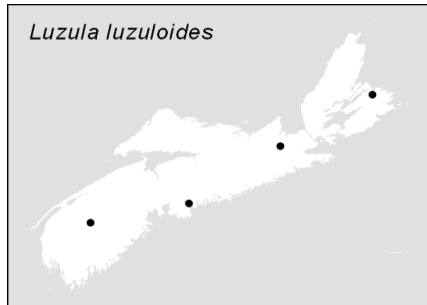
White flowers are arranged in clusters of 2–8, producing reddish capsules. The leaves are long-acuminate.

Flowers and fruits in June.

A weedy species of grasslands.

Scattered to common where found. So far known only from Kejimikujik National Park, Halifax and Sydney.

NS; QC to ON, south to WS, MN and PA. Introduced from Europe.



***Luzula multiflora* (Retz.) Lejeune**  
**Common Wood-rush; luzule multiflore**



*Photo by Roger Lloyd*

A variable species, but generally it has an ample inflorescence of 3–16 clusters of brown flowers. The leaf sheaths bear copious tufts of spreading pubescence. We have two subspecies.

Tepals of both whorls similar in colour and the presence of acute tips.	<i>ssp. multiflora</i>
Tepals of both whorls dissimilar in both colour and tips.	<i>ssp. frigida</i> (Buch.) Krek.

Flowers and fruits from June through August.

Found in fields, barrens, headlands and open forest.

Abundant throughout Nova Scotia.

Ranges from NF to AK, south to NC, NM and CA; Greenland; Eurasia.

***Luzula parviflora* (Ehrh.) Desv.**

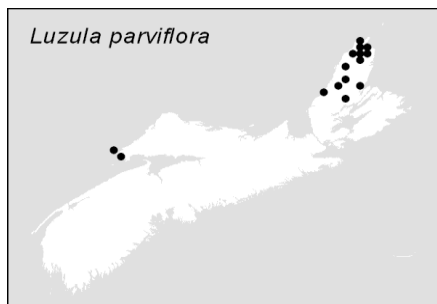
**Small-flowered Wood-rush; luzule parviflore**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*



A taller species than our other *Luzulas*, reaching 80cm under optimal growth. Branches of the inflorescence are further divided distally. The flowers are stramineous and nearly transparent, producing brown capsules.

Flowers and fruits throughout the summer.

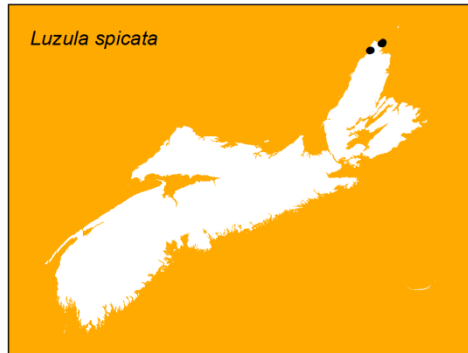
Grows on alluvial soils in intervalle forests and rocky streambeds.

Scattered in northern Cape Breton and west to the coastal areas of Cumberland County, where it is rare.

Ranges from NL to AK, south to NY, CA and NM; Greenland; Eurasia.

***Luzula spicata* (L.) DC**

**Spiked Wood-rush; luzule en épi**



Arising on reddish stems, the plants reach 10–40cm in height. The inflorescence is lax or arcuate. The sepals are bristle-tipped and the floral bracts are silver, exceeding the flowers.

Flowers and fruit from June through August.

Exposed cliffs and headlands.

Only known from Bay St. Lawrence, Victoria Co. No NS collections are extant.

Ranges from NF to AK, south to NY, NM and CA; Greenland; absent from NB, ON and SK.

## **Juncaginaceae**

### **arrowgrass family**

These are herbaceous perennials or annuals which are acaulescent and without turions. Generally rhizomatous, the leaves are basal and with persistent sheaths and auricles. The inflorescence may be racemose, spikelike, corymbose, but is rarely of solitary perfect flowers. The perianth is present, subtending bracts are absent. Tepals are solitary or in sixes, arranged in 1–2 series. Fruit is a nutlet or schizocarp, with a single seed.

### ***Triglochin* L.**

#### **Arrowgrass**

The range of this genus is cosmopolitan. The plants are perennial, occasionally tuberous, arising on stout rhizomes. Leaves are erect and terete; sheath has a ligule which may be entire or bilobed at the tip. The inflorescence is a spikelike raceme, the scape may be longer or shorter. Flowers are bisexual, distinct and yellow-green, with 4–6 stamens. There are six pistils, three fertile, three sterile or six fertile, separating when mature. The ovules are carried one per locule. The styles are absent. Fruits are schizocarps, globose to linear.

Key to species

- |   |                             |
|---|-----------------------------|
| A. Ovaries 3; follicles linear, >6mm long.                            | <i>Triglochin palustris</i> |
| aa. Ovaries 6; follicles ovoid, <5mm long.                            | B                           |
| B. Height of leaves equalling that of the scape, very narrow.         | <i>T. gaspense</i>          |
| bb. Height of leaves shorter than the scape, leaves slender to thick. | <i>T. maritima</i>          |

***Triglochin gaspense* Leith & D. Löve**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Plants have the previous year's leaves persistent at the base, 10–15 cm tall. The leaves are divergent from the sheath, slender, almost terete, equaling or slightly longer than the scapes, at 5–10cm. Leaf blades are very slender, 0.5–1 mm wide, their apices acute. The scapes are often purple near base, the racemes usually 3–5cm tall. The fruiting receptacle is wingless; the schizocarps are linear, their beaks recurved,

As only a limited number of collections have been made from Nova Scotia, the flowering season here is unknown.

Intertidal or saline sites.

Known from Yarmouth, Shelburne, Queens and Richmond counties.

Ranges from NF to QC; ME.

STATUS: remains undetermined.





Photo by Roger Lloyd

***Triglochin maritima* L.**  
**Arrowgrass**



Photo by Sean Blaney

Arising on an erect simple stem, this plant reaches 70cm in height. The basal leaves are from 1–3mm wide. The terminal raceme is long and narrow, with flowers borne on erect recurving pedicels. The oblong fruits are dry, the six stigmas persistent, cleft at the apex.

Flowers from early June into July.

Frequents saltmarshes and saline soils elsewhere. Sometimes found in highly acidified lakeshores or ponds.

Scattered and even common throughout Nova Scotia.

Ranges across the continent to AK, south to CA, NM and MD.



*Photo by Roger Lloyd*

***Triglochin palustris* L.**



A slender species, rarely exceeding 40cm tall, noticeably smaller than our other common species. The dehiscent fruit are linear or clavate, rather than oblong. Flowers have only three short stigmas. Scape is broadly winged.

Early flowering from May to July.

Typical habitats include inner brackish saltmarshes and sand flats. Rarely on mere peat.

Scattered throughout but often overlooked.

Greenland; NF to AK, south to PA, IL and CA.

Photo by Sean Blaney



Photo by Roger Lloyd

## **Lemnaceae**

### **duckweed family**

A small family including only 30 species, they are arranged within six genera. Tiny in stature, rarely do they exceed 10mm in length. All are aquatic and generally floating. They are distinctive in having a thallus, an undifferentiated vegetative body reproducing by budding. There may be one or more simple roots. Flowers are usually absent, if present they are highly reduced.

A. Plants with several roots; almost round and reddish below.

*Spirodela*

aa. Plants with a single root; green below.

*Lemna*

### ***Lemna* L.**

This genus of 10 species is cosmopolitan in range. Two species are native to Nova Scotia. The thallus is marked by 1–5 tiny nerves, sometimes not visible. It is green above and below. There is but a single root.

Key to species

A. Thalli ovate, 2–5mm long, floating on the surface.

*Lemna turionifera*

aa. Thalli long and narrow, narrow base attached to mother plant, submerged.

*L. trisulca*

***Lemna trisulca* L.**

**Star Duckweed**



*Photo by Ross Hall*



*Photo by Ross Hall*

A submerged plant, its thallus is of a very different shape than the following species. It is oblong to ovate or even oblanceolate in outline, attaching to the mother plant by a narrow stipe. New plants remain attached for some time, hence the tangled matted appearance of its colonies. Larger plants may reach 6–8mm long. Producing only a single seed, it remains immersed.

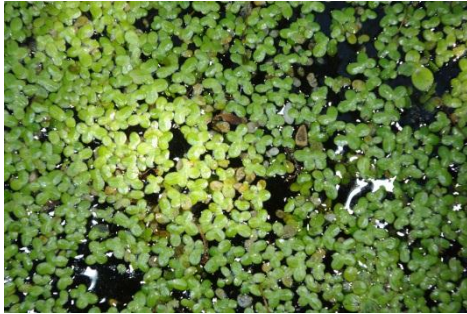
May be abundant in pools, shallows and slow-flowing streams.

From Kings and Cumberland counties to Cape Breton.

Ranges from NS to AK, south to CA, TX and AL.

***Lemna turionifera* Landolt**

**Turion Duckweed**



*Photo by Martin Thomas*



*Photo by Ross Hall*

Smaller than *Spirodela*, this duckweed bears only a single root. Its lower surface is green, as is the upper one. Our material was mistakenly included in *L. minor*.

Aquatic, floating. Forms large mats on shallow pools in late summer.

Ranges here from Annapolis Co. to northern Cape Breton.

Found from NF to AK, south to CA, TX and AL.

***Spirodela* Schleid.**

**Duckweed**

Cosmopolitan in range, only one of the four species is native to Nova Scotia. The thallus is round and sometimes convex below, marked by several veins. There are 2–12 roots below and two reproductive pouches along the side. Inflorescence comprises three tiny flowers, two are staminate carried in one of the pouches, but not often produced.

***Spirodela polyrhiza* (L.) Schleid**

**Duckweed**



*Photo by Ross Hall*

The thallus is broad and ovate, 6mm long and with 4–8 roots below. Lower surface is purplish red and marked by the 6–7 veins arising from one end.

Surfaces of streams and ponds.





Photo by Ross Hall

Distributed from Kings and Cumberland counties, scattered to Inverness and Victoria Cos.

Elsewhere from NS to BC, south to CA, FL and Mexico; Central America and Eurasia.

## Liliaceae

### lily family

While there is much compelling evidence available to divide this polyphyletic family into as many as 25 families, the older classification *sensu* Cronquist is retained here.

Many are familiar as garden ornamentals and food plants such as onion, garlic, tulip and lily. The flowers are showy and mostly regular, three-merous and with a superior ovary.

#### Key to genera

- |   |                     |
|---|---------------------|
| A. Leaves mostly basal.   | B                   |
| B. Flowers orange; 8–11cm long.   | <i>Hemerocallis</i> |
| bb. Flowers not orange, much smaller.   | C                   |
| C. Flowers solitary.  | <i>Erythronium</i>  |
| cc. Flowers several to many.  | D                   |
| D. Leaves linear, or, absent at flowering time.                               | E                   |
| E. Flowers in an umbel, terminal, numerous; leaves absent.                    | <i>Allium</i>       |
| ee. Flowers in an open cluster, or dense raceme.                              | F                   |
| F. Leaves with white stripe on midrib; flowers white, 2–8 on long peduncles.  | <i>Ornithogalum</i> |
| ff. Leaves green; flowers greenish, in dense racemes on very short peduncles. | <i>Triantha</i>     |
| dd. Leaves oval to elliptic, present at flowering.                            | G                   |
| G. Flowers in an umbel, 3–6, yellow.  | <i>Clintonia</i>    |
| gg. Flowers in a one-sided raceme, white.                                     | <i>Convallaria</i>  |
| aa. Leaves mostly cauline.  | H                   |
| H. Leaves in one or more whorls.  | I                   |

I. Leaves in numerous whorls; flowers >4cm in diameter.	<i>Lilium</i>
ii. Leaves in 1–2 whorls; flowers much smaller.	J
J. Leaves 3 in a single whorl; flowers white or purple.	<i>Trillium</i>
jj. Leaves in 2 whorls, or 5–9 leaves; flowers yellow, small.	<i>Medeola</i>
hh. Leaves alternate.	K
K. Flowers numerous in a terminal inflorescence.	L
L. Plants delicate, glabrous; leaves 1–2 petiolate.	<i>Maianthemum</i>
II. Plant coarse, robust; stems pubescent; leaves many, clasping stem.	<i>Veratrum</i>
kk. Flowers occurring singly or in pairs in the leaf axils.	M
M. Leaves reduced to minute scales; distal branches filiform.	<i>Asparagus</i>
mm. Leaves not scalelike, broad, flat, green.	N
N. Tepals fused to form a tube.	<i>Polygonatum</i>
nn. Tepals distinct, not fused.	O
O. Flowers 1–2, campanulate and terminal; stem prolonged beyond the flowers.	<i>Uvularia</i>
oo. Flowers many, in pairs or single, pendent from the leaf axils; cylindric; pedicel and peduncle jointed, lending a twisted appearance.	<i>Streptopus</i>

## ***Allium* L.**

A genus of about 500 species, it includes onion, leek and garlic as well as some ornamentals. The erect stem arises from a bulb, clad in several layers. Most of the leaves are basal. The scape bears a cluster of white to purple flowers arranged in a head.

### ***Allium tricoccum* Aiton**

#### **Wild Leek; ail des bois; ail sauvage**



*Photo by Ross Hall*

Leaves appear early in May, soon to disappear, prior to flowering. Similar in shape to those of *Erythronium*, this species' leaves have no purplish markings, turning yellow before withering. Scapes reach 30cm, erupting from elliptic bulbs. The umbels are crowded with white flowers, producing trilobed capsules, with 1–2 seeds per lobe. The onion odour is noticeable in these plants.



Photo by Sean Blaney

Two varieties are known, the smaller plants are var. *burdickii* Hanes while the larger plants belong to var. *tricoccum*.

Flowering in late July.

Limited to the fertile deciduous forests and alluvium on intervals.

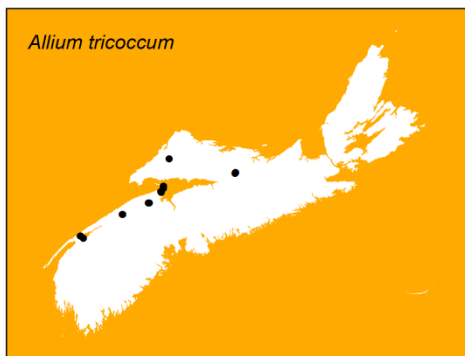
A very local species with known stations along the north mountain ridge in Digby and Kings counties, Brooklyn Corner, Kings Co. and Kemptown, Colchester Co.

Found from NS to MB; south to OK and GA.

STATUS: ORANGE-listed in NS.



Photo by Sean Blaney



## ***Asparagus* L.**

Native to Europe, this genus of 300 species has spread to North America as cultivated material. A single species reaches Nova Scotia. Most are upwards of 2m in height, freely branching, with the leaves reduced to small scales. There are many short branches clustered in the axils of the scales. These are flattened and photosynthesize. Flowers are small green and imperfect, producing red berrylike fruit.

***Asparagus officinalis* L.**

**Asparagus; asperge**



*Photo by Ross Hall*

The stems are 1–2m tall giving rise to slender lateral branches. The scalelike leaves bear tufts of short linear branchlets from their axils. Flowers are greenish and only 2–4mm long, arranged in clusters of 1–3 from the branch nodes. The pedicels have a wide swelling midway along the length. Berries are red, about 8mm in diameter.

Flowers in June.

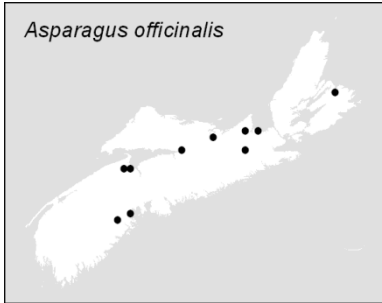
Occasionally escaped from gardens and persistent in nearby fields, thickets or orchards; railroad beds.

Collected from Lunenburg and Kings counties to Truro and Sydney.

Widely cultivated so widely escaping from all provinces and US. Introduced from Europe.



*Photo by Ross Hall*

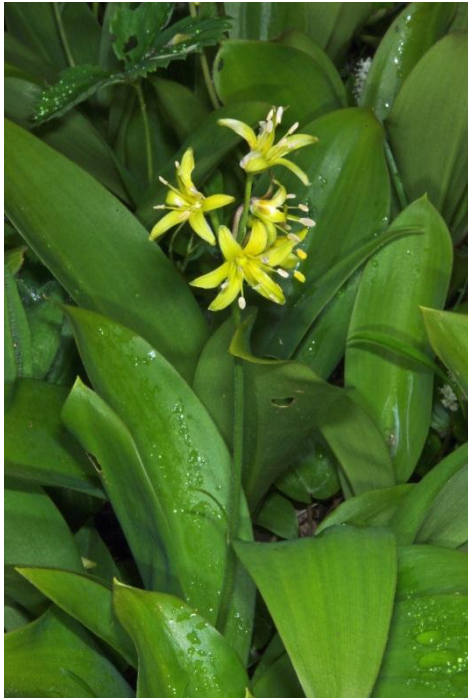


## ***Clintonia* Raf.**

One of six species reaches Nova Scotia, a common and familiar spring wildflower. Arising on creeping rhizomes, this herb occurs in colonies. Each plant produces 2–5 basal leaves, lanceolate in outline. The scape bears a terminal cluster of 1–3 campanulate flowers.

### ***Clintonia borealis* (Aiton) Raf.**

#### **Clintonia Lily; Bluebead Lily; clintonie boréale**



*Photo by Martin Thomas*

A perennial, the scapes reach no more than 20–30cm in height. It produces two or more broadly elliptic glossy leaves. The several yellow flowers are arranged in a nodding umbel. Perianth comprises six distinct tepals. Fruits are oblong glaucous blue berries, 8mm in diameter.

Flowers in early June.

Found in shaded soils of forests, especially conifer or mixed conifer woods.

Common throughout.

Ranges from NF to MB, variously south to TN and GA.





Photo by Martin Thomas

## ***Convallaria* L.**

### **lily-of-the-valley**

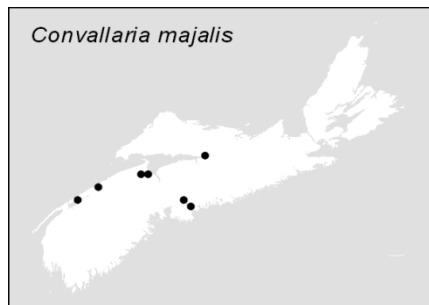
A monotypic genus, it has been a favourite cultivated ornamental for many years. Arising from creeping rhizomes, plants quickly spread. Leaves are dark green and glossy, borne at the base. The angular scape terminates in a second raceme of nodding campanulate flowers.

## ***Convallaria majalis* L.**

### **Lily-of-the-valley**



Photo by Martin Thomas



Standing only 20–30cm tall, the plants grow from stout trailing rhizomes. Leaves number 2–3, and are lanceolate, arising near the base. The raceme is 3–8cm long, subtended by bracts. The nodding white flowers are borne on recurved pedicels, sweetly fragrant. The lobes of perianth are also recurved from the apices.

Flowers from late May into June.

Persisting and spreading after cultivation in dooryards, cemeteries and roadsides.

Limited to mainland Nova Scotia.

Ranges from NF to ON; SK and variously west to OR and south to AL; Eurasia. Naturalised from Europe.

***Erythronium* L.**  
**trout-lily**

This genus of 15 species is limited to North America, but for one species. Strongly colonial, the plants carpet the ground wherever found. Leaves are green, marked by purple or brown splashes. Half of the slender stem remains subterranean, making the whorl of leaves appear basal. A single species is found in Nova Scotia, bearing lilylike yellow flowers.

***Erythronium americanum* Ker-Gawlor**

**Trout Lily; Dogtooth Violet; érythrone d'Amérique**



*Photo by Martin Thomas*



*Photo by Sean Blaney*

Standing 10–20cm tall, its stem arises from a deep round corm, partly remaining underground. Plants tend to form large colonies of single leaved plants arising from slender stolons. Leaves are widely lanceolate and darkly blotched. The yellow flowers are about 2cm wide, nodding from recurved pedicels. Fruits are short ovoid capsules.

One of our earliest wildflowers, appearing in early May.

Frequents upland deciduous forests, especially beech and maple. Alluvial soils on the intervalles.

Limited to the fertile uplands of the Annapolis Valley through the Cobequids to Pictou Co. and Cape Breton.

Elsewhere found from NF to ON, south to LA and GA.

## ***Hemerocallis* L.**

### **day-lily**

A genus of about 20 species, they are Eurasian natives, reaching Nova Scotia only as cultivated and persistent plants. The long straplike leaves are mostly basal. The inflorescence is branching, borne on a long scape. Flowers are large, variously red to yellow and orange, resembling the true lilies. Each flower lasts but a day.

## ***Hemerocallis fulva* L.**

### **Tawny Day-lily; hémérocalle fauve**



*Photo by Martin Thomas*

Coarsely branching, the scape may reach nearly 1m tall. Leaves are copious and very long, to 2.5cm wide. The flowers are 6–7cm long, carried in an irregular branching inflorescence.

Flowers from July through August.

Persisting in old gardens in ditches and fallow soils.

Scattered throughout, but more common in the Annapolis Valley.

Ranges from NS to ON, variously west to OR and south to TX and FL. Introduced.

## ***Lilium* L.**

### **lily**

A genus of 80 species, only one is native to Nova Scotia. Typically they are perennial herbs arising from an irregular or ovoid bulb. Leaves are scattered along the stem or in whorls from 1–12, each ovate or elliptic in outline. Stems are green or purplish and usually glabrous. The inflorescence is bracteate, umbellate or racemose, the bracts 1–2 per flower. Flowers are pendent and pedicellate, the sepals and petals differentiated. Nectaries are present. Flowers range from red to white or yellow and all colours between.

***Lilium canadense* L.**

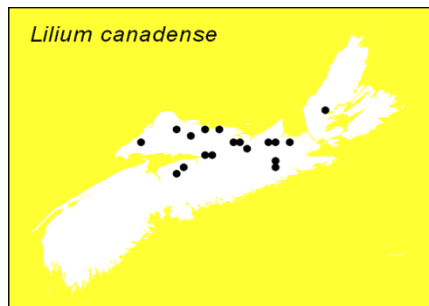
**Canada Lily; Wild Lily; lis du Canada**



*Photo by Martin Thomas*



*Photo by Eugene Quigley*



Erect, simple stems 60–150cm tall, bear whorls of 4–10 leaves. Flowers are 6cm long, borne on recurved pedicels, one or more per plant. They are yellow or orange yellow, spotted reddish within.

Flowers in July.

Meadows, floodplains and streamsides.

Local; from Kings and Cumberland counties eastward to southern Cape Breton.

Becoming rare throughout its range, from NS to ON variously west to KS and south to AL.

***Maianthemum* Wiggers**  
**wild lily-of-the-valley**

Now the genus includes the species formerly separated as *Smilacina*, bringing the number of species to 30. All are perennial herbs, some even aquatic. Ours are terrestrial plants arising from creeping rhizomes 10–120cm tall. The stems are simple, arching or erect. There are 2–15 cauline and paired, clasping or short-petiolate leaves. Their blades are usually ovate, glabrous or weakly pubescent, the bases rounded or cordate. Inflorescences are terminal, panicle or racemose. The flowers are 3-merous (six tepals, six stamens) or, by reduction, 2-merous (four tepals, four stamens). The perianth is spreading with the tepals distinct, white, ovate or triangular.

#### Key to species

- A. Inflorescence a panicle, the branches well-developed; tepals inconspicuous, <1mm long. *Maianthemum racemosum*
- aa. Inflorescence a raceme, flowers 1–4 per node; tepals >1mm long. B
- B. Leaves 8–11 on fertile shoots; tepals 6; immature fruits green striped with black. *M. stellatum*
- bb. Leaves 2–4; tepals 4–6; immature fruits green spotted red. C
- C. Leaf blade tapered; racemes simple; tepals 6. *M. trifolium*
- cc. Leaf blades with narrow sinus, distal leaf cordate; racemes with 2 flowers per node; tepals 4. *M. canadense*

#### ***Maianthemum canadense* Desf.**

##### **Wild Lily-of-the-valley**



Photo by Sean Blaney



Photo by Martin Thomas

A small neat plant no more than 15cm tall, with one or two leaves and white flowers in a raceme, 2–3cm tall. The berries are pale red with purplish spots. The leaves are clasping and cordate, with the flowers four-merous.

Flowers late May and June.

One of the first plants to colonise beneath conifers.

Very common throughout the province.

Ranges from NF to YT, south to WY and GA.



***Maianthemum racemosum* (L.) Link**

(=*Smilacina r.* (L.) Desf.)

**Large False Solomon's-seal; Solomon's Plume**



Photo by Martin Thomas

Standing 40–70cm tall, the flexuous stems bear two rows of puberulent elliptic leaves. Dull green, they are borne on very short pedicels. Flowers are numerous, 2–3mm wide on short pedicels. Fruits are reddish berries spotted with purple.

Flowers early in June.



Photo by Martin Thomas

Grows in open canopied deciduous forests, edges of clearings or thickets.

Not common in the southwest, becoming more frequent northward.

Ranges from NS to AK, south to CA and FL. Absent from YT.

***Maianthemum stellatum* (L.) Link**

(=*S. stellata* (L.) Desf.)

**Starry False Solomon's Seal; smilacine étoilée**



Photo by Sean Blaney

An erect herb standing 30–40cm tall. The dull leaves are marked by 3–7 strong ribs and many finer ones, usually exceeding the height of the inflorescence. The racemes have few flowers on very short pedicels, 3cm long. Immature berries are green with dark stripes, ripening to red.

Flowers appear in late June.

Found on coastal headlands, in marshes and wet meadows.

Occasional becoming more frequent in Cape Breton.



Photo by Sean Blaney

Ranges from NF to AK, south to CA and NM and VA.

***Maianthemum trifolium* (L.) Sloboda  
(=*Smilacina t.* (L.) Desf.)**

**Three-leaved False Solomon's Seal; smilacine trifoliée**



Photo by Sean Blaney

An erect plant, it stands 20cm tall. The long stem below the glossy leaves is buried in the substrate. Three leaves generally clasp the stem, tapering at their bases. Flowers few, the sepals and petals spreading, borne on a long peduncle above the leaves. Fruits are dark red berries.

Flowers in mid-June.

Found in sphagnous fens, swamps and meadows.

Common throughout.

Ranges from NL to YT, south to OH and MT; Siberia.

***Medeola* L.**

**Indian Cucumber-root**

A monotypic genus, it is restricted to North America. The stems arise from a thick tuber, bearing two whorls of leaves. Inflorescence is a nodding umbel of drooping flowers.

***Medeola virginiana* L.**

**Indian Cucumber-root; médéole de Virginie**



*Photos by Marian Munro*



Tall and unbranched the stems are 30–60cm in height. The whorls of leaves are located near the top of the plant. Five to seven lanceolate leaves are about 10cm long in the lower whorl. The upper whorl bears 2–4 leaves, about half as long. Flowers are greenish yellow, 1cm wide and are carried on recurving pedicels, drooping beneath the upper leaves. Each flower has three stigmas 5–7mm long reflexing below the flower. Berries are dark purple.

Flowers during June and July.

Found in deep humus in open deciduous and mixed forest, well-drained slopes.

Common throughout.

Ranges from NS to ON, south to FL and LA.

***Ornithogalum* L.**

About 150 temperate species comprise this genus of Eurasian herbs, some are used ornamentally and one is sometimes seen here. Star-of-Bethlehem has small white stellate flowers. Leaves are striped white along their centres on the upper surface. Bulbs are coated and known to be poisonous.

***Ornithogalum umbellatum* L.**

**Star-of-Bethlehem; ornithogalle en ombelle**



*Photo by Martin Thomas*



A perennial species arising from bulbs and producing linear basal leaves. Scapes are up to 20cm tall, bearing a terminal raceme of erect flowers whose petals and sepals are widely divergent. Petals white above and with a wide green stripe below.

Flowers early, from April to June.

Occasionally seen on roadside and around old home sites.

Collected from Halifax, Hants and Guysborough counties.

NF to ON south to TX and FL; west coast.

***Polygonatum* Miller**

**Solomon's Seal**

Limited to the northern hemisphere, these perennials number about 50 species. All arise from creeping and knotted rhizomes. Stems are bare on the lower half, bearing sessile or clasping leaves above, pubescent on the lower surfaces. The tubular flowers are greenish, pendulous below in pairs from the leaf axils.

***Polygonatum pubescens* (Willd.) Pursh**

**Solomon's Seal; sceau-de-Soloman pubescent**



Standing 30–80cm in height, the upper stems bears widely lanceolate leaves, 5–10cm long. Tapering at the base, they are puberulent below. Flowers are greenish and only about 1cm long, hanging in pairs below on bifurcate pedicels. Fruits are red berries. Rootstocks are thickened and knotty, bearing ovate scars from previous years' stems.



Photo by Martin Thomas



Photo by Sean Blaney

Flowers in June.

Found in fertile deciduous forests, on alluvial soils of the intervalles and in ravines.

Common on the northern side, from Annapolis to Inverness Co. Scattered elsewhere and infrequent along the acidic soils of the southern side.

Found from NS to ON, south to GA and IA.

## ***Streptopus* Michx.**

A genus of only 10 species, mostly distributed across Eurasia and North America. Two reach Nova Scotia. These are herbs with bifurcate stems. Leaves are sessile and the flowers pendulous along the flexuous branches below the leaves.

Key to species

Flowers rose; leaf blades ciliate.

*Streptopus lanceolatus*

Flowers greenish white; leaves smooth.

*S. amplexifolius*

### ***Streptopus amplexifolius* (L.) DC**

**White Twisted Stalk; streptope à feuilles embrassantes**



Photo by Martin Thomas

Larger than the following species, its leaves are clasping at the base and smooth along the edges. The yellowish-green flowers are borne on forking peduncles, sometimes with a noticeable elbow near the middle. They arise from the lower side of the leaf axils, remaining adnate to the leaf towards the next leaf before drooping. Berries are red, about 1.5cm long.





Photo by Sean Blaney

Flowers from May through July.

Grows in moist deciduous forests, ravines and alluvial soils.

Common from Annapolis Co. to northern Cape Breton.  
Infrequent elsewhere.

Ranges from NF to AK, south to CA, NM and variously to NC;  
Greenland.

***Streptopus lanceolatus* (Ait.) Reveal  
(= *S. roseus* Michx.)**

**Rosy Twisted Stalk; streptope rose**



Photo by Martin Thomas



Photo by Sean Blaney

A smaller species only 30–40 cm tall, bifurcate at the top, or sometimes branching. Leaves are widely lanceolate and alternate, 5–10cm long, arising from ciliate nodes. The campanulate flowers are rosy pink, hanging singly from the nodes of puberulent peduncles. Berries are red and only about 1cm long. Our plants are considered typical.

Flowers from late May through June.

Grows in acidic soils of coniferous or mixed forests and thickets.

Scattered to common throughout.

Ranges from NF to MB, variously south to GA; west coast AK to AB and OR.

## ***Triantha* (Nutt.) Baker**

Another small genus of four perennial herbs, ranging in North America and Japan. A single species reaches Nova Scotia, limited to Cape Breton. Leaves are mostly basal although a reduced cauline leaf is borne near the middle of the scape. The terminal inflorescence is a dense raceme of 2–7 small white to greenish flowers with six persistent sepals. Fruits are elliptic or cylindric capsules.

### ***Triantha glutinosa* (Michx.) Baker**

**(=*Tofieldia glutinosa* (Michx.) Pers.)**

#### **False Asphodel**



*Photos by David Mazerolle*



Plants are only 20–35cm tall, with linear leaves mostly at the base. Crowded flowers pack a raceme only 2–3cm long. The upper part of the scape is glutinous with dark sessile glands.

Flowers from June to August.

Grows in swamps, bogs and rocky beaches.

Collected from Black River bog, Inverness Co. and earlier reported from Cheticamp area.

Ranges from NF to AK, variously south to GA and OR.

STATUS: ORANGE-listed in NS.

## ***Trillium* L.**

Familiar woodland plants, *Trillium* includes about 50 species across North America and eastern Asia. Leaves are borne towards the top of the plants, in threes. Flowers having three divergent petals are borne above or below them. Fruits are three-loculed and fleshy. Brown seeds are many, and each bears a fleshy elaisome, an adaptation for ant dispersal of seed (myrmecochory).

## Key to species

- A. Leaves petiolate; flowers bicoloured, white with pink. *Trillium undulatum*
- aa. Leaves sessile; flowers purple, pink or white. B
- B. Flowers and capsules dark purple; erect. *T. erectum*
- aa. bb. Flowers and capsules white or suffused with pink; recurved. *T. cernuum*

### ***Trillium cernuum* L.**

#### **Nodding Trillium; trille penché**



Photo by Sean Blaney

This trillium has wider, more cuneate leaves than our other common species, tapering to an obscure petiole and acuminate at the apices. Flowers are waxy and may be pinkish, borne on slender lax pedicels, pendulent below the leaves. Flowers are small, about 3cm wide, with the sepals and petals similar in size.

Flowers appear late May through early June.

Found in alluvium and in old-growth deciduous forests.

Common only in Colchester and Pictou counties. Infrequent along the Atlantic coast and elsewhere.

Ranges from NF to SK, south to SD, IL and VA.

### ***Trillium erectum* L.**

#### **Purple Trillium; trille rouge**



A larger species, its sessile leaves taper at both ends lending a diamond shape. Flowers are borne upright, their petals dark purplish brown and slightly exceeding the length of the sepals.

Flowers during late May and early June.

Photo by Peter Neily



Photo by Martin Thomas

Found only in fertile deciduous forest and on ravine slopes in same.

Common along the slopes above the Annapolis Valley, east to Pictou Co.

Ranges from NS to ON, south to AL and GA.

***Trillium grandiflorum* (Michx.) Salisb, White Trillium** was historically known from Centreville, Kings Co. and Truro. It is unknown whether these sites are extant.

***Trillium undulatum* Willd.**

**Painted Trillium; trille ondulé**



Photo by Martin Thomas

Standing only 20–40cm tall, this species has definitive petiolate leaves, at least 5cm long. Petals are white, lanceolate and streaked within with purple or dark pink lines. Sepals are smaller than the petals.

Flowers from late May through June.

Found in open dryish sites in forests, riparian zones and often in cut-over land.

Scattered throughout the mainland and limited in Cape Breton.

Ranges from NS to northern ON, south to GA.



Photo by Martin Thomas



***Uvularia* L.**  
**bellwort**

Including only five North American species, bellwort arises on simple stems from creeping rhizomes. Alternate leaves are sessile and sometimes perfoliate. There is a single flower per branch, campanulate, with the tepals soon deciduous. Fruits are greenish yellow capsules, dehiscent late.

***Uvularia sessilifolia* L.**  
**Bellwort; Merrybells**



*Photos by Sean Blaney*



A small compact plant, reaching only 30cm in height, its slender stem sometimes branching near the top. Leaves are only 2–4cm long, elliptic and sessile. The inflorescence is a single flower arising from the leaf axil and nodding. Capsules three-winged later dehiscent to release 1–3 seeds per locule. Probably ant-dispersed. Plants are often found in large patches and it is one of our early spring ephemerals.

Flowers in May before the leaves are fully expanded.

Rich alluvial deciduous forest, where its distribution often marks the winter high water line.

Found from Annapolis to Inverness Co., but most frequent in north-central NS.

Ranges from NS to MB, south to OK and FL.

***Veratrum* L.**  
**False Hellebore**

A genus of 25–30 species of perennial herbs, simple hollow stems arise from short thick, vertical rhizomes and fleshy basal bulbs. They are swollen at the base. Alternate simple leaves have strong venation, orbicular in outline, plicate and reducing upwards along the stem. Their bases narrow to closed, overlapping sheaths. The compound racemes or panicles are bracteate and pubescent. Flowers are generally bisexual although some of the basal individuals may be staminate. Tepals are petaloid and variously pink, purple, yellow or green. Stamens are perigynous, the ovary superior or partly inferior. Fruits are trilobed capsules with persistent style beaks.

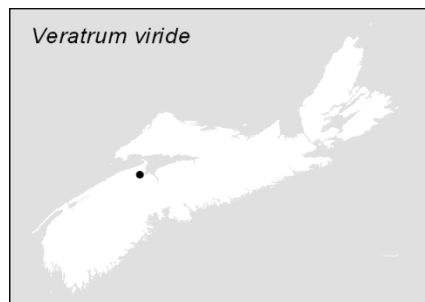


***Veratrum viride* Aiton**

**Green False Hellebore; vérâtre vert**



*Photos by Sean Blaney*



Arising on tall stems sometimes reaching 2m, the large leaves are ovate, reducing in size upwards along the stem. Both the leaves and the stems may be white-tomentose. The inflorescence is a panicle, its branches ascending or spreading, about 35cm long and also tomentose. It is bracteate, the bracts lanceolate and shorter than the flowers. Tepals are green to yellow and lanceolate, but narrowing to a broad claw.

Flowers are produced from June to September.

Open moist meadows.

Found once in the meadow along the stream at the Kentville Research Station and to be expected elsewhere. This is possibly native.

Ranges in the east from NL to QC, southward to GA and AL; western populations range from AK to NT, south to WY and CA.

## Najadaceae

### water-nymph family

Another small family of submerged aquatic herbs, this one too includes a single genus, of 35 species found throughout the world. Most are annuals producing filiform and opposite or whorled leaves. The flowers are small and inconspicuous, borne in the leaf axils in clusters or singly. Species are monoecious, flowers staminate or pistillate. The single anther of the staminate flower is surrounded by a membranous involucre. Pistillate flowers are reduced to a solitary pistil but no involucre.

### ***Najas* L.**

As above. Only two species reach Nova Scotia.

#### Key to species

A. Leaves 0.3–1mm wide, with >18 denticles spread all along the margins.

*Najas flexilis*

aa. Leaves <0.5mm wide, denticles 13–17 on the margins.

*N. gracillima*

### ***Najas flexilis* (Willd.) Rosk. & Schmidt**

**Slender naiad; naïade flexible**



Photo by Roger Lloyd

The leaves are nearly filiform, less than 1mm wide, acuminate and whorled. Lying flat, their margins are marked by tiny denticles around the entire leaf. Plants appear brushlike from the crowded whorls of leaves. Fruits are 2–3mm long, lanceolate and very faintly marked.

Flowers and fruits from July to October.

Found at the edges of ponds and lakes, rooting in muddy substrate.

Common from north-central counties to Cape Breton. Less frequent in southwestern Nova Scotia.

Ranges across Canada, south to MD, AZ and CA.

***Najas gracillima* (A. Br.) Magnus**  
**Thread-like naiad; naïade grêle**



Photo by Roger Lloyd



A more slender species than the previous, and with fewer marginal denticles on the leaves. The achenes are thicker and with fewer markings.

Flowers and fruits from July to October.

Mud, peat or sand substrates of ponds pools and lakes.

This species may replace the previous one in the western counties. Known from Hants west to Queens County.

Ranges from NS west to ON, south to MS and GA; CA.

STATUS: ORANGE -listed.

## Orchidaceae

The orchid family is one of the world's largest families of vascular plants. Numbering more than 30,000 species worldwide, the majority are tropical epiphytes. In Nova Scotia, all 40 species are terrestrial perennial herbs.

Typically these plants have the leaves alternate, rarely opposite or whorled. Flowers are three-merous, any parts therein may be modified or irregular. The developing flower usually has its uppermost petal resupinate, emerging in the lowermost petal's position, as the labellum or lip. The labellum may be ornamented or modified further into a pouch. Generally it serves as an attractant and nectar guide. Pollinator specificity is high in this family. Anthers are cuplike, containing the pollinia. The stigmas and styles are united to form the

column, unique to this family. Stigmas are trilobed, but may have only two fertile lobes. The third may be modified to form the rostellum, a beaklike surface for pollinia attachment. Ovary is three-parted and inferior in position. Fruit is a dry capsule, which shatters releasing dustlike seeds, no more than 0.5mm long. Cotyledons are absent. Terrestrial seedlings are mycorrhizal, and thence saprophytic.

Many orchids are cultivated and hybrids are common at both intergeneric and intrageneric levels. Vanilla, a tropical vine provides vanilla extract, a common flavouring agent.

#### Key to the Orchid genera

- |   |                     |
|---|---------------------|
| A. Flowers with labellum forming a pouch.   | <i>Cypripedium</i>  |
| aa. Flowers with labellum not forming a pouch.  | <b>B</b>            |
| B. Plants with leaves reduced to bracts, at least while in flower.                                    | <b>C</b>            |
| C. Flowers solitary, pink; plants green.  | <i>Arethusa</i>     |
| cc. Flowers in a raceme, yellow to reddish; plants not green (yellowish green in <i>C. trifida</i> ). | <i>Corallorhiza</i> |
| bb. Plants with leaves not so reduced.  | <b>D</b>            |
| D. Labellum with spur at least 2–3mm long.  | <b>E</b>            |
| E. Bracts of the inflorescence shorter than the flowers.  | <i>Platanthera</i>  |
| ee. Bracts of the inflorescence longer than the flowers.  | <i>Dactylorhiza</i> |
| dd. Labellum with spurs absent, or inconspicuous.   | <b>F</b>            |
| F. Flowers 1-several; usually pink or white, >3cm wide.   | <b>G</b>            |
| G. Flowers solitary; labellum lowermost and drooping; leaves widely lanceolate.                       | <i>Pogonia</i>      |
| gg. Flowers several; labellum uppermost, arcuate; leaves narrowly lanceolate.                         | <i>Calopogon</i>    |
| ff. Flowers many in a long or dense raceme, not pink, 1–3cm.  | <b>H</b>            |
| H. Plant to 1m in height; cauline leaves alternate.   | <i>Epipactis</i>    |
| hh. Plant less than 50cm tall; cauline leaves opposite.   | <b>I</b>            |
| I. Leaves 1 or 2.   | <b>J</b>            |
| J. Single leaf.   | <i>Malaxis</i>      |
| jj. Leaves 2.   | <b>K</b>            |
| K. Leaves opposite, ovate; sessile; midway on stem.   | <i>Listera</i>      |
| kk. Leaves basal, narrowly lanceolate, clasping.  | <i>Liparis</i>      |
| ii. Leaves more than 2.   | <b>L</b>            |

L. Leaves oval, marked with white.  
Il. Leaves narrowly lanceolate, not  
marked.

*Goodyera*  
*Spiranthes*

## ***Arethusa* L.**

### **dragon's-mouth**

A North American genus, it is monotypic. A single flower appears before the single leaf. *Arethusa* is also a Greek nymph, daughter of Zeus and twin of Apollo; goddess of chastity.

### ***Arethusa bulbosa* L.**

#### **Dragon's-mouth; aréthuse bulbeuse**



photo by Sean Blaney



Photo by Sean Blaney

The flower is terminal on a slender scape, 10–30cm in height. Two or more bracts clasp the scape at its base. Flowers are magenta, rarely pure white. The spotted or streaked labellum armed with yellow bristles is distinctive and will easily separate it from *Calopogon* (labellum in upper position) and *Pogonia* (all pink).

Flowers appear in mid-June to July, earlier than the other pink species.

Found in bogs around the cool coasts, less frequent inland.

So far absent from the Northumberland Strait counties.

The species ranges from NF, west to SK, south to SC and IL.

## ***Calopogon* R. Br.**

### **Grass-pink**

All four species are eastern North American, with a single species reaching Nova Scotia. It is unusual amongst our orchids in that the labellum is not resupinate, instead it occupies the upper position above the column. Colourful yellow or pale bristles or hairs mark the lip. The lateral petals are triangular in shape. Sepals and



petals are the same colour. The species offers no nectar reward to insect visitors, although it does mimic the colour of neighbouring species that exude these droplets (*Rhexia*, *Rosa*, *Sabatia* and *Geranium*).

### ***Calopogon tuberosus* (L.) BSP**

**Grass-pink; calopogon tubéreux**



photo by David Mazerolle



Photo by Martin Thomas

Our species stands a slender 15–30cm tall and carries a single lanceolate leaf. Stem may be sheathed by one or two bracts. Flowers are several, 2–3cm across, ranging from deep pink to white. Petals are narrower than the sepals, but of the same colour. The labellum appears upside-down, located above the staminode, which easily distinguishes it from either *Arethusa* or *Pogonia*.

Flowers appear in July.

It is a typical bog species, frequenting mature coastal bogs, swamps and even lakeshores.

Common throughout the province, including Sable Island.

Ranges from NS westward to MB, south to the Gulf of Mexico.

### ***Corallorhiza* Gagnebin**

**Coral-roots**

The coral-roots range from yellow to brown or purple and contain no chlorophyll. They are mycorrhizal with the partial exception of one species, producing limited chlorophyll. Standing 5–40cm tall, there are no leaves on the stem, but a few scales. The stalked flowers are carried in a raceme, of the same colour as the stem. Plants can be distinguished from other mycorrhizal vascular plants, by the irregular shape of the flowers and the epigynous position of the ovary. Plants may not flower each year, remaining dormant until growing conditions become optimal. A New World genus of 10 species, two are native to NS. The vernacular name is a direct translation from the Greek genus name.

Key to species

Plants purplish; plants stout, 20–40cm tall; spur on labellum conspicuous.

*Corallorhiza maculata*

Plants yellowish green, slender, 5–20cm tall; spur on labellum absent or inconspicuous.

*C. trifida*

***Corallorhiza maculata* Raf.**

**Spotted Coral-root**



*photo by Sean Blaney*



*Photo by Martin Thomas*

Spotted Coral-root is a robust plant with an unbranched raceme of flowers atop a purplish scape, 20–50cm tall. The flowers are white or cream, streaked or spotted with purple. Spur is well-developed. There are two forms found in the province. The typical variety is a yellowish plant, with an unspotted labellum. Found in dense colonies in mixed forests, it is especially frequent on the slopes above the Annapolis Valley. Var. *occidentalis* (Lindl.) Ames has reddish or purple flowers with a spotted labellum, limited to Kings, Annapolis, Cumberland and Hants counties.

Look for flowers in July.

Usually in deciduous forests, it may also be associated with gypsum sinkholes or conifers, occasionally. It is typical of the climax forest in northern Cape Breton.

In the province, this species is common from Annapolis County northward. Scattered in Queens County and infrequently seen in the southwestern counties.

Elsewhere, it ranges from NF to BC and AK, south to CA, TX and GA.



*Photo by Martin Thomas*

### ***Corallorhiza trifida* Chatelain**

#### **Northern or Early Coral-rooot; corallorhize trifide**



*photo by Sean Blaney*

Plants short (20cm), slender and generally yellowish green throughout. Flowers have purplish markings on a white lip. Spur is absent.

Flowers as early as May and as late as July.

Grows in dense shade, as beneath conifers, often in gypsum sinkholes.

It is scattered from Annapolis to Cumberland counties, north to Cape Breton. Characteristic species of the pine woods of the Annapolis Valley.

Found from NF to BC and AK, south to CA, NM and MD; also in Eurasia.



Photo by Sean Blaney

## ***Cypripedium* L.**

### **Lady's-slippers**

Of 11 species found in North America only four reach Nova Scotia, with two varieties found of one species. Plants bear relatively large, showy flowers which give rise both to the Latin name of the genus and its English vernacular name.

The defining character for all species is the presence of a pouch, the labellum, with a central opening, dissected by the staminode. As pollinators enter, the barbed stigmata remove the pollen-load. Upon exiting through the basal opening they remove additional pollen. Attractive colours and pleasant aromas attract a variety of insects, while it is believed that digger bees provide most of the pollination.

Capsules are produced infrequently. These plants have not yet been cultivated from seed and mature plants do not transplant well. Handling these species should be avoided. A contact dermatitis has been reported in sensitive individuals (IWK Poison Centre database, 2014).

#### Key to species

- |   |                           |
|---|---------------------------|
| A. Leaves basal, 2; labellum slit dorsally.   | <i>Cypripedium acaule</i> |
| aa. Leaves cauline, >2; labellum with round opening at the top.                     | B                         |
| B. Labellum triangular when viewed from the side; 3 sepals separate; flowers <2 cm. | <i>C. arietinum</i>       |
| bb. Labellum ovate when viewed from the side; lower 2 sepals united; flowers >3cm.  | C                         |
| C. Labellum yellow; sepals long and acute.  | <i>C. parviflorum</i>     |
| cc. Labellum white, suffused with purple; sepals with blunt or rounded tips.        | <i>C. reginae</i>         |



***Cypripedium acaule* Aiton**

**Moccasin flower, Pink Lady's-slipper; cypripède acaule**



*photo by Sean Blaney*



*Photo by Sean Blaney*

Distinctive flowers of late spring and early summer, there is but a single flower 3–6cm long atop the bare scape. Labellum ranges in colour from deep magenta, to pink, brownish or white. A lanceolate bract arches above. The pair of basal leaves are elliptic and nearly opposite. Plant usually reaches 30cm in height. It is not unusual to find pure white flowers in an area where pink forms abound.

Flowering begins in June, extending into late summer.

Preferring acidic soils, the moccasin flower frequents conifer woods, bogs and open areas, wet or dry.

Commonly found throughout the province and often abundant where found.

Ranges from NL to NT, south to AB, AL and GA. It is now considered to be the provincial floral emblem of Prince Edward Island.



***Cypripedium arietinum* R. Br.**

**Ram's-head Lady's-slipper; cypripède tête-de-bélier**



*photo by Sean Blaney*



*Photo by Sean Blaney*



*Photo by Martin Thomas*

This species is the smallest of our Lady's-slippers, reaching 20–25cm. Bearing 3–5 lanceolate cauline leaves, each plant produces a single flower, up to 2.2cm in length, subtended by three spreading sepals. The white labellum is triangular in side-view, resembling a charging ram. From the top, purplish streaks mark it.

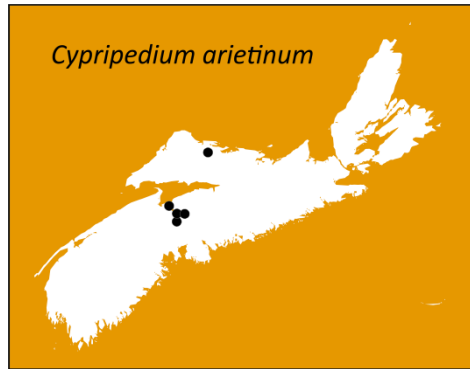
Flowering only in May, this species may be overlooked.

Nearly colonial, it is highly restricted to gypsum sinkholes.

Scattered from St. Croix to Brooklyn and reported from Summerville, all in a small portion of Hants County. A single population occurs in Cumberland Co.

Elsewhere it ranges from QC west to SK, south to NY and MN. So far unknown from the rest of Maritime Canada.

STATUS: ORANGE-listed, due to its severely limited range.



***Cypripedium parviflorum* Salisb.  
Yellow Lady's-slipper**

There are two varieties here. Nova Scotian material can be difficult to key to variety.

Plant densely hairy; flowers mildly fragrant; sepals and petals light-colored.

var. *pubescens*

Plant smooth or nearly so; flowers intensely fragrant; sepals and petals dark.

var. *makasin*

***Cypripedium parviflorum* Salisb, var. *makasin* (Farw.) Sheviak**



photo by Sean Blaney

This smaller variety, with lip up to 29 mm long,, has darker sepals. The pubescence is sparse.

Flowering during early June.

It is reported as the more common form at Sweet's Corner, Gore, both in Hants County and Chipman Brook, Kings County.

Ranges from Newfoundland to British Columbia, south to California, Great Lakes and New Jersey.

Both varieties are considered to be at-risk of extinction in NS due to habitat loss and strict habitat requirements.

Neither should be picked and caution is advised in handling these plants. Contact dermatitis has been reported.

STATUS: YELLOW-listed.

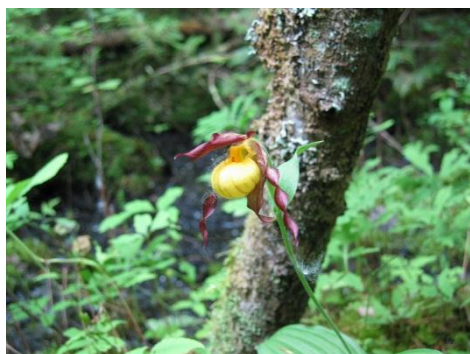


Photo by Sean Blaney

*Cypripedium parviflorum* var. *makasin*



***Cypripedium parviflorum* Salisb. var. *pubescens* (Willd.) Knight**



photo by Sean Blaney



Photo by David Mazerolle

Densely pubescent, this variety has larger flowers, the labellum measuring 54 mm long. The sepals are light-coloured, with petals yellowish green. Flowers are terminal, 1–2 per scape.

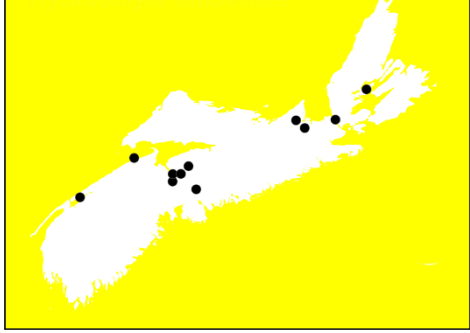
Look for these showy yellow flowers during the first half of June.

Grows in calcareous soils, outcrops of gypsum or limestone and occasionally under mixed deciduous trees.

Infrequent in Kings County, eastward to Hants Co., especially from Windsor to Brooklyn; east to Cape Breton, particularly in the area around Iona.

Ranges NS to BC, south to FL and TX.

*Cypripedium parviflorum* var. *pubescens*



***Cypripedium reginae* Walter**

**Showy Lady's-slipper; cyripède royal**



*photo by Sean Blaney*



*Photo by Sean Blaney*

One of this province's most beautiful wildflowers, it is also amongst its least common. In stature, plants may reach 80cm in height, bearing several to many elliptic leaves. Plants are finely pubescent. The labellum is white, blushing pink or purple. The other petals and sepals are white.

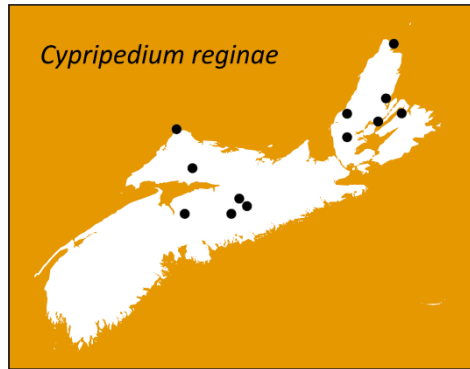
Flowers from June through to August.

Look for this species in alkaline swamps and bogs.

Widely scattered localities in the province: Meander River in Hants Co. and the Musquodoboit River Valley, Halifax County to Cumberland County, to northern Cape Breton.

Considered to be of conservation concern and therefore should not be picked or dug. Some folks may even develop a contact dermatitis from handling it.

STATUS: ORANGE-listed.



## ***Dactylorhiza* Necker**

### **Long-bracted Green orchid**

Now including more than 50 species, the genus includes plants of the northern hemisphere, temperate or subarctic in distribution. Terrestrial they generally prefer basic soils of wetlands or wet forests. Stems are tuberous. Long leaves are lanceolate and often blotched. They reduce in size upwards along stems, ranging from 70–90cm. Compact racemes contain from 25–50 flowers, ranging from pale pink through purple.

***Dactylorhiza viride* (L.) R.M. Bateman, A.M. Pridgeon & M.W. Chase**

**(= *Coeloglossum viride* (L.) Hartm.)**

**Long-bracted Green Orchid; orchis grenouille**



*photo by David Mazerolle*

Standing only 25cm, its most distinguishing features are the 2cm long leafy bracts subtending the individual flowers. Closer examination of individual flowers will reveal an oblong labellum with three bulges extending upwards toward the nectary. Flowers are green with purple blush. It is often missed because of the relatively few green flowers and short stature.

Flowers from May to August.





An uncommon, local species, it favours wet sites in mature woods, fir forests or treed floodplains.

Northern Cape Breton, Sable Island and also Black River Lake region of Kings County.

Ranges from NF to AK, south to SC and AZ.

ORANGE-listed.

## ***Epipactis* Zinn**

Our only introduced orchid, it reached the North American shores by 1879. During the 1900s, its range extended northward from New York. Only one of the 20 Eurasian species is known to us.

### ***Epipactis helleborine* (L.) Crantz**

#### **Helleborine; épipactis petit-hellébore**



*photo by Martin Thomas*

The leafy helleborine stands 60 or more cm, with alternate ovate-lanceolate leaves, strongly ribbed and sessile. Flowers are greenish, with purple marks arranged in a bracteate raceme. Sepals and petals are free and spreading; the labellum is lobed and shorter than the other two petals. Third stigma is modified into a rostellum.

Summer flowering, in early August.

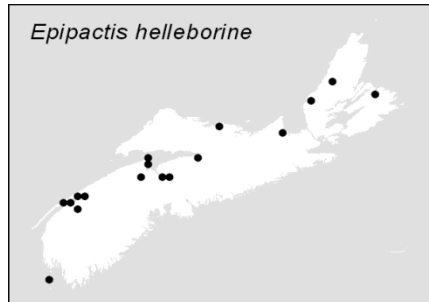
In Nova Scotia, this species is weedy in deciduous forests and open fields.

First reported during the 1980s at Cape Blomidon; now known from Shelburne to Cape Breton counties, with new records reported annually.

Known from NF to ON, south to AR and NC; west coast and various inland jurisdictions; Eurasia.



Photo by Jamie Ellison



## ***Goodyera* R. Br.** **rattlesnake plantains**

Colonial plants, the rattlesnake plantains are typified by the evergreen basal rosettes of leaves with attractive white or silvery markings. Flowers are borne in a short raceme atop a naked scape. Worldwide in their distribution of 25 species, Nova Scotia hosts only four species.

### Key to species

- |   |                            |
|---|----------------------------|
| A. Flowers arranged in a raceme.  | B                          |
| B. Leaves blue-green with light green pattern; flowers loosely arranged.          | <i>Goodyera tessellata</i> |
| bb. Leaves dark green with conspicuous white markings; flowers densely clustered. | <i>G. pubescens</i>        |
| aa. Flowers on one side of the stem, or loosely spiraled.                         | C                          |
| C. Plants large, to 40 cm tall; leaf blade 4–8cm long; perianth 6–8mm long.       | <i>G. oblongifolia</i>     |
| cc. Plants smaller, 10–30cm tall; leaf blade 1–4cm long; perianth 3–5mm long.     | D                          |
| D. Raceme strongly one-sided; labellum with recurved tip.                         | <i>G. repens</i>           |
| dd. Raceme loosely spiraled; labellum with straight tip.                          | <i>G. tessellata</i>       |

***Goodyera oblongifolia* Raf.**

**Giant Rattlesnake Plantain; goodyérie à feuilles oblongues**



*Photo by Sean Blaney*

Our largest *Goodyera*, plants may reach 40cm in height. The basal leaves are nearly erect, ovate-lanceolate leaves, splashed with white. Racemes are 10–12 cm long. Each flower is 8–10mm long.

Look for the creamy white flowers in late summer.

Found in deciduous upland forests and ravines.

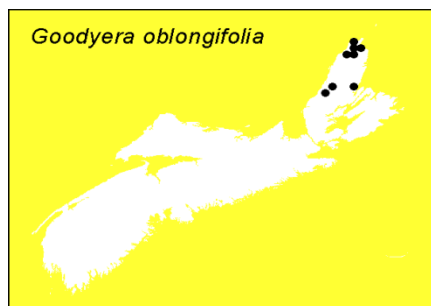
So far known only from northern Cape Breton, where it is scattered, in Victoria and Inverness Counties.

Somewhat limited in its range, from NF to ON south to WI and ME in the east; AK to CA, east to SK and NM.

YELLOW-listed in NS.



*Photo by Sean Blaney*



***Goodyera pubescens* (Willd.) R. Br**

**Downy Rattlesnake Plantain; goodyérie pubescente**



*photo by Eugene Quigley*

Aside from netlike patterns on the leaves, the most distinctive character of this species, is the densely pubescent scape. Leaves number 3–8, oblong or elliptic in outline. The flowers are arranged in a tightly packed raceme.

Summer-flowering in July and August.

Forms large colonies in woodlands and thickets.

Only recently discovered in Nova Scotia (1963) and so far known from Queens, Kings, Annapolis, Hants and Halifax counties.

Elsewhere ranges from NS to ON, south to OK and FL.

ORANGE-listed.



*Photo by Sean Blaney*

***Goodyera repens* (L.) R. Br.**

**Creeping Rattlesnake Plantain; goodyérie rampante**



*photo by Sean Blaney*

A small, creeping species, these plants rarely exceed 15cm in height. The oval leaves are merely 1–3 cm long, dark green with white markings. The tiny flowers are crowded in the raceme, the inflorescence appearing to be one-sided. Resembling the next species, but in general a smaller and more delicate plant.

Flowers July and August.





Photo by Sean Blaney

Look for it beneath conifers, with few other plants.

Locally distributed but abundant where found. Atlantic counties of Shelburne and Queens, to Guysborough. Local about the head of the Bay of Fundy and in northern Cape Breton.

Elsewhere species ranges from NF to AK, variously south to AZ and NC; Eurasia.

STATUS: YELLOW-listed.

### ***Goodyera tessellata* Lodd.**

#### **Checkered Rattlesnake Plantain; goodyérie panachée**



photo by Sean Blaney

This species is very similar to *G. repens*, but for its size. Slightly taller at 20cm, the flowers are arranged loosely in a spiral, each measuring 3–4mm in size. Leaves with veins outlined in light green.

Summer flowering, in conifer woods.

Scattered in southwestern Nova Scotia and in the Annapolis Valley, becoming more common in northern Cape Breton.



Photo by David Mazerolle

Ranges from NF to MB, south to MD and MN.



***Liparis* L.C. Richard**  
**twayblade**

The twayblades comprise a genus of about 250 species, with only two reaching North America's cooler regions. Only one is found in Nova Scotia. The soft fleshy leaves sheath the corm, from which a scape arises, bearing small flowers. The long thin petals are subtended by spreading sepals. The labellum is lobed or notched at the tip and recurved.

***Liparis loeselii* (L.) L.C. Richard**

**Loesel's Twayblade or Fen Orchid; *liparis* de Loisel**



*photo by Sean Blaney*

This small plant is often overlooked, because of its short stature and greenish appearance. Reaching 10–15cm in height, it is surrounded by two upright basal leaves. Greenish yellow flowers are loosely clustered at the top. The long spreading petals and sepals lend a ragged appearance to this peat-dweller.

Flowering begins in late June, extending into July.

Found in bogs, peaty meadows, cobble lakeshores and behind barrier beaches, in damp peaty soil.

Occasional to frequent throughout the province.

Ranges westward from NS to SK and NT, south to WA, KS and AL; Eurasia.



Photo by Sean Blaney

## **Listera R. Br.**

Of the 25 worldwide species of cooler regions, north and south, only three reach Nova Scotia. All require a hand-lens to examine the tiny flowers. Rarely more than 30cm in stature, the stem bears two opposite leaves midway. Flowers are loosely arranged in a raceme, with the lobed labellum much exceeding the other petals. The column bears a single anther; the stigma rests below it. Rostellum is present, which discharges a drop of mucilage on the back of the pollinator, to which the pollinia stick.

### Key to species

- |  |                                |
|--|--------------------------------|
| A. Labellum notched at the tip.  | <i>Listera convallarioides</i> |
| aa. Labellum deeply cleft, nearly half its length.   | B                              |
| B. Pedicels and their axis finely pubescent; lip 6–10mm long; without a pair of horns at its base. | <i>L. australis</i>            |
| bb. Pedicels and their axis not pubescent; lip 4–5mm long; with a pair of horns at its base.       | <i>L. cordata</i>              |

***Listera australis* Lindl.**

**Southern Twayblade; listère du Sud**



*photo by Sean Blaney*



*Photo by Alain Belliveau*

Reddish purple flowers sit atop a finely pubescent axis; pedicels also glandular-pubescent. The narrow labellum is cleft about half its length of 1cm into narrow lobes. Horns are absent at base of the lip.

Flowers only in June.

Grows in shaded sphagnum mosses of bogs or wooded swamps. Inconspicuous after mid-summer.

Scattered over more than 30 swampy sites from southwest NS (Shelburne Co.) to Halifax Co.; Kings Co. to Cape Breton.

Elsewhere scattered from NS to ON, south to Florida and TX, mostly along the coastal plain.

STATUS: ORANGE-listed in NS.



Photo by Charles Linney



***Listera convallarioides* (Sw.) Nutt.**

**Broad-lipped Twayblade; listère faux-muguet**



A more robust species, this plant still only reaches 20cm in stature. The leaves are from 2–4cm wide, while the other two NS species barely manage 1cm. Flowers are white or yellow-green on finely glandular pedicels. The axis of the raceme is also softly pubescent, visible only with a hand lens. Labellum is split into two broad, roundish lobes, up to 1cm in length.

Flowers from June to August.

On fertile slopes beneath deciduous trees and streamsides. Generally limited to old-growth or little-disturbed sites.





*Photos by Sean Blaney*

***Listera cordata* (L.) R. Br.**  
**Heart-leaved Twayblade**



*photo by Sean Blaney*

From Annapolis County to Cape Breton, where it is common in the north. Not known from southwestern NS.

In the east, NS to ON south to MN and NY; AB, BC and AK south to CA and AZ.

Bearing a strong resemblance to *L. australis*, but without the pubescence. Standing approximately 15cm tall, the reddish, green or straw-coloured flowers each have a deeply-split labellum, with a pair of appendages at the base.

Flowers from early June to September.

In damp coniferous forests and ravines.

Occasional throughout the province, more frequent near the coast and typical of forested northern Cape Breton.

Greenland to AK, south to NC and CA; Eurasia.





Photo by Sean Blaney

## ***Malaxis* Soland. adder's-mouth**

Two species of *Malaxis* reach Nova Scotia. Both are small, delicate species with a single clasping soft leaf arising from a tuberous stem. The terminal raceme is crowded with flowers of threadlike, recurved petals and sepals. Standing less than 10cm in height they are easily missed.

### Key to species

Leaves 2–3 (5).

*Malaxis brachypoda*

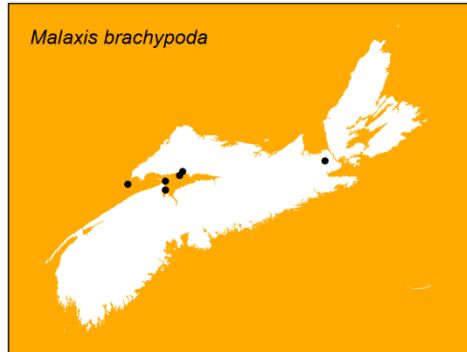
Leaves 1 (rarely 2).

*M. unifolia*

*Malaxis bayardii* Fern., although reported from Cape Breton Island, requires substantiation by a collection before inclusion.

***Malaxis brachypoda* (Gray) Fern.  
(= *Malaxis monophylla* (L.) Sw.)**

**White Adder's-mouth; malaxis à pédicelles courts**



The basal leaf and longer, slender inflorescence should separate this species easily. The raceme is at least half the plant's height. Flowers are white, labellum entire, with a slender tapering tip.

Flowers from May until August.

Grows in the moss cushions and dripping mossy cliff edges, where competition is low.

Its distribution is rare and local: Isle Haute, Cumberland County; Five Island River, Colchester County and in Guysborough County.

Elsewhere, found from NL to BC, south to Newfoundland, NS and NB; New England mountains to TX, CO and CA.

STATUS: ORANGE-listed.

***Malaxis unifolia* Michx.**

**Green adder's-mouth; malaxis unifolié**



Another delicate species, with a clasping leaf part way up the stem. The raceme is much more compact, nearly as wide as long, appearing round. The flowers are green, with a broad labellum, cleft at the tip.

Summer flowering, July and August.

Found in wet meadows, fields and bogs.

Uncommon, but scattered throughout the province.

Ranges from NF to MB, south to FL and TX.



*Photos by Martin Thomas*

## ***Platanthera* LC Richard**

### **Fringed Orchids**

#### **Rein Orchids**

Our 11 species of fringed orchids have showy flowers arranged in a spike or raceme. Colours range from white to green, pink and purple. The labellum may be split, fringed or ornamented in various ways. Its base is modified into a spur, which characters vary from species to species, depending upon the moth species that pollinate.

Flowers are required for positive identification.

#### Key to species

- A. Labellum entire, or toothed, but not fringed. B
- B. Leaves cauline. C
- C. Cauline leaves 1 or 2. *Platanthera clavellata*
- cc. Cauline leaves more than 2. D
- D. Plants 2–14cm tall; base of labellum with central lobe on top and 2 lateral tubercles. *P. flava*
- dd. Plants 30–80cm tall; lip without a spur near the base. E
- E. Flowers greenish white or greenish yellow. F
- F. Flowers greenish white; lip 5–12 mm; spur  $\geq$  5 mm in length; flowers scented. *P. huronensis*
- ff. Flowers greenish yellow; lip < 6mm; spur < 5 mm; flowers scentless. *P. aquilonis*
- ee. Flowers pure white. *P. dilatata*
- bb. Leaves nearly basal, oblong to round. G
- G. Leaf solitary, erect, clasping at the base. *P. obtusata*
- gg. Leaves 2; often flat on the ground, not clasping. H
- H. Stem without bracts; lip lanceolate, to 1cm long; ovary sessile. *P. hookeri*
- hh. Stem bracteate; labellum 1.5–2cm long, narrow; ovary with a stem. I

- |   |                           |
|---|---------------------------|
| I. Spur >2.7 cm long.   | <i>P. macrophylla</i>     |
| ii. Spur <2.6cm long.   | <i>P. orbiculata</i>      |
| aa. Labellum fringed distally or on the sides.                                  | J                         |
| J. Lip not tripartite.  | <i>P. blephariglottis</i> |
| jj. Lip clearly tripartite.   | K                         |
| K. Flowers greenish white; labellum finely fringed.                             | <i>P. lacera</i>          |
| kk. Flowers purple, lilac or white (not greenish); lip margin coarsely fringed. | L                         |
| L. Inflorescence 2.5–4cm wide; lip 1–1.3cm wide; fringed <1/3 of lobe.          | <i>P. psycodes</i>        |
| ll. Inflorescence 5–8cm wide; lip 1.8–2.5cm wide; fringed >1/3 of the lobe.     | <i>P. grandiflora</i>     |

***Platanthera aquilonis* Sheviak**  
**platanthère du Nord**



*Photo by David Mazerolle*

Plants stand 5–60cm and bear a few ascending leaves, scattered along the stem. They are reduced to bracts towards the inflorescence. The yellowish green flowers are not showy, their lips are a dull yellow. Petal margins are entire and do not have a basal swelling. The spur is clavate or cylindric, the lobes divergent and projecting downward.

Species is summer flowering.

Grows in wet habitats as riparian areas, marshes, meadows and even dry deciduous slopes.

In NS, it is found from Annapolis to Queens counties and north to Cape Breton. Less frequent in southwestern NS.

Elsewhere it ranges from NF to AK, south to CA, NM and NJ.

It was erroneously reported as *P. hyperborea*. (Roland and Smith, 1969.).



***Platanthera blephariglottis* (Willd.) Lindl.**

**White Fringed Orchid**



*Photo by Sean Blaney*

A multitude (20–30) of highly fragrant white flowers mark this very attractive native orchid. Standing nearly 50cm in height, it carries several lanceolate leaves, reducing in size towards the top to mere bracts. They are keeled and sheathing. The inflorescence is nearly oval in outline, almost 5cm long. The long spur exceeds the fringed labellum in length.

Flowering in July and August.

Usually in peaty lowlands such as bogs or upland rock barrens.

Common in Yarmouth and Shelburne counties, but infrequent throughout the remainder of the mainland. Typical of mature bogs in Cape Breton.



*Photo by Martin Thomas*

Ranges from NF to ON, variously south to IL, and along the coast to FL and TX.

***Platanthera clavellata* (Michx.) Luer**

**Northern Club-spur; Little Orchid; platanthère claviforme**



*Photo by Sean Blaney*

A slender orchid, this species has a single obovate leaf at the base of the plant. The inflorescence measures 2–4cm in height, containing from 3–15 flowers. Labellum is yellowish-green, truncate and with 2–3 teeth. Spur exceeds the labellum in length.

A summer flowering plant, expect to see it from June to August.

In swamps, bogs or along streams.

This species is common throughout Nova Scotia.

Elsewhere it ranges from NF and ON south to FL to TX.



*Photo by Martin Thomas*

***Platanthera dilatata* (Pursh) Lindl.**

**Tall White Northern Bog-orchid**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

A tall leafy species, with pure white flowers in an inflorescence 20cm long. Labellum widens abruptly at the base, and tapers gradually towards the tip. Spur is of similar length as labellum. Notable is the fragrance resembling cloves of this beautiful species.

July flowers.

Grows in sunny and wet habitats such as wetlands and riparian situations.

Common from Digby County to northern Cape Breton, where it is typical of dripping cliffs and ledges. Also on the Atlantic coast.

From NL to AK, south to PA MI, NM and CA. Asia.

***Platanthera flava* (L.) Lindl.**

**Pale Green Orchid**



Photo by Sean Blaney



Photo by Martin Thomas

Reaching from 2–14cm in height, this slender species has two or more slender lanceolate leaves. The basal leaf, up to 15cm long, sheaths the stem. The flower spike is 5–10cm long. The bracteate, flowers are from 4–5mm wide, greenish yellow in colour. Labellum has tubercles on either side of the swollen base.

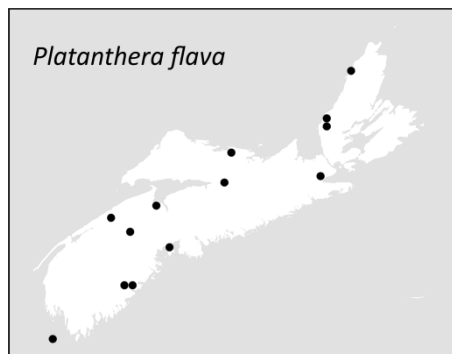
Flowers from May to August.

Known from a variety of habitats: sandy, gravelly or peaty shorelines of lakes or streams; bogs, swamps and meadows.

Found along the Tusket River, Yarmouth Co., Medway River, Queens County and north to Kings and Colchester Co. (Kemptown).

Ranges from NS to ON south to TX and FL.

Its status remains undetermined in NS at this time.





***Platanthera grandiflora* (Bigelow) Lindl.**

**Large Purple-fringed Orchid; platanthère grandiflore**



*Photo by Sean Blaney*

A tall, robust species, it was once considered a variety of *P. psycodes*. Exceeding 60cm in height, the leaves are more elliptic than lanceolate. Purple flowers are crowded into a spike, appearing two weeks before the Small Purple-fringed Orchid. Labellum is trilobed and deeply cut into a fine fringe.

Flowers in July.

Favours wet meadows and riparian habitats.

More often found in north-central Nova Scotia. Infrequent in southwestern NS.

Elsewhere from NF west to the Great Lakes, south to TN and GA.



*Photo by Martin Thomas*



***Platanthera hookeri* (Torrey) Lindl.**

**Hooker's Orchid; platanthère de Hooker**



*Photo by Sean Blaney*

One of two round-leaved species, this is the smaller of the two, reaching only 40cm in height. Bearing a pair of basal leaves, they are lustrous green, but not glossy. Stem is without bracts. Yellow-green flowers are sessile, arranged in a spike. Lip is lanceolate or triangular, 8–10mm long; spur is much longer.

Flower appear from May to August.

Grows in open dry forests of mixed conifers.

Scattered in most of the province, local in the southwestern counties. So far absent from the eastern shore.

Ranges NS to MB, south to New England and IA.



*Photo by Sean Blaney*

***Platanthera huronensis* (Nutt.) Lindl.**

**Northern Green Bog-orchid; platanthère du lac Huron**



*Photo by Sean Blaney*

Height ranges upwards to 80cm. The stem bears 5–6 cauline leaves, which are oblong to narrowly lanceolate. Flowers are green, the cluster 8–15cm long. Labellum is lanceolate, 4–8mm long, spur slightly longer.

Flowers throughout the summer.

Elsewhere known from streamsides, in wetlands, even forests.

It is believed present although no good records are known at this time.

In the east from NF to MB south to IL and NJ; in the west from AK to AB and WY south to NM; Greenland, Iceland and northeastern Asia.

***Platanthera lacera* (Michx.) G. Don**

**Ragged Orchid; Green-fringed Orchid; platanthère lacérée**



*Photo by Sean Blaney*

This common species stands 30–80cm tall, the stem sheathed by 2–5 keeled, lanceolate leaves. Leaves are reduced to bracts in the raceme. Labellum is deeply divided into three lobes, which are finely fringed. Erect petals extend beyond the sepals. Petals are pale yellow to greenish white. Even pinkish flowers are reported in the eastern counties. Distinctly ragged in appearance.

Flowers July to August.

Meadows or other sunny locations with poorly drained clay soils.



Photo by Martin Thomas

Common throughout, occasional on Sable Island.

Grows from NS to ON, south to FL and TX.

A hybrid between this and *P. psycodes* has been collected from Queens and Colchester counties. It ranges from white to deep claret in colour. Named *P. x andrewsii* (White) Luer.

### ***Platanthera macrophylla* (Goldie) PM Brown**

**Large-leaved Orchid; platanthère à grandes feuilles**



Photo by Alain Belliveau

This orchid resembles *P. orbiculata* but is generally larger. The spur is much longer as well, in this species, usually exceeding 2cm.

Flowers in August.

Grows in deciduous or mixed deciduous forests.

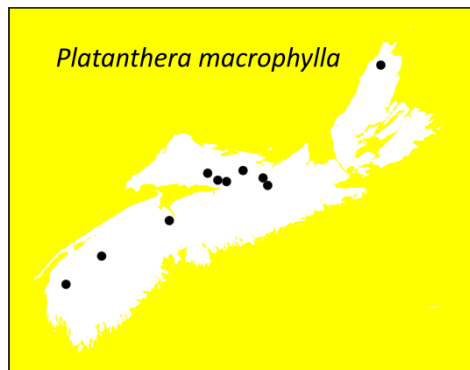
Found from Hants Co. through the Cobequids to Cape Breton.



Photo by Alain Belliveau

Ranges from NL to ON south to WI and MD.

STATUS: YELLOW-listed in NS.



***Platanthera obtusata* (Banks) Lindl.**  
**Blunt-leaved Rein Orchid**



Stem is only 20–30cm tall with one or two bracts. Leaf is oblanceolate, erect, 5–10cm long and clasping. Inflorescence stretches 2–10 cm, of uncrowded greenish white flowers. Spur and labellum are equal in length, with spur recurving from a swollen base. Base of the labellum is limbed and projects backwards dividing the entrance.

Flowers during July and August.

Found in wooded wetlands and conifer forests.

Scattered to common in the eastern counties; infrequent in southwest, where it is local.



Photo by Sean Blaney

Canada-wide south to New England and OR; Norway; Asia.

***Platanthera orbiculata* (Pursh) Lindl.**

**Large Round-leaved Orchid; platanthère à feuilles orbiculaires**



Photo by Sean Blaney

This distinctive species is easily recognized by the presence of glossy, ovate basal leaves. The pair may each measure nearly 19cm across, dark green above and silvery below with delicate veining. The scape has small bracts alternating its length, nearly 60cm in height. Spur measures 1.8–2.8cm long, which separates it from *P. macrophylla*.

Flowers in August.

Grows in dense shady woods.

Scattered from Shelburne County to Colchester County and northern Cape Breton. Typical of northern conifer forests.

Across Canada from NS, south to SC and OR.



Photo by David Mazerolle



***Platanthera psycodes* (L.) Lindl.**

**Small Purple-fringed Orchid; Butterfly Orchid; platanthère papillon**



*Photo by Sean Blaney*



*Photo by Mark F Elderkin*

A leafy species, it may reach 80cm in stature. The basal leaves are lanceolate-elliptical, abruptly shrinking in size, towards the inflorescence. Raceme of flowers carries 30–50 fragrant mauve or purple flowers, 5–12cm long. Labellum is divided into three shallowly-fringed segments. It is not unusual to see pale white, pink or bicoloured flowers. Colonial in habit.

June to August flowering.

Usually in damp, sunny locations in wetlands or edges of peatlands.

Common throughout NS.

NF to ON, south to GA and IA.

Sympatric with *P. grandiflora* and intermediate forms are common. Hybrids between *P. psycodes* and *P. lacera* have been named *P. x andrewsii*.

***Pogonia* Jussieu**

A genus of only three species, they are all perennial in habit and terrestrial in habitat. Slender stems bear single leaves towards the middle, their blades are fleshy. The terminal inflorescence has a single flower or sometimes a two-flowered raceme. The fruits are capsules.

***Pogonia ophioglossoides* (L.) Ker Gawl.**

**Rose Pogonia; pogonie langue-de-serpent**



*Photo by Martin Thomas*



*Photo by Ross Hall*

Another of our beautiful native pink orchids, this one has the aroma of raspberries, in flower. The slender stem arises from fibrous roots, bearing a single leaf midway along it. Flowers are terminal, 1(–3) subtended by a single leafy bract. Labellum is bearded, with three rows of fringes. Petals rose-pink to white. Resembles two other pink-flowered orchids in our Province. *Arethusa* has but a single flower appearing on a naked scape, before the leaf opens. *Calopogon* has several rose-coloured flowers, but the labellum is formed by the uppermost petal, rather than the lowermost as in *Pogonia*, appearing upside down.

Flowers in August.

Associated with mature peatlands. Less frequent in meadows, on lakeshores or in riparian habitat; sunny and poorly drained sites.

Profuse on the Atlantic side and in northern Cape Breton. Scattered elsewhere.

NF to MB, south to FL and TX.

***Spiranthes* LC Richard**

**ladies'-tresses**

*Spiranthes* is a New World genus, both temperate and tropical. Six are reported from NS out of the 29 species distributed in Canada and US. They are small in stature, erect and bearing whitish tubular flowers spiralling the slender stems. Difficult to identify, except with fresh material.

**Key to species**

A. Leaves oval, basal; flowers arranged in a single row; labellum with a green stripe.

*Spiranthes lacera*

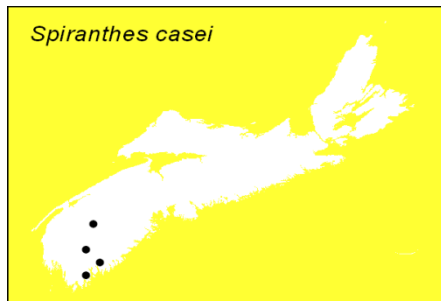
aa. Leaves cauline, lanceolate or linear; flowers in 3 rows; labellum not striped.

B

- B. Labellum round, blunt, throat bright yellow; leaves long-persistent; flowers in early July. *S. lucida*
- bb. Labellum ovate or long; throat green or cream; leaves not persistent; flowers late summer. C
- C. Lip fiddle-shaped; sepals and lateral petals curving upwards forming a hood. *S. romanzoffiana*
- cc. Lip not constricted at middle; sepals and lateral petals not forming a hood. D
- D. Sepals 5–7mm long. *S. casei*
- dd. Sepals longer than 7.5mm E
- E. Flowers white; labellum without fleshy centre obscuring veins. *S. cernua*
- ee. Flowers cream to yellow; labellum fleshy in centre, hiding veins. *S. ochroleuca*

### ***Spiranthes casei* Catling & Cruise**

#### **Case's Ladies'-tresses; spiranthe de Case**



Resembling both *S. romanzoffiana* and *S. lucida*, this species has sepals less than 7mm long. The flowers range from greenish to creamy, but not yellow nor especially fragrant.

Two varieties are recognized, with the typical var. *casei* very restricted so far is known in the province. It has from 0–3 leaves. The flower has a broad, blunt delicately ruffled labellum. Var. *novaescotiae* Catling is more common. A leafy plant with 2–4 basal leaves; the labellum is pointed and fleshy, its margins inrolled.

Flowers in September.

Look for this species in acidic, sandy soils on rock barrens or even roadsides.

So far restricted to southwestern counties, Jordan Falls to Pubnico, Belleville and the Annapolis Valley.

Fairly limited, from NS to ON, south to WI and PA.

YELLOW-listed provincially.

***Spiranthes cernua* (L.) Richard**

**Nodding Ladies'-tresses; spiranthe penchée**



*Photo by Sean Blaney*

A robust species, but reaching only from 15–30cm. There are several lanceolate leaves near the base, others reduce in size towards the top of the plant. The white flowers are arranged in three spirals around the stem. The labellum has a prominent fleshy swelling at its base. Pale yellow forms are known. These seem not to have the fleshy lip. Veins are still visible after drying.

Flowering in late August.

In seepy sandy locations, such as meadows, bogs and even roadside ditches.



*Photo by Sean Blaney*

Scattered throughout the province, but more abundant where sandy soils prevail, such as the Annapolis Valley and southwest. Its appearance is reported to be cyclic, disappearing then reappearing years later.

Elsewhere ranging from NS to ON, south to GA and TX.



***Spiranthes lacera* Raf.**

**Northern Slender Ladies'-tresses; spiranthe découpée**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Our most slender species, this little orchid stands 20–35cm in all. Leaves are wilted or absent at flowering, with only a few scales remaining on stem. Recurved flowers are white, spiraling the stem, in a raceme 5–8cm long, each flower measuring 4–6mm.

Flowers appear in late July through August.

Found in sandy, gravelly soil as along forest edges, or on rock barrens and blueberry fields.

Scattered throughout the province.

Ranges from NS to AB, south to TX and FL.



***Spiranthes lucida* (HH Eaton) Ames**

**Shining Ladies'-tresses; spiranthe lustrée**



*Photo by Sean Blaney*

Fleshy leaves are arranged about the base. They are obovate and shiny, up to 2 cm wide. The white flowers are arranged in three spirals. The labellum is oblong, deep yellow in the centre. Swellings are absent at the base.

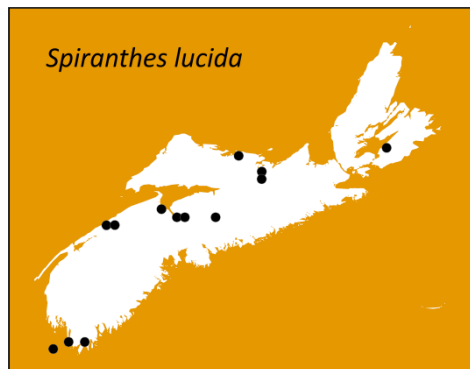
Unlike our other species, flowers appear in early July

Grows in alluvial soils and damp rocky shores. Found in thickets and meadows.

Rare and local. There are a few known localities in central NS, along the Yarmouth shores and in coastal Pictou County. There is a single Cape Breton collection to date.

NS to ON south to AR, AL and NC.

STATUS: ORANGE-listed in NS.



***Spiranthes ochroleuca* (Rydb.) Rydb.**

**(*S. cernua* (L.) LC Richard, var. *ochroleuca* (Rydb.) Ames**

**Yellow Ladies'-tresses; spiranthe jaunâtre**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Noticeably fragrant, this species has yellowish or creamy-yellow flowers, turning black or brown upon drying. The labellum has two prominent projections 0.8–1.5mm long, visible best with a lens. Formerly included with *S. cernua*, the yellow colour should separate it.

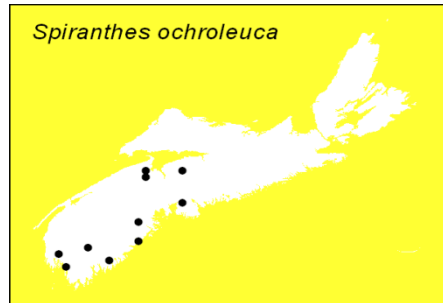
Autumn-flowering, from September to October.

Typical of only the driest sand barrens, roadside, fields.

In the western half of the province, northwest to Hants County.

Elsewhere from NS; ON, south to TN and NC.

YELLOW-listed.



***Spiranthes romanzoffiana* Cham.**

**Hooded Ladies'-tresses; spiranthe de Romanzoff**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

This is a stout plant, reaching upwards of 35cm in height. Leaves are linear or lanceolate, mostly basal, with a few reduced in size up the stem. Flowers cream or white with the petals and sepals tightly compressed and recurved forming a hood over the fiddle-shaped lip. Fragrance is reminiscent of vanilla.

Flowers late July to early August.

Wetlands and seepy open areas.

Scattered throughout. Less frequently seen on Sable Island.

Across Canada to AK, south to PA, IA and CA; Europe.

## Poaceae

### grass family

Worldwide, the grasses provide about 7500 species and dominate the world's vegetation. Grasslands yielded our earliest civilizations and crops such as sugar, rice, corn, wheat, barley and rye are significant agricultural commodities.

As a family, they are difficult to identify. The species are variable, hybrids are common and there are many of them. Most will need magnification, even 10X aids in viewing floral structure on which the following keys depend.

Our grasses are herbaceous and the jointed culms arise from fibrous roots. The long narrow leaves are alternate, sheathing the stems. The sheaths are open. A membrane, the ligule, usually occurs adaxially at the junction of the sheath and the leaf blade. Two auricles may project from the ligule at either side of the leaf and partly encircle the culm. Ligule also may be papery, membranous or ciliate, and may be entire or variously torn. Both the ligule and the auricle provide key characters in their presence, absence or form.

The inflorescence is a spicate, paniculate or racemose arrangement of spikelets. Each spikelet has a pair of glumes subtending one or more florets alternating along the rachilla. There is a pair of bracts subtending each floret, called the lemma (lowermost) and the palea (top or distal bract). These may differ in presence, texture, size and shape. The basal portion of the lemma may be enlarged to form a callus. Awns may be present on the glumes or the lemmas. Typically there is one ovary surrounded by three stamens.

Fruits are achenes or more commonly caryopses. In the vernacular grass fruits are called grains and cultivated food grasses are often referred to as cereal crops.

#### Key to groups

- |  |         |
|--|---------|
| A. Robust and tall species, exceeding 2m.              | Group 1 |
| aa. Plants various, but culms generally less than 2m.  | B       |
| B. Inflorescence of 1 or more spikes.                  | C       |
| C. Spikes solitary or in a spicate panicle.            | Group 2 |
| cc. Inflorescence of multiple spikes.                  | Group 3 |
| bb. Inflorescence a panicle, compressed or divaricate. | D       |
| D. Fertile floret 1.                                   | Group 4 |
| dd. Fertile florets >1.                                | Group 5 |

## Group 1 key

Annual aquatic emergent grasses; culms relatively pliable; florets unisexual; staminate florets and pistillate florets separate but on the same plant.

*Zizania*

Perennial wetland grasses; culms hard, almost woodys; spikelets perfect.

*Phragmites*

## Group 2 key Inflorescence a spike

A. Spikelets of a single floret.

B

B. Spikelets sessile.

C

C. Awns <1cm long.

*Nardus*

cc. Awns >1cm long.

*Hordeum*

bb. Spikelets pedicellate.

D

D. Spikelets subtended by at least 1 bristle.

*Setaria*

dd. Bristles absent.

*Phleum*

aa. Spikelets of >1 florets.

E

E. Inflorescence a spicate panicle.

F

F. Leaves sweet-scented; glumes unequal in size and much larger than the lemmas.

*Anthoxanthum*

ff. Leaves not sweet-scented; glumes equal to each other and the lemmas in length.

*Alopecurus*

ee. Inflorescence a true spike.

G

G. Spikelets lying edgewise to the rachis.

*Lolium*

gg. Spikelets not lying edgewise to rachis.

H

H. Rachis with >1 spikelets per node.

I

I. Lemmas awned, or awnless and rhizomes absent; glumes <2cm long.

*Elymus*

ii. Lemmas awnless; long rhizomes present and creeping; glumes >2cm long.

*Leymus*

hh. Rachis with 1 spikelet per node.

J

J. Rachis flexuous; spikelets divergent; awnless; perennial.

K

K. Creeping rhizomes absent or <1cm long.

*Agropyron*

kk. Creeping rhizomes long and extensive.

*Thinopyrum*

jj. Rachis straight, spikelets compressed and broadside to rachis, stiffly erect; awned; annual crop not persisting.

L

L. Glumes broad, >2 veins; keels of the lemmas not ciliate.

*Triticum*

ll. Glumes linear, keeled but without veins; keels of lemmas ciliate.

*Secale*



### Group 3, Inflorescence of two or more spikes

A. Spikelets not compressed; rachis ciliate, white; spikelets deciduous in 2s, with parts of the rachis.	<i>Schizachne</i>
aa. Spikelets compressed; rachis smooth, not white; spikelets falling individually, without the rachis.	B
B. Spikelets dorsally compressed; often with a sterile lemma below the fertile one; annuals.	<i>Digitaria</i>
bb. Spikelets laterally compressed; sterile florets absent; perennials.	<i>Spartina</i>

### Group 4, Inflorescence a panicle, with one fertile floret per spikelet

A. Floret rigid and shining.	B
B. Floret compressed, awnless.	C
C. Panicle dense; floret laterally compressed, with 2 small scales at the base.	<i>Phalaris</i>
cc. Panicle lax; floret dorsally compressed, solitary and scales absent.	D
D. Ligule always membranous; glumes equal; lemma not involute over the palea.	<i>Milium</i>
dd. Ligule usually a row of hairs; first glume very short or absent; lemma inrolled over the palea.	E
E. Cauline leaves and basal leaves similar, not forming a rosette; primary and secondary panicles uniform.	<i>Panicum</i>
ee. Cauline leaves and basal leaves differing in shape; basal leaves crowded forming a rosette; culms simple early, later branching and bearing axillary fascicles of leaves hiding small panicles of cleistogamous fertile florets.	<i>Dichanthelium</i>
bb. Floret awned, cylindric or flattened.	F
F. Ligules absent; spikelets dorsally compressed; annuals of weedy areas.	<i>Echinochloa</i>
ff. Ligules present; spikelets cylindric; perennials.	G
G. Awns short; florets many; mature fruit disarticulating below the glumes.	<i>Cinna</i>
gg. Awns long; florets few, or fruit disarticulating above the glumes.	H
H. Glumes reduced; rachilla prolonged beyond palea as a bristle.	<i>Brachyelytrum</i>
hh. Glumes equal to floret; rachilla not prolonged.	I
I. Basal leaves overwintering green.	<i>Oryzopsis</i>
ii. Basal leaves not overwintering.	<i>Piptatherum</i>
aa. Floret soft and papery, not shiny.	J

J. Glumes very small or unequal in size.	K
K. Glumes minute, or much shorter than the floret.	L
L. Lemma with 1–3 veins.	<i>Danthonia</i>
ll. Lemma with 5 veins.	<i>Leersia</i>
kk. At least one glume as long as the floret.	M
M. Lemma with 1 vein.	<i>Sporobolus</i>
mm. Lemma with 3 veins.	<i>Muhlenbergia</i>
jj Glumes nearly equal.	N
N. Spikelet with 1–2 sterile or staminate florets below the fertile one.	O
O. Lower florets reduced to minute scales.	<i>Phalaris</i>
oo. Lower florets as long as the terminal one.	<i>Hierochloë</i>
nn. Sterile florets absent; fertile floret solitary.	P
P. Rachilla prolonged behind palea as a bristle.	Q
Q. Lemmas awned.	<i>Calamagrostis</i>
qq. Lemmas awnless.	<i>Ammophila</i>
pp. Rachilla not prolonged.	R
R. Margin of leaf blades long-ciliate; ligule a ciliate fringe.	<i>Sporobolus</i>
rr. Leaf blades smooth; ligule membranous.	S
S. Body of glume shorter than lemma; lemmas short-awned from the tip.	<i>Muhlenbergia</i>
ss. Body of glume as long as or longer than the lemma; lemmas awnless, or awned from the back below the apex.	<i>Agrostis</i>

#### Group 5 Panicle with 2 or more fertile florets per spikelet

A. Glumes nearly as long as entire spikelet.	B
B. Spikelets about 2cm long or more, or drooping; rounded glumes with many ribs.	<i>Avena</i>
b. Spikelets shorter; glumes with 5 or more ribs.	C
C. Florets 2.	D
D. Lower floret staminate, awn bent; upper floret perfect, awn straight.	<i>Arrhenatherum</i>
dd. Florets all perfect.	E
E. Rachilla not prolonged.	<i>Aira</i>
ee. Rachilla prolonged beyond terminal floret as a bristle.	F
F. Lemma awned, attached below the middle.	<i>Deschampsia</i>
ff. Lemmas awnless, or awns attached above the middle.	<i>Trisetum</i>
cc. Florets >2.	G

G. Lemmas with bent and conspicuous awns.	<i>Danthonia</i>
gg. Lemmas nearly awnless.	<i>Cynosurus</i>
aa. Glumes much shorter than the spikelet.	H
H. Lower part of culms, sheaths and leaf bases velutinous.	<i>Holcus</i>
hh. Culms, sheaths or blades, glabrous or thinly pubescent.	I
I. Ligule a row of hairs.	J
J. Flowers unisexual; plant a halophyte.	<i>Distichlis</i>
jj. Flowers perfect; plant not a halophyte.	K
K. Spikelet strongly compressed; palea shorter than the lemma.	<i>Eragrostis</i>
kk. Spikelet not compressed; palea longer than the lemma.	<i>Molinia</i>
ii. Ligule membranous.	L
L. Florets 2.	<i>Sphenopholis</i>
II. Florets >2.	M
M. Edges of leaf sheaths joined at least half their length.	N
N. Panicles with few, stiff branches; spikelets sessile in dense clusters.	<i>Dactylis</i>
nn. Panicles with numerous branches; spikelets pedicellate.	O
O. Lemmas awnless.	<i>Glyceria</i>
oo. Lemmas awned.	P
P. Callus bearded; lemmas 7-ribbed.	<i>Schizachne</i>
pp. Callus not bearded; lemmas 5-ribbed	<i>Bromus</i>
mm. Edges of leaf sheaths free and overlapping, except at the base.	Q
Q. Lemmas perpendicular to rachilla, faintly ribbed, nearly round.	<i>Briza</i>
qq. Lemmas appressed to rachilla, longer than wide.	R
R. Lemmas blunt, with parallel veins.	S
S. Lemmas with 5 prominent ribs; plant not halophytic.	<i>Torreyochloa</i>
ss. Lemmas obscurely ribbed; halophytic.	<i>Puccinellia</i>
rr. Lemmas pointed or awned, with converging veins.	T
T. Spikelets paired, one sterile and persistent, one fertile.	<i>Cynosurus</i>
tt. Spikelets all alike and fertile.	U
U. Lemmas awned.	V
V. Leaf sheaths with curved auricles.	<i>Schedonorus</i>
vv. Auricles absent.	<i>Festuca</i>

uu. Lemmas awnless.	W
W. Lemmas with veins and keels pubescent; callus with cottony hairs, apices of leaves keeled or obtuse.	<i>Poa</i>
ww. Lemmas glabrous; callus glabrous; leaves acuminate.	X
X. Leaf sheaths auriculate.	<i>Schedonorus</i>
xx. Leaf sheaths not auriculate.	<i>Festuca</i>

## ***Agropyron* Gaertn.**

### **Wheatgrass**

These plants are perennial and cespitose. The culms may reach over 1m, standing erect or geniculate. The leaf sheaths are open and auricles are present. Typified by the presence of a single pectinate spike, the spikelets are solitary at the nodes of the rachis. There are 3–16 florets per spike. Both the lemmas and glumes are keeled and awned. At maturity, the lemma and palea is adherent to the caryopsis, disarticulating above the glumes.

### ***Agropyron cristatum* (L.) Gaertn.**

#### **Crested Wheatgrass; chiendent pectiné; agropyre à crête**



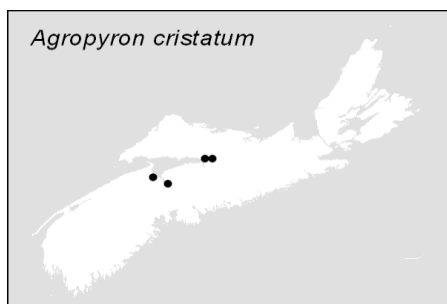
*Photo by Roger Lloyd*

A tall grass, it stands up to 1.1m; the culms terminate in a short dense spike. Each spikelet spreads nearly horizontally. There is a single spikelet per node, with the nodes close together. Both the glumes and lemmas are short-awned. Our material is referenced to ssp. *pectinatum* (M. Bieb.) Tzvelev.

In Nova Scotia it was planted on the dykelands where it escapes to nearby fields and wasteground.

Along the Minas and Fundy shores to Truro.

Elsewhere it is found: NS; NL to AK, south to CA, TX and KY. Introduced to North America.



## **Agrostis L.**

### **bentgrasses**

Numbering about 125 species, they are generally limited to temperate or arctic and alpine areas. They are perennial grasses, with slender geniculate culms and flat or involute leaves. The inflorescence is an open diffuse panicle of many spikelets, each with a solitary floret. Glumes are thin in texture and lanceolate, acutely pointed and nearly equal in size, with 1–3 ribs. Lemma is membranous and broad, glabrous and five-ribbed. Occasionally there is a tuft of cottony hairs at the base. Awns if present, arise from below the middle of the lemma. Mature fruit is loosely encased by the lemma and palea, if present.

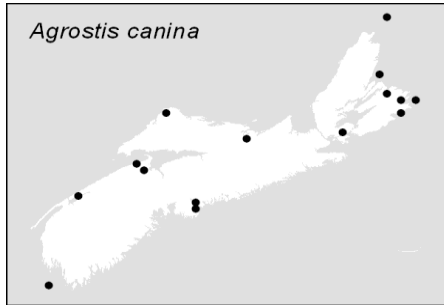
#### Key to species

- A. Paleas at least 2/3 as long as the lemmas. B
  - B. Ligules of the upper leaves shorter than wide, 0.3–3mm; spikelets on the lower panicle branches only on the distal 1/3–1/2. *Agrostis capillaris*
  - bb. Ligules of the upper leaves taller than wide, 2–7.5mm, at least some of the lower panicle branches with spikelets to the base. C
    - C. Stolons absent; rhizomes present; longest lower panicle branches 4–9cm long. *A. gigantea*
    - cc. Stolons present; rhizomes absent; longest lower panicle branches 2–6cm long. *A. stolonifera*
- aa. Paleas absent or less than 2/3 as long as the lemmas. D
  - D. Rhizomes or stolons present; blades 1–10cm long. *A. canina*
  - dd. Rhizomes and stolons absent; leaf blades to 30cm long. E
    - E. Panicle branches widely divergent, panicle often detaching at the base at maturity; cauline nodes 1–3; blades 1–2mm wide. *A. scabra*
    - ee. Panicle branches usually erect to ascending or the panicle not detaching at the base; cauline nodes 2–10; blades 0.5–5mm wide. *A. perennans*



***Agrostis canina* L.**

**Velvet Bentgrass; agrostide des chiens**



Arising from leafy stolons, the culms range from 30–60cm tall. The panicle is rather narrow, 5–10cm tall. Lemmas are usually long-awned protruding 1–2mm, but occasionally the awns may be absent.

Flowers and fruiting during June and July.

Escaping along golf courses and roadsides from its planting as turf. Only occasional in natural habitats.

Widespread in northern areas from Halifax and Amherst eastward. Uncommon elsewhere. Known from Seal Island.

Ranges from NF to ON variously south to MN and TN; OR. Greenland. Introduced from Europe.

***Agrostis capillaris* L.**

**(= *A. tenuis* Sibth.)**

**Brown-top; agrostide commune**



*Photo by Roger Lloyd*

A very fine species, no more than 60cm tall, it arises from short, fine rhizomes. The panicle is delicate 5–15cm tall comprising widely diverging branches. Spikelets are clustered towards the ends of the branches. Lemmas are twice as long as the paleas. Lower leaf sheaths form a brown ligule 0.5mm tall. Awns may be present or absent, and variable.

Found in pastures, lawns, meadows and roadsides; it is a favoured turf grass.

Very abundant.

Ranges from NF to ON, south to AR and SC; west coast. Greenland. Introduced from Europe.

***Agrostis gigantea* Roth**  
**Red-top; agrostide blanche**



*Photo by Roger Lloyd*

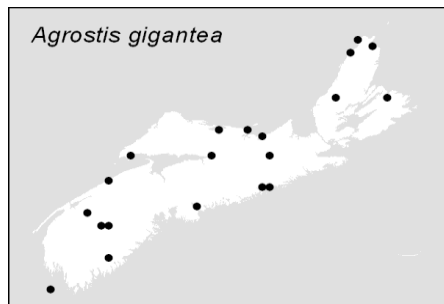
A robust species, its culms reach 50–70+cm tall. The panicle outline is lanceolate, 10–15cm long. Spikelets are numerous in the axils of the branches, as well as distally. Various strains have been introduced.

Flowers and fruits from June throughout the summer.

Commonly planted as a forage and persisting along road shoulders. The reddish hue is noticeable amongst the vegetation, midsummer. Tough and persistent.

Common throughout.

Ranges across the continent and southward. Greenland. Introduced from Europe.



***Agrostis perennans* (Walt.) Tuckerm.**

**agrostide pérennante**



*Photo by Roger Lloyd*

More delicate than the introduced species, this one generally only reaches 40cm tall. Panicles may reach up to 20cm, with long spreading branches, forking at or below the middle. Spikelets are barely 2mm long. The lemma is awnless; paleas are absent. The several cauline leaves separate it from *A. scabra*. It is a variable species.

Moist sites in forests, roadsides, lake margins and streamsides.

Common throughout.

Ranges from NS to ON, south to TX and FL; WA to CA.

***Agrostis scabra* Willd.**

**(=*A. hyemalis* (Walter) BSP var. *scabra* (Willd.) Blomq.)**

**Ticklegrass; Hairgrass**

A caespitose grass, 40–50cm tall, with a very broad diffuse panicle of at least 10cm tall. Spikelets are clustered only towards the ends of the filiform branches. The absence of a palea helps to confirm its identity. Most of our material has the spikelets 3–4mm long and the lemmas awnless. A variable species.

Usually found in burned land, flooded areas, roadsides and headlands.

Scattered.

Ranges across the continent and south to CA and FL.

***Agrostis stolonifera* L.**

**Creeping Bentgrass; agrostide stolonifère**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

A fine species, it may reach 60cm tall, bearing narrow panicles to 12cm long. It arises from leafy stolons, which may be as long as 2m under ideal growing conditions. Inflorescence has many short erect branches with clusters of spikelets carried in the axils. Spikelets reach 1.5mm long and the florets have delicate paleas, about half the length of the lemmas. Another variable species with numerous strains introduced as turf grasses.

Flowers and fruits in summer.

Moist sites in fields, pastures, ditches and marshes or sand dunes.

Common.

Ranges from NF to AK, south to CA and FL; Greenland. Absent from YT and NU. Many introduced forms from Europe.

## ***Aira* L.**

### **hairgrasses**

Native to southern Europe, they are now widespread on disturbed sites. Of the 10 species, two reach Nova Scotia. Cespitose, the culms terminate in a panicle, open and divaricate or contracted to the rachis. Glumes are equal in length and generally longer than the lemma and obscurely ribbed. The lemma is firm, with a twisted awn, tapering to a bristle-like tip. The proximal lemma in each spikelet may be awnless.

#### Key to species

Panicle open and diffuse, to 7cm long.

*Aira caryophyllea*

Panicle narrow, a spicate panicle, 1–3cm long.

*A. praecox*

### ***Aira caryophyllea* L.**

#### **canche caryophyllée**



Photo by Roger Lloyd

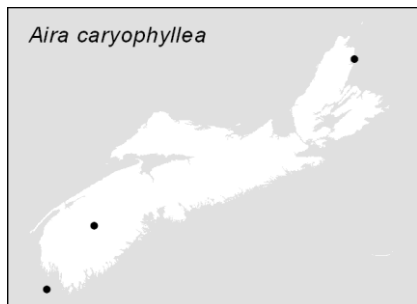
Panicles may reach 7cm tall and diffuse, nearly as wide as tall. Spikelets are silvery, each about 3mm long and clustered distally on the filiform branches.

Fruiting from May to July.

Open sandy locations on dry sites.

Seal Island, Yarmouth Co., and several campgrounds on the mainland and in Cape Breton.

Found from NS; VT to TX; AK to CA. Introduced from Europe and established near the coasts.





***Aira praecox* L.**  
**canche printanière**



Photo by Roger Lloyd



A small slender species, its culms reach only 20cm tall. The inflorescence is a spicate panicle, contracted to the rachis.

Fruiting from May and early June.

Frequents dry sandy soils.

Found on Seal and Mud Islands, Yarmouth Co. and at several southwestern campgrounds.

Ranges from NS; MA to NC; Pacific coast. Introduced from Europe.

## ***Alopecurus* L.**

### **foxtails**

Temperate grasses, there are 25 species mostly of the northern hemisphere. Cespitose, the culms bear dense cylindric spicate panicles. There is a single floret per spikelet, disarticulating at maturity below the glumes. The pair of glumes are nearly equal in size and united along their lower margins. The keels are ciliate. Lemmas are equal to the glumes in size, firm and marked by five ribs. The awn arises from below the middle. Margins of the lemma are also united.

#### Key to species

- |  |                             |
|--|-----------------------------|
| A. Spikelets >4.5mm long.                                | <i>Alopecurus pratensis</i> |
| aa. Spikelets <2mm long.                                 | B                           |
| B. Awn inserted near base of the lemma, jointed.         | <i>A. geniculatus</i>       |
| bb. Awn inserted about midway along the lemma, straight. | <i>A. aequalis</i>          |

### ***Alopecurus aequalis* Sobol**



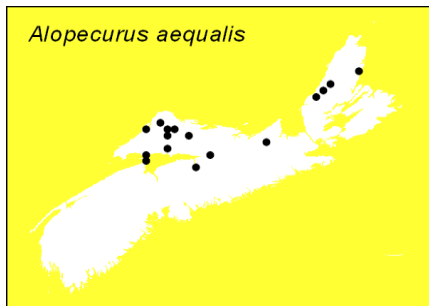
*Photo by David Mazerolle*

A slender erect grass, it produces tall narrow panicles, 3–4mm across and 5–7cm long. The early florets soon shatter, leaving the rachis bare. Spikelets are 3–3.5mm long. The awns are inserted just above the middle of the lemmas, with most barely exceeding the length of the glumes. Usually an annual, it may be a short-lived perennial at some sites.

Fruiting in summer.



Photo by Roger Lloyd



***Alopecurus geniculatus* L.**

**Water Foxtail; vulpin géniculé**



Photo by David Mazerolle

Grows in muddy edges of streams and ponds, gravelly lacustrine settings where competition is low.

Rare and northern: Kings and Cumberland counties to central Victoria Co.

Ranges from NF to AK, south to TN, NM and CA; Greenland.

STATUS: YELLOW-listed in Nova Scotia.

Arising from extensive creeping rhizomes, it roots from the nodes. The culms are often recumbent at the base. Panicles are broader than the previous species, 4–7mm wide and to 7cm tall. Each spikelet is 2.5–3mm long. Glumes are obtuse. Lemmas are awned, with awn jointed, projecting sideways for 2–3mm.

Fruiting from May through August.



Photo by Roger Lloyd

Grows in wet soils, in ditches, pastures, fields, streamsides, dykes, marshes. It is an early colonizer of bare saturated sites.

Common throughout.

NF to AK, south to CA, TX and VA; Greenland. Absent from MB, NU and NT. Introduced from Europe.

***Alopecurus pratensis* L.**

**Meadow Foxtail; vulpin des prés**



Photo by Roger Lloyd

A tall erect grass, its culms may reach 80cm. The panicles are soft, 4–5cm long and nearly 1cm wide. Spikelets are ovoid and compressed, about 5mm long, subtended by acute glumes. The lemma is awned from the base, the awn twists and projects sideways. Superficially it resembles *Phleum*, but flowers much earlier and the spikelets soon shatter.

An early-flowering species, fruiting in May and June.

Frequents meadows, roadsides and clearings.

Throughout the province. Naturalized and established, from NF to AK, south to CA, NM and GA.

## ***Ammophila* Host**

Four species comprise this genus which is limited to the northern hemisphere. Tall, coarse and perennial, the culms arise from long stout creeping rhizomes. Leaves are generally revolute and sharply acute. Inflorescence is a spicate panicle, with many densely packed spikelets, each of a single floret. The rachillas extend to form a pubescent bristle. The firm glumes and the lemmas are nerved. Our species is an early dune stabilizer, colonizing the bare sand and forming tangled subterranean mats that allow sand to accrete.

### Key to species

Culms 70–100cm; leaf blades scabrous; ligule 1–3mm long; lemmas with 5 ribs.	<i>Ammophila breviligulata</i>
Culms 50–120cm; leaf blades pubescent; ligule 10–30mm long; lemmas 5–7 ribbed.	<i>A. arenaria</i>

***Ammophila arenaria*** has been reported from NS, based on a single specimen from Canso, by J. Fowler 1901. The species is unconfirmed at present for NS. It is slightly larger and its leaves are pubescent not scabrous, the ligule much larger, 10–30mm rather than 1–3mm. The species is widely introduced as a dune stabilizer and could be expected here. Elsewhere it is reported from MD and along Lake Erie shores. (S. Blaney, pers. comm.).

### ***Ammophila breviligulata* Fern.**

#### **Beach Grass; Marram; ammophile à ligule courte**



*Photo by David Mazerolle*

Culms are stout and borne stiffly erect to 1m in height. The densely-packed panicle is 20–30cm long. Spikelets are flat, subtended by glumes 1cm long. The palea and lemma are subequal, with a ciliate callus. It is straw-coloured and resembles *Elymus mollis*, but differs in having a panicle with slender branches.

Fruits from July through September.





Photo by Roger Lloyd

Low dunes and sandy coastal beaches.

Common on Sable Island and around the entire coast. May be absent from the inner Bay of Fundy.

Ranges from NF to ON, south to IL and NC; BC to CA.

## ***Anthoxanthum* L.**

### **sweet vernalgrass**

The four species comprising *Anthoxanthum* contain coumarin, which imparts a pleasing aroma. Native to Eurasia and North Africa, a single species has been naturalised in Nova Scotia. A tall perennial, its culm terminates in a spicate panicle of spikelets, each spikelet bearing three florets. Lemmas and paleas are awned and the glumes are distinctly unequal in size and pilose.

### ***Anthoxanthum odoratum* L.**

#### **Sweet Vernalgrass; flouve odorante**



Photo by David Mazerolle

Culms may reach 1m tall, bearing short leaves and brownish panicles, 3–5cm long. The upper glume is twice as long as the lower one and wraps around the floret. There are two sterile florets in each spikelet, both of which are pubescent and larger than the fertile one.

Fruiting during early summer.

Found roadsides and in fields and similar habitats.



*Photo by Roger Lloyd*

Widely distributed and common.

Ranges from NF to ON, south to GA and TX; AK to CA.  
Introduced.

### ***Arrhenatherum* Beauv.**

#### **Oatgrass**

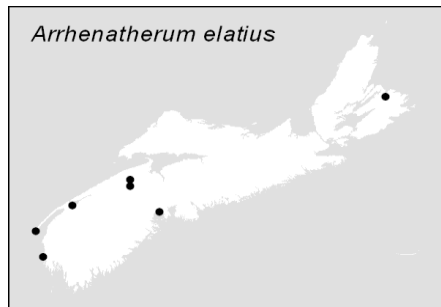
Another Eurasian genus, there are only six species within. A single species has been introduced to Nova Scotia as a forage crop. Tall perennial grasses, they have narrow panicles and flat leaf blades. Each spikelet comprises two florets, the distal one perfect and the proximal one staminate. The extension of the rachilla on the back of the upper floret forms a bristle. The staminate floret is awned and is larger than the perfect floret above it.

***Arrhenatherum elatius* (L.) Beauv.**

**Tall Oatgrass; fenasse**



Photo by Roger Lloyd



Erect, its culms reach more than 1m. The panicle is loose and diffuse and silvery in colour, although the branches contract at maturity to become nearly erect. Spikelets each are 6–7mm long, bearing unequal glumes. The lower glume is nearly as long as the lemma. The two florets are visible, the staminate one with an exerted twisted awn arising from its base. The callus is tufted with stiff hairs.

Fruiting from June to early July.

Found along the edges of fields, and escaping into orchards and roadsides.

Scattered throughout.

Ranges from NF to BC, south to GA and CA. Absent from the arctic and prairies, TX. Introduced from Eurasia, though not invasive.

***Avena* L**

**oats**

Including 10–15 species, they are all natives of Eurasia. The inflorescence is a large diffuse and drooping panicle, with 2–6 florets in each spikelet on filiform pedicels. The thin glumes are nerved, equal in size. They are longer than the lowermost floret, often reaching the top of the uppermost too. Lemmas are marked by 5–7 ribs and are hardened in texture. Callus is sometimes pubescent. Awns are jointed, arising from below the notch on the lemma, a character not always visible on cultivated material. Long-cultivated, they are both food and forage.

## Key to species

Spikelets awned.  
Spikelets awnless.

*Avena fatua*  
*A. sativa*

### ***Avena fatua* L.**

#### **Wild Oats; folle avoine**



*Photo by Roger Lloyd*

The awns are conspicuous and geniculate, arising from the backs of the lemmas. Usually the keel of the lemma is ornamented by long hairs. The callus is brown-ciliate. At maturity the florets readily disarticulate from each other and the rachis, above the glumes. Ligules are about 5mm long. The remaining straw is whitish.

Fruiting from July through October.

Found in fallow soils and may become invasive in grain fields, dykelands.

Occasionally collected from Kings and Halifax counties northward.

Ranges across the continent, absent only from Labrador and Nunavut in Canada.

***Avena sativa* L.**

**Cultivated Oats; avoine cultivée**



Photo by Roger Lloyd

A tall annual species, producing spikelets 2cm long on pendulous pedicels. Its florets are awnless. It is readily identified based on the size and habit of the spikelets. Also, the long glumes, exceed the florets in length.

Fruiting from July to September.

Commonly planted as a cereal crop and escaping, although not persistent.

Frequently collected.

Found across the continent, and southward.

***Beckmannia syzigachne* (Steud.) Fern., American Sloughgrass** has potential to establish in Nova Scotia. A leafy annual, to 1m, it has an inflorescence 10–15cm tall, with a few ascending branches crowded with plump green spikelets along their length. Spikelets are globose and 2mm long. Perhaps it may be seen around feedmills or along weedy roadsides. Ranges from NL to AK, south to CA, NM and PA; Greenland.

***Brachyelytrum* Beauv.**

A small genus, there are only three species included, two found in eastern North America. The other is found in eastern Asia. Erect perennials, they have slender culms and broad flat leaves. Panicles are contracted and few-flowered. Each spikelet contains only one floret, disarticulating above the glumes, at maturity. The distal extension of the rachilla forms a bristle. First glume is absent or vestigial.

**Key to species**

Lemmas hispid.

*Brachyelytrum erectum*

Lemmas puberulent or glabrous.

*B. aristosum*



***Brachyelytrum aristosum* (Michx.) Trel.**

(=*B. erectum*, var. *septentrionale* Babel; *B. erectum*, var. *glabrata* (Vasey) Koyama & Kawano)  
**brachyélytre du Nord**



Photo by Sean Blaney



Photo by Sean Blaney

Formerly included as a variety of the next species, it has now been given species status based on the character of pubescence on the lemma. In this species, the lemmas are at most puberulent, the hairs less than 0.2mm long.

Flowering and fruiting from June through August.

Grows in bottomlands and moist forests.

Our material may need examination to determine provincial distribution.

Ranges from NF to ON, variously south to IA and GA.

***Brachyelytrum erectum* (Schreb.) Beauv.**

**brachyélytre du Sud**



Photo by Marian Munro

Reaching from 59–100cm tall, this species forms colonies, from knotted rhizomes. The lower leaves are 8–10cm long and 1–1.5cm wide. Panicles are nodding 8–10cm long and few-flowered. Green spikelets are 8–10mm long, the lemma long-awned. Florets are soon deciduous, leaving the tiny glumes attached to the rachis.

Flowering and fruiting from June through August.



*Photo by Roger Lloyd*

Wet woods and streamsides.

Scattered localities.

From NF to ON, south to TX and FL.

### ***Briza* L.**

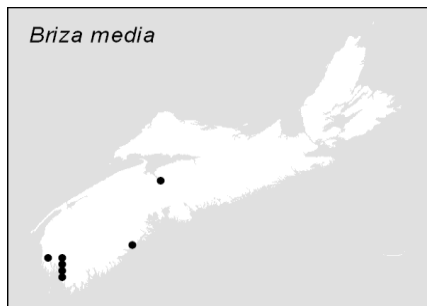
Grasses of Europe, Central and South America, they number 20 species. A single European native has been introduced sporadically here. A perennial grass, it is clump-forming. The panicles are open and showy, the spikelets include several florets. Both lemmas and glumes are awnless but ribbed, with up to nine nerves.

***Briza media* L.**

**Quaking Grass; amourette commune**



Photo by Roger Lloyd



Reaching from 30–60cm in height, the simple culms bear few leaves, and these mostly basal. Panicles are open, 4–10cm long with filiform branches and globose spikelets. Each spikelet is about 3–4mm long. The glumes and the lemma are similar and tightly packed. There are no other similar grasses.

Fruiting from June to August.

Escaping from gardens to nearby moist soils.

Yarmouth Co. to Queens and Hants Co. Several well-established localities but doesn't appear to be spreading.

Introduced from Europe to NF to ON, south to MD and elsewhere.

***Bromus* L.**

**bromegrasses**

Temperate and boreal in habitats these approximately 100 grasses are found worldwide. Eight species reach Nova Scotia. The spikelets are from 13–45mm long arranged in an ample panicle, rarely a raceme. Glumes are unequal in size, each with 1–5 ribs, but awnless. Lemmas are also ribbed and may or may not be awnless.

## Key to species

- A. Proximal glumes with a single rib. B
  - B. Lemmas keeled. *Bromus tectorum*
  - bb. Lemmas not keeled. C
    - C. Panicle branches flexuous; lemmas awned, silky ciliate or with tufts at the base. *Bromus ciliatus*
    - cc. Panicle branches ascending or stiffly spreading; lemmas awnless, or awned and without silky hairs. D
      - D. Cespitose plants; awns 5–6mm long. *B. erectus*
      - dd. Stoloniferous; awns absent, or <3mm. *B. inermis*
- aa. Proximal glumes with 3-5 ribs (one rib in *B. tectorum*). E
  - E. Lower glumes with one rib; second glume with 3 ribs; lemmas acuminate, keeled. *B. tectorum*
  - ee. Lower glumes with 3–5 ribs; second glume 5–9 ribs; lemmas elliptic or ovate, rounded on the back. F
    - F. Pedicels shorter than spikelets; ribs prominent on lemmas. *B. hordeaceus*
    - ff. Pedicels nearly all equal to or longer than spikelets; ribs not prominent on lemmas. G
      - G. Rachilla exposed at maturity. *B. secalinus*
      - gg. Rachilla remains covered. *B. racemosus*

### ***Bromus ciliatus* L.**

#### **Fringed Bromegrass; brome cilié**



*Photo by David Mazerolle*

Standing up to 1m tall, the panicle is a large nodding one, 15–30cm long. Spikelets are 2–3cm in height and long-awned. There are tufts of silky hairs present at the base of the lemmas. Stems and leaves are also puberulent. The leaf sheaths easily lacerate. Glumes have a single main rib. The plants are variable with respect to pubescence. All former named varieties are now included under var. *ciliatus*.



Photo by Roger Lloyd

Fruiting from July through October.

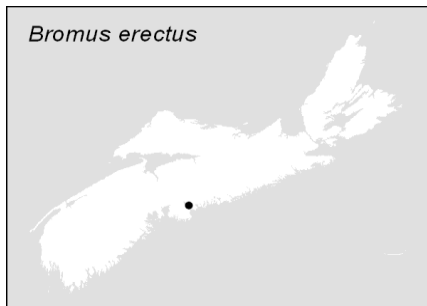
Found on fallow soils, streamsides and around cultivated fields.

Scattered from Yarmouth and Shelburne counties to northern Cape Breton and more frequent along the northern side.

Ranges from NF to AK, south to CA, NE, AL and VA.

***Bromus erectus* Huds.**

**brome dressé**



A perennial species reaching 120cm, it forms large clumps. Basal leaves are often tufted and slender, plicate and pubescent. Cauline leaves are flat.

Fruiting during May and June.

Found roadside and in fallow fields.

Only collected from Halifax and perhaps an historic occurrence.

Local; NS; QC and ON and variously south to AL; western. An adventive from Europe.

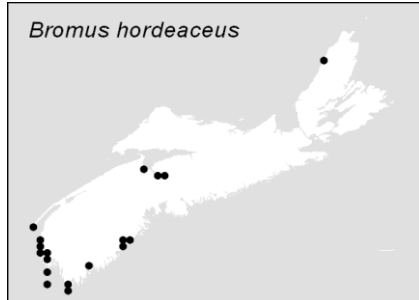


***Bromus hordeaceus* L.**

**Soft Chess**



Photo by Roger Lloyd



An annual species and the only one to be softly pubescent on both the leaves and in the inflorescence. Panicles are compact, the proximal branches shorter than the spikelets borne upon them.

An early-maturing species from May until early July.

Frequents open soils as in gardens, roadsides and embankments.

Found from NF to BC, variously south to CA, SC and TX; absent from NU, MB and SK. Introduced from Europe.

***Bromus inermis* Leysser**  
**smooth Bromegrass; brome inerme**



*Photo by David Mazerolle*

A stout plant, sometimes reaching 1m in height, its erect culms arise from creeping rhizomes. Spikelets may reach 2.5cm long; if awned, the awns are very short. Lemmas are variable with respect to pubescence.

Fruiting in June and July.

Cultivated and used as green cover on dykelands. Persisting in roadside colonies.

Scattered from Yarmouth to eastern and western Cape Breton.

Ranges from NF to AK and south to CA and NS. Absent only from FL and AL, after its introduction from Europe.

***Bromus racemosus* L.**  
**(includes *B. commutatus* Schrader)**  
**Hairy Chess; brome à grappes**



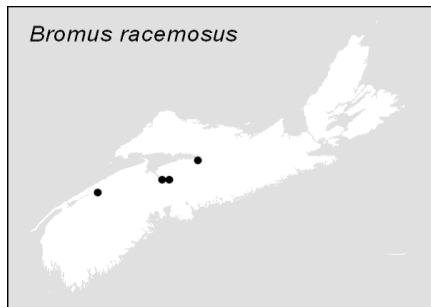
*Photo by Roger Lloyd*

An annual, it may sometimes reach 80cm tall, forming dense patches. Leaves and sheaths are lightly pubescent; the panicles are glabrous. Lustrous spikelets are only 15mm tall, easily shattering at maturity and with 6–10 florets. Upper lemmas on the panicle are awned, the awns may be 1cm long. The similar *B. racemosus* has a more erect, compact panicle.

Fruiting as early as June until August.

A common weedy species of dykelands, roadsides and fallow soils.

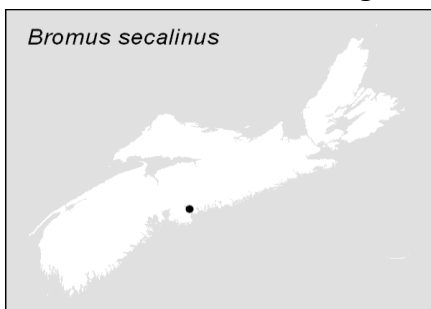
Mostly northern, from Digby Co. to Inverness Co., with a few port localities on the Atlantic.



Ranges from NF to AK, south. Introduced from Europe.

***Bromus secalinus* L.**

**Chess; Cheat; brome des seigles**



Annual in habit, the sheaths of its upper leaves are glabrous, a key character. Spikelets too are usually smooth. Margins of the lemmas become involute, exposing the rachilla.

Fruiting throughout the summer.

Historic occurrences at Five Mile River, Hants Co and from Sable Island. No recent reports.

Elsewhere, NF to AK, south to the Gulf of Mexico. Absent from MB and SK. Can become troublesome in agricultural lands.

***Bromus tectorum* L.**

**Downy Chess; brome des toits**



*Photo by Sean Blaney*

Growing as an annual or biennial, this weedy grass reaches 30–60cm tall. The smooth erect culms are cespitose and bear large pubescent leaves, 2–4mm wide and up to 16cm long. Ligules are lacerate, to 3mm long and membranous. Panicles are densely flowered, pale green and purplish. Spikelets are soft and drooping, pubescent and with awns, 10–15mm long. Lemmas are toothed, the teeth 2–5mm long, a character which separates it from *B. racemosus*. A



Photo by Roger Lloyd

self, it matures 1–2 weeks earlier than other annual brome grasses.

Found on dry sites in gravelly soils.

A recent introduction and collected from Kings and Halifax counties.

Ranges from NF to AK, south to CA and VA. From Eurasia.

## ***Calamagrostis* Adans.**

Cool, temperate grasses numbering more than 100 species, only 4–5 are found in Nova Scotia. Most are perennials arising from creeping rhizomes bearing ample panicles of spikelets. There is but a single floret in each spikelet. The rachilla is reflexed as a bristle. Glumes are nearly equal in size and larger than the floret. The first has one midrib, the second has three ribs. Both are acute. Lemmas are ribbed, bear an awn dorsally and have an obtuse or ragged tip. Callus is pilose. Generally these plants are more robust than *Agrostis*, with larger spikelets.

The reports of *Calamagrostis epigeios* growing in NS are unsubstantiated by collections.

### Key to species

- |   |                                  |
|---|----------------------------------|
| A. Awns twisted or geniculate; lemma firm and rough; callus sparsely pubescent, hairs half the length of the lemma.   | <i>Calamagrostis pickeringii</i> |
| aa. Awns straight; callus abundantly pubescent, hairs as long as lemma.   | B                                |
| B. Leaves flat, 4–8mm wide; panicle loose and open at flowering, later ascending.                                     | <i>C. canadensis</i>             |
| aa. Leaves rolled, <4mm wide; panicle contracted.   | C                                |
| C. Spikelets 6–7mm long; rachilla with a tuft of hairs at the top and prolonged; awn inserted above the middle of the | <i>C. coarctata</i>              |

lemma.

cc. Spikelets <5mm long, rachilla barely prolonged; awn medially attached.

*C stricta*

***Calamagrostis canadensis* (Michx.) Beauv.**

**Blue-joint; calamagrostide du Canada**



Photo by David Mazerolle

Forming dense beds, the culms stand up to 1m. The straight awns are delicate and the callus is copiously tufted with hairs, equal to the length of the floret. Panicles are purplish, with very thin branches bearing spikelets 2.5–4.5mm long. The species is variable with respect to spikelet size. Two varieties are reported from NS. Our material should be examined to separate into var. *macouniana* (Vasey) Stebbins (with spikelets 2.8mm long) and var. *canadensis* (with spikelets more than 2.8mm long).



Photo by Roger Lloyd

Fruiting in summer.

Grows in wet sites such as roadside ditches, swales and freshwater marshes.

Common throughout.

Ranges from NF to AK, south to CA, NM and NC; GA.



***Calamagrostis coarctata* (Torr.) Eaton**  
**(=*C. cinnoides* W. Bartram)**

Bluish in colour as is *C. pickeringii*, but this species is much taller, at 1.8m. The leaves are scabrous and may even be coarsely pubescent. Glumes are also scabrous, and keeled, the apices reflexed. Callus hairs as long as the floret. The caryopsis is also pubescent, especially at the apex.

Fruiting from mid-July to October.

Grows in damp sandy or peaty soils.

The only record is a collection from Halifax in 1912. Perhaps best to consider it historic.

Ranges from NS; ME south to GA, AL and LA.

***Calamagrostis pickeringii* Gray**  
**calamagrostide de Pickering**



*Photo by David Mazerolle*

Tall plants, they may reach 60cm, but on nutrient-poor soils of peat bogs, they are much smaller and bluish in colour. The callus of the lemma is puberulent. The twisted awns project sideways, in some of the spikelets. After anthesis, the short branches of the inflorescence become erect and appressed. Spikelets 3.5–4.5mm long. Var *debilis* is no longer recognized.

Fruiting from June through September.



Photo by Roger Lloyd

Found on barrens, in bogs, headlands, and similar habitats.

Most common along the Atlantic, but found throughout.

Ranges from NL; ON, NS south to NJ.

***Calamagrostis stricta* (Timm) Koeler**  
**calamagrostide raide**



Photo by David Mazerolle

The scattered culms, 40–80cm tall have smooth, narrow leaves, 1–3mm wide and slightly revolute. Ligules are variable. Panicles are brownish, to 12cm long, and short-branched. Callus pubescence is about half as long as the lemma. Awns are about the same length.

We have two subspecies: *ssp. inexpansa* (A. Gray) CW Greene is rare and local in Cape Breton. *Ssp. stricta* is found in Cumberland Co. *Ssp. inexpansa* has longer ligules, at more



Photo by David Mazerolle

than 3mm, with the leaves scabrous below. Ssp. *stricta* has smooth leaves and shorter ligules, less than 3mm long.

Found in a variety of habitats such as lakeside, bogs, streamsides and cliff-faces.

As ssp. *inexpansa*, it is limited to Lockhart Brook, Salmon River, Victoria Co. Ssp. *stricta* has been reported from Yarmouth Co. and collected only from Cumberland Co., in the Amherst area.

Ranges from NF to AK, south to CA, NM and WVA; Greenland.



## ***Cinna* L. reedgrass**

All perennial, there are only four species included in this genus of the northern hemisphere. Typically they have an open drooping panicle, with appressed spikelets, each having a single floret. The rachilla extends behind the palea to form a short bristle. Glumes are of similar size, scabrous and keeled. They are marked too by ribs. Lemmas are awned and also have ribs.

### Key to species

- A. Upper glumes prominently marked by 3 veins, spikelets mostly >4mm long. *Cinna arundinacea*
- aa. Upper glumes prominently marked by a single vein, rarely 3; spikelets mostly <4mm long. *C. latifolia*

***Cinna arundinacea* L.**

**Sweet Woodreed; cinna roseau**



Photo by Sean Blaney



The culms of this grass tend to be somewhat bulbous at the base, with more nodes than the more common species. Their leaves range from 3–19mm wide. Panicles are sometimes 55cm long. Spikelets are also taller at mostly 4mm or more. The upper glumes slightly exceed the lemma in length, while the lower glumes are slightly shorter.

Flowering and fruiting in late summer to fall.

Found in moist woodlands and meadows; riparian.

Limited to 2 localities, Coldbrook, Kings Co. and Port Hawkesbury.

Elsewhere known from NS to ON, south to TX and GA; MT.

STATUS: ORANGE-listed in NS.

***Cinna latifolia* (Trev.) Griseb.**

**Woodreed; cinna à larges feuilles**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

Scattered individuals, they may reach 1.5m in height. The leaves range from 3–10mm wide. Culms bear a light green panicle, 10–30cm tall, with slender flexuous branches. The glabrous lemmas are nearly equal in length to the paleas. The single floret is borne on a short pedicel.

Fruiting in summer.

Grows in wet soils in woods, swamps, and as single plants in alluvial soil.

Scattered throughout.

Ranges from NF to AK, south to SC and CA; Eurasia.



***Cynosurus* L.**  
**crested dogtail grass**

Ours is a perennial species, introduced from Europe in forage mixtures. Cespitose, its culms bear narrow flat leaves. Dense clusters of sterile and fertile florets form a second spikelike panicle. The fertile spikelets have 1–5 florets. Glumes are marked by a single rib; lemmas have five, less conspicuous.

***Cynosurus cristatus* L.**

**Crested Dogtail Grass; cr telle des pr s**



Photo by Roger Lloyd

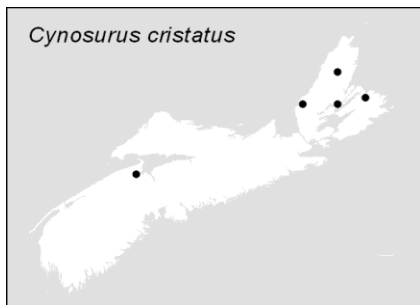
A perennial from 30–80cm tall, it forms large clumps. The spicate panicle is up to 8cm long. Spikelets are borne in pairs, one sterile, on very short pedicels. Fertile spikelets have 2–4 florets. Scabrous lemmas are convex on the back and also strongly ribbed, bearing a short terminal awn.

Fruiting throughout the summer.

Found along roads and in old fields.

Occasionally seen: Kentville, Baddeck and Glendyer; Sydney.

Ranges from NF to ON, south to TN and NC; absent from NB; western North America. Introduced from Europe.



***Dactylis* L.**  
**orchardgrass**

A genus of only three species, they are widespread in the temperate and colder Eurasian landmass. One species has gained favour as a forage crop. A tall leafy species, its leaves have keeled sheaths. Panicles are sparsely branched, the branches spreading and soon becoming erect and appressed. Spikelets are clustered distally.

***Dactylis glomerata* L.**  
**Orchard Grass; dactyle pelotonné**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

A tall species, reaching 120cm, its culms stand in coarse tufts. Ligules are long and membranous. Panicles are 8–10cm long with each spikelet about 1cm long. Lemmas bear short awns from the apices. A variable species with numerous subspecies. Ours is the typical form.

Fruiting from June through September.

Clump-forming in hay and oldfields, escaping to nearby roadsides.

Widely scattered.

Ranges from NF to AK, south throughout the US. Introduced from Europe.

***Danthonia* Lam & DC.**  
**wild oatgrass**

More diverse in the southern hemisphere, there are more than 100 species worldwide. Three are known from Nova Scotia. Perennials generally, the panicles or racemes are sparsely populated. The spikelets are comprised of several florets. Glumes are subequal with 15 ribs, exceeding the length of the rounded lemmas. The lemmas are bitoothed (tritoothed in one species) and pubescent on their backs. The ribs are faint, with the midrib exerted as a bent and twisted awn. The ligule is a set of radiating hairs.

Key to species

- |  |                            |
|--|----------------------------|
| A. Lemma tritoothed at apex.   | <i>Danthonia decumbens</i> |
| aa. Lemma bitoothed at apex.   | B                          |
| B. Culm straight, sometimes erect, the panicle branches stiffly erect;<br>basal leaves shorter than the culm.                              | <i>D. spicata</i>          |
| bb. Culms geniculate at the nodes, panicle branches often spreading;<br>basal leaves from half as long as to equal the height of the culm. | <i>D. compressa</i>        |

***Danthonia compressa* Aust.**  
**danthonie comprimée**



Photo by Roger Lloyd

A tall plant, to 80cm, it has an open sparse panicle, the horizontal branches often lax. Spikelets have bare awned lemmas, the awns twisted and bent. The teeth are narrow, 2–3mm long.

Grows in fertile damp soils in thickets and at the edges of trails and paths.

Common in the southwest counties, becoming less frequent in Colchester and Cumberland counties.

Ranges from NS; QC to ON, south to AR and GA; AK.

***Danthonia decumbens* (L.) DC**

**Common Heathgrass; danthonie décombante**



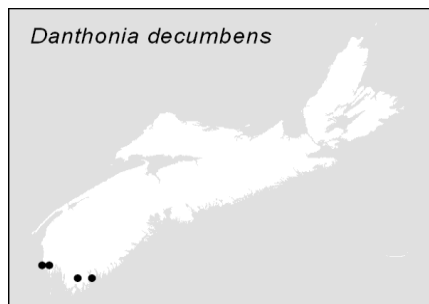
*Photo by Roger Lloyd*

A compact plant with a few-flowered panicle. The few spikelets each contain 3–5 florets. Glumes are nearly equal to the florets in length, or longer. Lemmas have three tiny teeth at their apices, but are awnless. The ligule is a row of hairs.

Frequents peaty wetlands and old pastures, other sites of moist soils.

Limited to Digby, Yarmouth and Shelburne counties.

Found only in NF and NS; BC to CA, where it has become introduced from the heathlands of Europe.



***Danthonia spicata* (L.) Beauv.**

**Wiregrass; Povertygrass; danthonie à épi**



Photo by Roger Lloyd

Densely cespitose, this perennial grass is only 20–50cm tall. The panicle is small, with short ascending branches which soon become erect. Each culm has 4–5 curly revolute basal leaves. Ligules are ciliate, and there are tufts of hairs on either side of the sheaths. Ovate lemmas bear long awns and sometimes they may also be puberulent. Their teeth are only about 1mm long. Glumes are 8.5–13mm long.

This species is quite variable and several varieties formerly used are no longer separable.

Fruiting from May through August.

Grows in poor or sterile soils, blueberry fields, clearcuts, dry banks and cliffs.

One of our most common grasses.

Ranges from NF to BC, south to OR, AZ and FL.

***Deschampsia* Beauv.**

**Hairgrasses**

Of the 40 worldwide species, Nova Scotia has two slender species. Leaves are revolute or narrow. The inflorescence is a contracted or open panicle of small spikelets. Each spikelets contains two pedicellate florets. Glumes are equal to the florets in size, or larger, and ribbed. Lemmas are shiny, rounded and with obscure ribs. Their apices are cleft and bear awns. Paleas may be keeled and scabrous.

**Key to species**

Leaves filiform; awns 1–3mm long and twisted.

*Deschampsia flexuosa*

Leaves flat, scabrous; awns straight, as long as the lemma.

*D. cespitosa*



***Deschampsia cespitosa* (L.) Beauv.**  
**Tufted Hairgrass**



*Photo by Sean Blaney*

Taller than the following species, reaching 1.5m, its panicle is also erect and more compact. The leaves tend to be flat, less frequently inrolled. The straight awn scarcely exceeds the length of the smooth lemma. Membranous ligules are 4–5mm long. A variable species, the varieties and subspecies once separated are no longer recognized.

Forms tussocks in damp soils and gravels, marshes and brackish marshes.

Local, but found from Yarmouth Co. to Cape Breton.

Ranges from NF to AK, south to CA, NM, SD and NC; Greenland.



*Photo by Roger Lloyd*

### ***Deschampsia flexuosa* (L.) Trin**

#### **Common Hairgrass; deschampsie flexueuse**



Photo by Roger Lloyd

A slender species, this hairgrass rarely exceeds 60cm in height. The leaves are mostly basal and about 1mm wide. The open panicle is delicate, bearing many small spikelets, 4–5mm long. Each has two florets, readily separating above the glumes at maturity, leaving the pair of glumes attached. Lemmas are puberulent, their apices obtuse and irregularly toothed. Awns are twisted, arising from near the base of the lemma. Callus bears a ring of short white hairs. Panicle branches and spikelets have a whitish sheen. Var. *montana* (L.) Ducomm. has the spikelets mostly longer than 5mm, while the typical variety has the spikelets mostly shorter than 5mm.

Grows in dry barren soils, headlands, sand plains and coastal cliffs, where it is usually conspicuous.

Common throughout.

From NF to AK, variously south to GA and OK; AK and BC; Greenland.

### ***Dichanthelium* (Hitchc. & Chase) Gould**

Similar to *Panicum*, these grasses were recently segregated based on dissimilarity in leaves and panicles in early and late parts of the growing season. The blades of the basal leaves differ from the cauline leaves in being much shorter, more densely crowded and forming a cushion or rosette. Early in the season the stems are simple, bearing a single terminal panicle. Later in the season the stems branch, bearing fascicles of leaves. Secondary lateral panicles of cleistogamous florets arise, hidden amongst the clusters of leaves.

#### **Key to species**

A. Leaves elongate >20times longer than wide, <6mm wide.

B

B. Spikelets <2.8mm long; apices obtuse or rounded.

*Dichanthelium linearifolium*

bb. Spikelets >2.7mm, acute or beaked.

*D. depauperatum*

aa. Leaves not elongate, or if long, than >5mm wide.

C

- C. Ligule with a conspicuous fringe of hairs, at least 2mm long. D
  - D. Stems and leaf sheaths glabrous or merely sparsely pilose. E
    - E. Panicle twice as long as its width or less, lateral spikelets longer than their pedicels or equalling their length. *D. spretum*
    - ee. Panicle width 2/3 of length or equal; lateral spikelets mostly shorter than their pedicels. *D. acuminatum*, in part
    - dd. Stems and leaf sheaths strongly pubescent. F
      - F. Axis of the panicle glabrous or puberulent. *D. meridionale*
      - ff. Axis of the panicle pilose. *D. acuminatum*, in part
- cc. Ligule absent or inconspicuous, the tufts of hairs shorter. G
  - G. Stem leaves cordate, auriculate and clasping the stem. *D. clandestinum*
  - gg. Cauline leaves narrowed and rounded at the base or nearly cordate. H
    - H. Spikelets <1.4mm wide. *D. boreale*
    - hh. Spikelets >1.3mm wide. *D. xanthophysum*

***Dichanthelium acuminatum* (Sw.) Gould & CA Clark**  
 (= *Panicum lanuginosum* Ell.)



Photo by Sean Blaney

The species is highly variable. Our material separates as follows:

var. *fasciculatum* (Torr.) Freckmann is most common here. Its sheaths and stems are both papillose and pubescent or mostly so. Our material previously included under *P. subvillosum* Ashe belongs here.

Var. *lindheimeri* (Nash) Gould & CA Clark has the stems and leaf sheaths glabrous or sparsely pilose. Its spikelets tend to be a bit larger as well.

Var. *acuminatum* has the leaf sheaths strongly pubescent but not papillose.

Grows in open sites and sandy soils.

Widespread and common species.

Ranges from NS to BC, south to CA and FL.

***Dichanthelium boreale* (Nash) Freckmann**  
**panic boréal**

A glabrous species, bright green, it grows in small clumps, no more than 50cm tall. It is often purplish. Leaf blades are 8–12mm wide and nearly glabrous, strongly ascending. Ligules are absent, or minute. Panicles 5–10cm long, the branches are spreading. Spikelets are only 1.6–2mm long and puberulent.

Flowers and fruits from June to September.

Frequents well-drained soils as on grassy slopes.

Found throughout and our most common species in northern and Atlantic shores in suitable habitat.

Ranges from NF to ON, south to GA and MO.

***Dichanthelium clandestinum* (L.) Gould**  
**panic clandestin**



*Photo by David Mazerolle*

A conspicuous species, its leaves are very broad, from 15–25mm. Cordate at the base, they may also reach 20cm in length. A sprawling plant, its culms are decumbent and form large patches. They range from 30–40cm long and are glabrous. The panicles are large, up to 10cm long with many spikelets.

Flowering and fruiting from July to November.

Open areas of alluvial soil.

Occasional from Yarmouth to Guysborough Co.

Found from NS; QC to ON, south to TX and FL; absent from NB.



***Dichanthelium depauperatum* Muhl.**  
**panic appauvri**



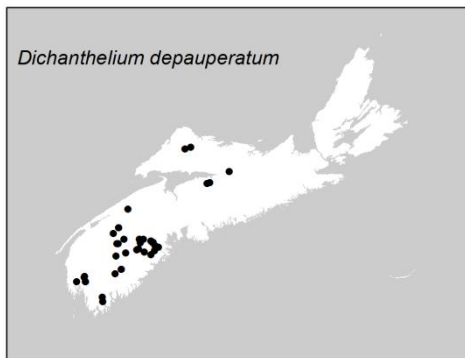
Photo by David Mazerolle

A densely caespitose species, it rarely exceeds 20cm in height. The narrow leaves are about equal in length. Panicles are only 3–5cm tall, their branches ascending and bearing only a few spikelets 2.5–3mm long, on short filiform pedicels. The glume and sterile lemma exceed the fertile lemma in length, forming a beak.

Plants prefer sandy sterile soils.

Very common in the western half and scattered to Colchester Co.

Elsewhere from NS to MB, south to TX and GA.



***Dichanthelium linearifolium* Scribn.**  
**panic à feuilles linéaires**



Photo by David Mazerolle

A densely caespitose species, resembling the previous species, with long narrow leaves. Each spikelet is rounded at the apex, a character which distinguishes it from the other species. The upper glume and the sterile lemma are obtuse and nearly equal in length to the fertile lemma. Both spring and fall panicles may be produced.

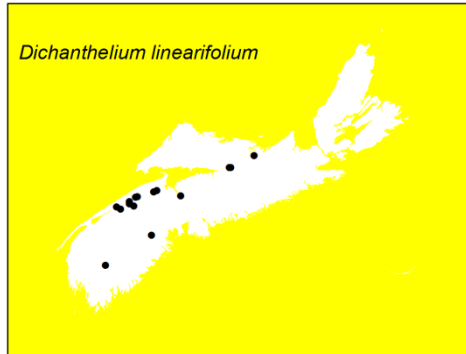
Flowers and fruiting from July to October.

Soils both dry and sandy.



Ranges along the northern part of mainland NS from Annapolis to Pictou.

Elsewhere found from NS to SK, south to FL and TX.



***Dichantherium meridionale* (Ashe) Freckmann** is another cespitose species, rarely taller than 45cm. The culms are erect and ascending. They are also hirsute or pilose near the base, puberulent above. Leaves are more numerous basally and form pilose sheaths. Now considered HISTORIC in Nova Scotia and collected but once by Fernald in 1920s from Yarmouth Co. Of coastal plain affinity, it is only known from NS and ON in Canada. Elsewhere ranges from NH to MN, south to GA and MS.

***Dichantherium spretum* (Schultes) Freckmann**  
**panic dédaigné**



A tall plant reaching 80cm, arising on erect culms and producing autumn basal rosettes of leaves. Blades and culms are glabrous; the ligule is a fringe 2mm long. Panicle is 5–7cm long, its branches strongly ascending. Spikelets are small finely pubescent, 1.5–1.8mm long.

Flowers and fruits from June to October.

Grows in damp peat as on sandy gravelly lakeshores, pools and even in ditches.

Scattered from Halifax to Annapolis and most common in southwestern NS, along coastal-plain lakes.

Ranges from NS; ON; ME south to GA and TX.

Photo by Sean Blaney



Photo by David Mazerolle

***Dichanthelium xanthophysum* (Gray) Freckmann**  
**panic jaunâtre**



Photo by David Mazerolle

Loosely cespitose its culms reach only 20–50cm tall. Leaf blades may be as wide as 2cm, narrowing at the base or rounded, but never cordate like *D. clandestinum*. The panicles are erect and very narrow, 5–10cm long.

Flowering and fruiting from June to September.

Found in open thickets on dry soils of sand or gravel.

Collected only from Bridgewater area.

Ranges from NS to SK, south to IA and WVA.

STATUS: ORANGE-listed in NS.



Photo by Roger Lloyd

## ***Digitaria* Haller**

### **crabgrasses**

Of both temperate zones and the tropics, there are about 300 species included in this genus. Two weedy annuals reach Nova Scotia. Distally on the culm are 4–6 spicate branches, palmately arranged, and unique to this genus. The second glume and lemma of the fertile floret are thin and leathery.

#### Key to species

Panicle branches 2–5, more or less separated.

*Digitaria ischaemum*

Panicle branches 4–6; closely palmate in attachment.

*D. sanguinalis*

***Digitaria ischaemum* (Schreb.) Muhl.**  
**Small Crabgrass; digitale astringente**



Photo by Roger Lloyd

Decumbent at the base, the culms rarely exceed 40cm. There are 2–4 spicate racemes, 3–5cm long and 1–2cm apart. Spikelets are reddish and only about 2mm long, subtended by a very tiny first glume. Second glume and lemma of the sterile floret are nearly equal in size, both prominently ribbed. This subtropical adventive grows as an annual here.

Seeds produced from August to October.

Found on the edges of trails, gardens, roadsides and cultivated fields. Can become troublesome.

Common in most urban centres.

Found from NS to BC, south to CA and FL. Introduced from Eurasia.

***Digitaria sanguinalis* (L.) Scop.**  
**Crabgrass; digitale sanguine**



Photo by Roger Lloyd

Erect in habit, reaching only from 30–60cm. Panicle branches are 4–10cm long, radiating from a short rachis. The first glume is small or absent, the second is nearly as long as the sterile lemma. Similar to the previous species, it is taller and more robust, and conspicuously pubescent.

Fruiting from July to October.

Found in fallow soils, gardens, even roadsides.

Collected from Kings, Halifax and Colchester counties and probably throughout.

Widespread from NS; QC to BC and throughout the US; introduced into Canada from further south.

***Distichlis* Raf.**  
**saltgrasses**

Limited to North and South America, the genus includes only four species; a single species occurs in Nova Scotia. It is a low creeping perennial with smooth leaves and culms. The culms have many nodes and are covered by the leaf sheaths nearly to the inflorescence. Ligules are membranous and fringed. Our species is dioecious. The spikelets are laterally compressed and arranged in panicles. Glumes are unequal in size and marked by 3–5 ribs. Lemmas are indistinctly ribbed, laterally compressed and awnless. Paleas are large and two-keeled.

***Distichlis spicata* (L.) Green**

**Spikegrass; Alkali-grass; Seashore Saltgrass; *distichlis dressé***



*Photo by David Mazerolle*



*Photo by David Mazerolle*

Ranging in height from 20–40cm, the culms bear revolute leaves. Ligules are very short. Panicle only 2–4cm in height and is tightly packed with spikelets, each 5–8mm long on very short pedicels. There are 5–8 florets in each spikelet. Plants are either staminate or pistillate, forming unisexual patches.

Fruiting in summer.

Found on sandy seashores or saltmarshes where it forms horizontal zones with salthay above the cordgrass zone. Common around the coast and along the shores of Lake Ainslie.

Ranges from NS to NT and BC; south to CA and FL. Absent from states in the upper Mississippi River regions.





Photo by Roger Lloyd

### ***Echinochloa* Beauv.**

Only about 20 species comprise this genus of warm regions; two in Nova Scotia. Annuals, they are robust, nearly succulent plants. The inflorescence is a panicle of secund racemes. The spikelets bear trichomes and occasionally awns. The lemma of the fertile floret is hard and shiny. Spikelets have one sterile and one fertile floret disarticulating below the glumes. There is no ligule on the leaf sheath.

#### Key to species

Leaves 3–6mm wide; racemes few and simple; fertile lemma rounded, wrinkled at the tip and puberulent to just below the tip.

*Echinochloa crusgalli*

Leaves 5–30mm wide; racemes numerous; fertile lemma acuminate; glabrous.

*E. muricata*

***Echinochloa crusgalli* (Link) Beauv.**

**Barnyard Grass; échinochloa pied-de-coq**



*Photo by Roger Lloyd*



*Photo by Roger Lloyd*

Stout plants, they may reach 75cm tall, freely branching from the base. Leaves 10–15mm wide, inrolled at emergence and forming keeled but glabrous sheaths. Panicles are 5–15cm long, scabrous and compact. The crowded spikelets are each 1.5–3mm tall, lying along one side of the rachis. Trichomes are scattered amongst the spikelets. Glumes are unequal and acute; the lemma of the sterile floret may be awned.

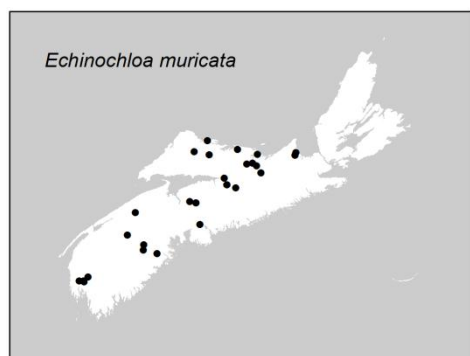
Preferring disturbed but fertile soils of gardens and roadsides.

Common and widespread throughout NS.

Ranges from NF to BC, south to CA and FL Introduced from Eurasia.

***Echinochloa frumentacea*** Link, Japanese Millet, is planted as an ornamental and sometimes collected. It is not persistent here.

***Echinochloa muricata* (P. Beauv.) Fern.**



Two varieties are found here. The typical variety has the spikelets 3.5mm long to the base of the awn and the sterile lemmas have awns to 2.5cm long. It is found in Truro at a feedmill and is possibly not extant. Var. *microstachya* Wieg. has smaller spikelets, less than 3.5mm long and no awn or only a tiny one on the sterile lemmas, to 1.0mm long. This may be an old record, unsubstantiated by collections.

Fruiting during the summer.

Found in damp muddy soils in fallow ground.

Collected from Truro and in Kings Co.

Ranges from NS to SK, south to CA, TX and FL.

***Elymus* L.**

**Wild Rye**

This genus has undergone extensive study and the classical genus has been split into three or more genera. In the narrower sense, the species may be described as tall perennials, some lacking creeping rhizomes. The leaves are flat, the sheaths with membranous ligules. Terminal spikes bear spikelets with 2–6 florets, disarticulating above the glumes and between the lemmas. Spikelets are alternating on opposite sides of the rachis producing a bilateral spike. Uppermost florets may be imperfect. Glumes are equal and usually rigid, acute and sometimes awn-tipped or sometimes reduced to awns with the first glume absent. Lemmas are rounded and acute or awned.

**Key to species**

- |   |                        |
|---|------------------------|
| A. Spikes loose, the rachis visible between the spikelets; glumes absent, or reduced to bristles. | <i>Elymus hystrix</i>  |
| aa. Spike dense, the rachis concealed; glumes well-developed.                                     | B                      |
| B. Plants without long-creeping rhizomes.   | C                      |
| C. Axis of rachilla densely hairy; internodes of rachis >8mm long.                                | <i>E. trachycaulus</i> |
| cc. Axis of rachilla glabrous or puberulent; internodes <8mm long.                                | <i>E. virginicus</i>   |

bb. Plants with long creeping rhizomes.

D. Leaves coarse; bluish.

dd. Leaves soft and green.

D

*E. wiegandii*

*E. repens*

***Elymus hystrix* L.**

**(=*Hystrix patula* Moench)**

**Bottlebrush Grass; élyme étalé**



Photo by Sean Blaney



Photo by Roger Lloyd

A slender species, reaching 60–80cm tall. The leaves are long-acuminate and about 1cm wide. The unusual inflorescence is 6–25cm long with only about dozen nodes, 5–10mm apart. The spikelets lie nearly horizontal, 1–3 per node, each about 1cm long. The glumes are reduced or absent. The lemmas are long awned.

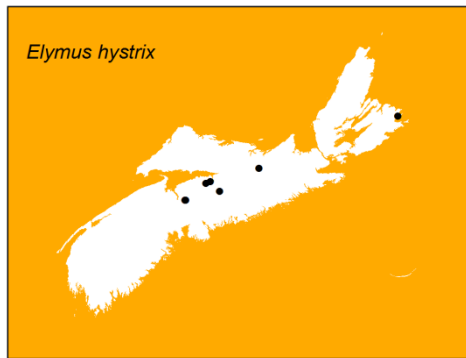
Fruiting from June to August.

Wooded lowlands and terraces.

Rare and local: Meander River and Five Mile River, Hants Co. and East River of Pictou.

Ranges from NS to MB south to OK and GA; NM.

STATUS: ORANGE-listed in NS.



***Elymus repens* Gould**

**Couchgrass; witchgrass; Quackgrass; chiendent commun**



*Photo by David Mazerolle*



*Photo by Sean Blaney*

Arising on relatively slender culms, reaching up to 1m tall, the spikelets alternate in two rows along either side of the rachis, dorsiventral sides proximal to it. The erect spikes may be 8–15cm tall. Both the lemmas and the glumes are acute and are often awned. The rachilla is glabrous or puberulent. Spikelets fall completely at maturity, leaving the rachis bare. Leaves are often glaucous and scabrous along the margins and on the upper surface.

Fruiting from June to August.

A common weedy grass of gardens and other disturbed soils. Difficult to eradicate due to the rhizomatous nature.

Collected from throughout the province.

Ranges from NF to AK, south to CA, TX and NC; Greenland. Introduced from Europe.



***Elymus trachycaulus* (Link) Gould**

**Slender Wheatgrass; élyme à chaumes rudes**



Photo by Roger Lloyd

A tall cespitose species, this one has no creeping rhizomes. The slender spikes may be 25cm long and cylindric. The spikelets soon disarticulate after maturity, leaving the glumes attached. The rachilla is densely pubescent, a key character on collected material without roots. The typical var. has the awns of the lemma no more than half as long or awns absent.

Ssp. *subsecundus* (Link) A. Löve & D. Löve has been collected from Halifax to Cumberland Co. and Cape Breton. The awns on the lemmas are at least as long as the body of the lemma, sometimes longer.

Fruiting during July and August.

Grows in gravelly beaches, talus, cliffs, rocky floodplains and dry banks.

Found throughout NS.

Throughout the continent.

***Elymus virginicus* L.**

**Wild Ryegrass; élyme de Virginie**



Photo by David Mazerolle

A robust cespitose species, reaching 80cm in height. The compact spikes are 8–12cm long. Spikelets are 8–12mm long and awned, the awns twice that in length. Glumes soon become hard and shiny, becoming convex at the base. There is considerable variation in the size and placement of the inflorescence in relation to leaves.

Former varieties are now included in the typical form, with the exception of var. *halophilus* (E. Bicknell) Wieg. It has the



*Photo by Sean Blaney*

spikelets glaucous and the leaves involute, while the typical variety has the leaves flat and spikelets green. This form is found only in NS; ME to NC. Our material should be checked to determine provincial spread.

Fruiting from June through August.

Grows in shade and/or moisture, often growing along streams or in the upper reaches of saltmarshes.

Common around the mainland coast. Not as widespread in Cape Breton.

Ranges from NF to BC, mostly south to FL and AZ.

***Elymus wiegandii* Fern.**  
**élyme de Wiegand**



*Photo by Sean Blaney*

Tall, reaching 2 m and coarse in texture this perennial is also cespitose. The flat leaves are softly pubescent on their upper surfaces. Spikelets are generally paired along the axis, although the lower ones may be 3–4 per node. The awns are 2–3cm exerted. Spikes are often pendulous and extend 10–20cm.

Fruiting from July and August.

Grows in alluvial soils and intervalles.

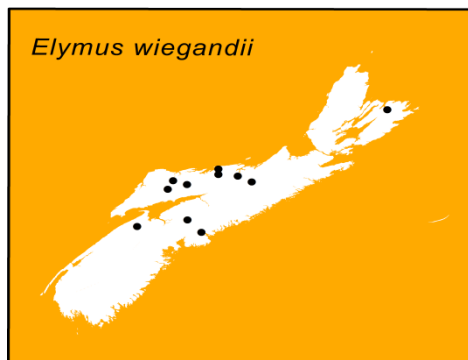
Limited to the Northumberland Plains east to Sydney.

Elsewhere it is found from NS to ON; SK, variously south to PA and WY.



Photo by Roger Lloyd

STATUS: ORANGE-listed in NS.



## ***Eragrostis* Wolf.**

### **Lovegrasses**

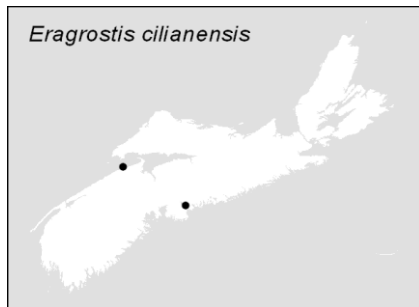
Tropical and temperate species are both found among the 250 species described worldwide although Nova Scotia has only four. Some are weedy. Some are annual. Spikelets have at least three florets and are awnless. The glumes are unequal in size, with 1–3 ribs. Lemmas are longer than the glumes, also with 1–3 ribs and keeled or rounded. Paleas are strongly two-nerved and may have ciliate keels. All but the palea are soon-deciduous.

#### Key to species

- A. Leaves glandular, or scabrous along the edges; inrolled when dry; 8–40 florets per spikelet, 5–17(25)mm long. B
- B. Spikelets >2.5mm broad; second glume about 2mm long. *Eragrostis cilianensis*
- bb. Spikelets <2mm wide; second glume <1.6mm long. *E. minor*
- aa. Leaves not glandular, nor scabrous along the edges; spikelets with fewer florets, <5mm long. C
- C. Lowest branches of the panicle 1–2; glumes scabrous on the ribs. *E. pectinacea*
- cc. Lowest branches of panicle whorled; glumes glabrous. *E. pilosa*

#### ***Eragrostis cilianensis* (All.) Janchen**

##### **Stinkgrass; éragrostide fétide**



A tall species exceeding 40cm, it also has pale green or lead-coloured spikelets. There are from 8–40 florets per spikelet, each spikelet 1.5cm long. The plant exudes a strong unpleasant odour.

Fruiting summer into fall.

Annual and weedy in disturbed soils.

Fundy shore and Halifax.

Ranges from NS; QC to BC south to FLA and CA; absent from arctic Canada and NL. An introduction from Europe.

#### ***Eragrostis minor* Host**

##### **éragrostide faux-pâturin**



A sprawling decumbent plant, from 10–40cm tall, it produces compact panicles to 7cm long. Pedicellate spikelets are often purplish, with 3–9 florets. Well-developed spikelets are plump, lanceolate to ovoid. The ligule is ciliate.

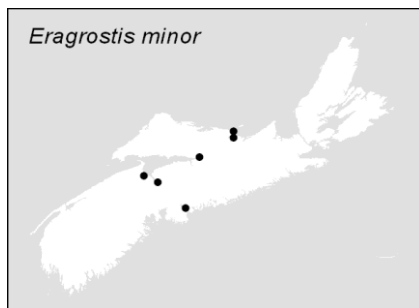
Fruiting from summer into fall.

Disturbed habitats such as building lots, roadsides, railways and old cinder piles.

Associated with railways Halifax to Windsor and Wolfville; Truro to the Northumberland Strait. There have been no recent collections.

Ranges from NS to ON; SK; BC south to CA, TX and FL. Introduced from Europe.

*Photo by Roger Lloyd*





***Eragrostis pectinacea* (Michx.) Nees**  
**Tufted Lovegrass; éragrostide pectinée**



Photo by Roger Lloyd

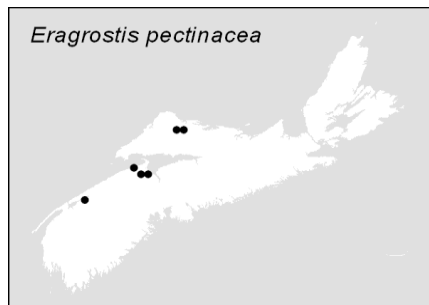
Another weedy species, smaller than the previous species at 20–40cm culms. Panicles are open and diffuse, with small spikelets on filiform pedicels, several mm long. Each spikelets contains 5–10 florets. Ligule is pilose.

Fruiting from June to October.

Urban disturbed areas, such as old ballast and cinder piles.

Collections from Annapolis, Kings and Cumberland counties.

Ranges from NS to ON; BC, south to FL and CA. Absent from the Prairies.



***Eragrostis pilosa* (L.) P. Beauv.**  
**éragrostide poilue**



Standing 10–50cm tall, the panicle is open, the branches spreading. Spikelets are small, borne on pedicels only 1–3mm long. The ligule is free from pubescence.

Grows in the edges of coastal beaches.

A single collection from Halls Harbour, Kings Co. belongs here.

Known from NS to ON, south to TX and FL; west coast.  
Naturalized from eastern Asia.

## ***Festuca* L.**

### **fescues**

Of the more than 100 species worldwide only six reach Nova Scotia. They are all perennial species; their spikelets comprise several florets. Usually the plants are glabrous, or may be puberulent only on the lemmas and lower leaf sheaths. Lemmas are convex, marked by obscure ribs, acutely pointed or awned. The ligules may be absent. If present they are less than 3mm long. Auricles are absent, one character which segregates this genus from *Schedonorus*.

#### Key to species

- A. Leaf blades flat, at least 3mm wide; lemma awnless. *Festuca subverticillata*
- aa. Leaf blades very narrow or plicate; lemma awned or merely acute. B
- B. Plants with spreading ramets, forming a uniform turf; lemma about 5mm long, usually awned. *F. rubra*
- bb. Plants densely caespitose, without spreading ramets. C
- C. Lemma about 3mm long, awnless or with an acute tip less than 0.5mm long. *F. filiformis*
- cc. Lemma >3mm long, usually awned. *F. trachyphylla*

### ***Festuca filiformis* Pourret**

#### **Hair Fescue; fétuque chevelue**



Photo by Sean Blaney

A slender and caespitose grass, its culms only reach from 20–40cm tall. The leaves are very narrow, almost filiform. The densely packed inflorescence is 3–5cm long, with numerous florets in each spikelet, each to 3mm long. Spikelets are nearly or mostly awnless. Spikelets shatter easily, and the plants become dry and yellowish early in the summer.

Matures early summer.

Found on dry sterile soils of roadsides, lawns and fallow fields.

Found throughout and sometimes common.

Known from NF to ON south to MS and SC; western North America. Introduction from Europe.

***Festuca rubra* L.**

**Red Fescue; fétuque rouge**



*Photo by Sean Blaney*



*Photo by Sean Blaney*

Plants are densely cespitose, arising 40–100cm from creeping rhizomes and forming an open turf. They are highly variable with respect to colour, awn length and degree of pubescence on the lemma. Spikelets are about 10mm long, each with 4–7 florets and awned 1–3mm. The lower leaf sheaths are early-deciduous and disintegrate into loose fibres.

Both ssp. *arctica* (Hack.) Govor and ssp. *rubra* are known from Nova Scotia. Our material should be assessed for inclusion here. The typical form now includes var. *prolifera* Piper, which may not be as rare and local as once thought.

The ssp. may be separated on the basis of: ssp. *arctica*: inflorescence branches are scabrous or pubescent; lemmas are pilose, their awns <1.8mm. The preferred habitats are alpine or subalpine, littoral or inland. Ssp. *rubra* has the



Photo by Roger Lloyd

branches of the inflorescence scabrous, lemmas are usually glabrous, their awns to 5mm long and of various habitats.

Fruiting during June and July.

A variety of habitats including pastures, exposed coastal sites, sand and gravel beaches and upper saltmarshes.

Common throughout.

Ranges from NF to AK, south to CA, NM and FL; Greenland. Absent only from southern arid lands.

***Festuca subverticillata* (Pers.) E. Alexeev.**

**Nodding Fescue; féтуque obtuse**



Photo by Sean Blaney

A slender grass, reaching over 1m in height. The leaves are 5–7mm wide. The long slender branches of the panicle are erect becoming lax and bearing a few small spikelets distally. Each spikelet carries only a few florets, about 5–6mm long.

Fruiting early in June and July.



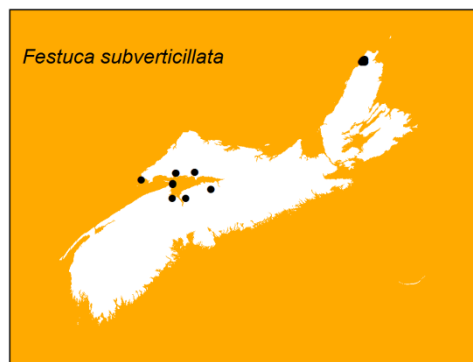
*Photo by Roger Lloyd*

A woodland species of fertile deciduous forested slopes and alluvial soils.

Local about Cape Blomidon, Kings Co.; Five Mile River, Hants Co., Economy River, Colchester Co. and southern Cumberland Co.

Elsewhere known from NS to MB, south to TX and FL.

STATUS: ORANGE-listed in NS.





***Festuca trachyphylla* Schult.**

**Sheep Fescue; fétuque à feuilles rudes**



Photo by Roger Lloyd

Slightly more robust than the previous species, it reaches 50cm in height. Densely caespitose, it produces clumped sods. The basal leaves are narrow. Panicles reach 10cm in length/ The lemmas are about 5mm long, with long awns.

Fruiting in early summer.

Sterile sandy soils in old lawns and blueberry fields.

Scattered and found throughout, where habitat is suitable.

Introduced from Europe in forage seed mixtures. Our *Festuca ovina* collections need to be checked as neither Flora North America nor NatureServe include NS in its range. They probably belong here.

***Glyceria* R. Br.**

**manna-grasses**

Generally native species of wetlands, the manna-grasses are typified by having closed leaf sheaths, almost to the top. Leaf blades are flat and the ligule is membranous. Panicles are ample with many spikelets, each comprising up to 16 florets. The convex lemmas are awnless and obtuse at the apex. There may be seven ribs marking them, conspicuous or obscure.

**Key to species**

- A. Spikelets >10mm long, inflorescence branches appressed or strongly ascending. B
- B. Lemmas 2.4–5mm long; leaves 2–4mm wide. C
- C. Lemmas usually acute, sometimes obtuse, entire or nearly so; mid-cauline leaves densely papillose on adaxial surface, glabrous. *Glyceria borealis*
- cc. Lemmas usually truncate, sometimes obtuse, crenate; adaxial leaf surface of mid-cauline leaves rarely papillose, *G. notata*

- sometimes sparsely hairy.
- bb. Lemmas >5mm long; leaves >4mm wide. *G. fluitans*
- aa. Spikelets <7mm long; branches ascending or drooping. C
- C. Panicle contracted, the branches tightly ascending. D
- D. Panicle linear and nodding, >15cm long; lemmas <2.3mm long. *G. melicaria*
- dd. Panicle oblong, dense and erect, <12cm long; lemmas >3mm long. *G. obtusa*
- bb. Panicle diffuse, the branches spreading. E
- E. Lemmas marked with faint ribs; palea bowed outward, visible. F
- F. Florets 5–10; lemmas 3–4mm long. *G. canadensis*
- ff. Florets 3–6; lemmas 2–2.5mm long. *G. laxa*
- ee. Lemmas marked with strong ribs; palea not bowed, nor visible. G
- G. Panicle <20cm long; spikelets 3–4mm long. *G. striata*
- gg. Panicle 15–40cm long; spikelets 5–6mm long. *G. grandis*

***Glyceria borealis* (Nash) Batchelder**  
**Northern Mannagrass; glyc rie bor ale**



Photo by David Mazerolle

Tall or long-trailing this slender grass is often found floating or reclining on the water surface. The spikelets are very narrow and held tightly along the rachis. Resembling *G. fluitans* and *G. notata*, it is separated on the basis of narrower leaves and smaller spikelets.

Fruiting from June to August.

Shallow waters of ponds, pools, streams and even ditches.

Common around the province.

Ranges across the continent and south NJ, NM and CA.

***Glyceria canadensis* (Michx.) Trin**  
**Rattlesnake-grass; glycérie du Canada**



*Photo by David Mazerolle*

Culms are solitary and reaching 1m in height. Leaves 3–6mm wide. Panicles are lax or drooping, the spikelets measure 4–5mm long. Florets 5–8, are diverging. Lemmas are broadly ovate, their tips projecting beyond the rigid palea, about 0.5mm beyond.

Grows in swamps, meadows, ditches and grassy edges of ponds and streams; bogs.

Found throughout.

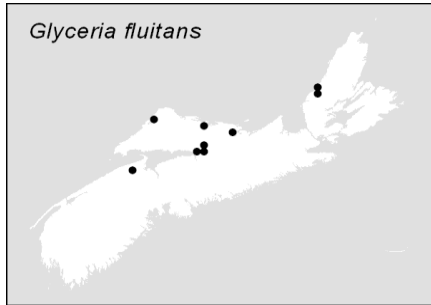
Ranges from NF to SK; BC south to OR in the west; IL and NC in the east.



*Photo by Roger Lloyd*

***Glyceria fluitans* (L.) R. Br.**

**Floating Mannagrass; glycérie flottante**



More generous in overall size and habit than *G. borealis*, this floating species also has more lax panicles. Flowering and fruiting from late June through to August.

Found in meadows and ditches.

Locally common in Colchester Co and Kenloch, Inverness Co; also reported from Kings, Cumberland and Pictou counties.

Found only in NF and NS and in a few scattered US jurisdictions. Introduced from Eurasia.

***Glyceria grandis* S. Wats.**

**Reed Mannagrass; glycérie géante**



*Photo by David Mazerolle*

A stout tall species reaching 2m, it produces leaves up to 10mm wide. The erect panicle may be 25cm long or longer, freely branching. Branches terminate in narrow spikelets to 3.5mm long. Lemmas are about 2.5mm long, convex and with prominent ribs. The colour of the spikelets is variable.

Flowering and fruiting from June to August.



Photo by Roger Lloyd

Conspicuous in wet meadows, marshes, streamsides and ditches.

Common especially along the northern side.

Ranges from NF to AK, south to CA, NM, MS and NC.

***Glyceria laxa* (Scribn.) Scribn.**  
**glycérie lâche**



Photo by Sean Blaney

Colonial, the culms tend to be uniform in height., to 1.6m. Panicles are large but the spikelets are relatively small and drooping, unlike those of *G. canadensis*. The lemmas are faintly marked.

Flowering and fruiting from July and August.

Grows in waterlogged soils and wooded swamps or wet woods.





Photo by Roger Lloyd

Scattered from Yarmouth Co. to Cumberland Co. Most common in the southwest.

Ranges from NS; ON, south to WI, TN and NC.

***Glyceria melicaria* (Michx.) FT Hubbard**  
**glycérie mélicaire**



Photo by Sean Blaney

On stiffly erect culms 1m tall, this species bears bright green leaves. The panicle is long and linear, strongly contracted to the rachis with ovoid spikelets.

A dominant species where found as in fertile wet sites in forests.

Cape Blomidon and through the Cobequids to Truro and Cumberland Co. Rare elsewhere.



Photo by Roger Lloyd

Ranges from NS to ON, south to GA and MS, through Appalachia.

***Glyceria notata* Chevall., Catgrass**, was once reported as being present in Digby Co. As this locality and specimen cannot be verified, it is given only a mention here. A Eurasian species, its North American range has not been determined.

***Glyceria obtusa* (Muhl.) Trin**  
**glycérie obtuse**



Photo by David Mazerolle

Culms stiffly erect, they may reach 80cm in height. Panicles are conspicuous, long and narrow, to 10cm, with many densely crowded spikelets on branches 5–6mm long. There are 5–6 florets in each spikelet. Lemmas are broadly round at the apex and equal to or very slightly shorter than the palea.

Flowers and fruits from late July to September.

Lakeshores and streamsides, in mucky soils.



*Photo by Sean Blaney*

Common from Digby along the coast to Lunenburg Co;  
scattered and local to Halifax's Shubenacadie Grand Lake and  
coastal Guysborough Co.

Ranges from NS to SC along the coastal plain.



*Photo by Roger Lloyd*

***Glyceria striata* (Lam.) AS Hitchc.**

**Fowl Mannagrass; glycérie striée**



*Photo by Roger Lloyd*

Another slender species, it may reach 1m in height. The leaves are 3–5mm wide. Panicles are diffuse, and up to 20cm long. The spikelets are barely 2mm long, and have 4–5 florets. Glumes are small, less than 1mm long with the lemmas strongly ribbed.

Flowers and fruits throughout the summer.

Found throughout but less frequent in southwestern counties and along the Atlantic.

Absent only from Nunavut and Greenland.

***Hierochloë* R. Br.**

Limited to the northern hemisphere, there are 20 species worldwide. Nova Scotia has a single species, a tall perennial whose culms bear thin flat leaves at the base, and an open panicle of few spikelets. The spikelets have three florets, only the terminal one is perfect. The lower pair are staminate. Glumes are awnless and membranous, equal in length to the florets. Lemmas of the staminate florets are round and not keeled, marked by five ribs. Lemmas of the perfect florets have short hairs at the apex.



***Hierochloë odorata* (L.) Beauv.**

**Sweet-grass**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

An erect species, the culms are 30–50cm tall and brownish. Leaves are short and mostly basal. Panicle is ovoid and tidy, 3–7cm long, its branches short and twisting, spreading outward. Spikelets are spherical, 4–5mm subtended by a pair of equal glumes, hardly obscuring the lemmas beneath.

Flowering and fruiting early, in June.

Specialist of the upper saltmarsh zone where freshwater seeps meet tidal zone.

Around the entire coast.

Ranges from NL to AK, south to BC and NY; Eurasia.

***Holcus* L.**

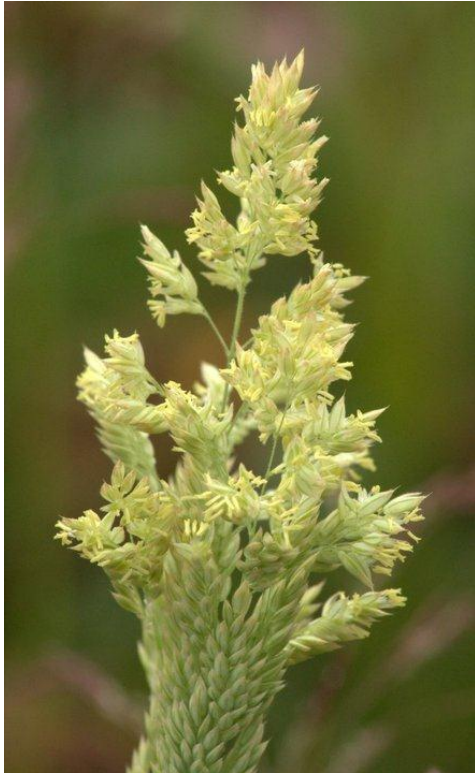
**velvetgrass**

Eight species comprise this Eurasian genus, while a single species has been introduced to Nova Scotia. A distinctive grass, it has soft downy pubescence on the culms, a character not seen in any other grass here. Nearly succulent, the culms are weakly erect. Leaves are broad, flat and may be pilose or villous. The panicles are contracted, bearing spikelets of two florets. The upper one is staminate or sterile; the lower one perfect. Both glumes and lemmas are variously ribbed and only the lemma of the upper floret is awned.



***Holcus lanatus* L.**

**Velvetgrass; holque laineuse**



*Photo by Alain Belliveau*



*Photo by Roger Lloyd*

A tall white-tomentose perennial to 1m in height, it is also loosely caespitose. Leaves are greyish green and pilose, their sheaths split almost to the base. The panicle is narrow, 4–6cm long, with crowded greyish-green spikelets. The florets are enclosed by a pair of glumes. Caryopses are produced only in the lower floret, the upper one sterile and armed with a hooked awn, scarcely exerted.

Flowers and fruits in early summer.

Found in open damp areas, such as meadows and fields; typical of gull nesting areas.

Common in Digby, Yarmouth and Shelburne counties and scattered to Halifax and Kings counties. Occasionally seen elsewhere.

Ranges from NF to ON, southward; BC to CA. Adventive from Europe.

## ***Hordeum* L.**

### **barley**

While there are 25 species worldwide only two introductions reach Nova Scotia. Annuals or perennials these tall grasses arise from fibrous roots, not creeping rhizomes. The leaves are broad and often lax, although flat. The inflorescence is a densely flowered spicate raceme. There are three spikelets at each node, with the central one perfect and the lateral pair staminate or sterile. Cultivated strains may exhibit fertility in all florets. The glumes are narrow and awned. Lemmas rigid and globose and also awned.

#### Key to species

Plant >1m in height; rachis not easily shattering; leaf sheaths auriculate.

*Hordeum vulgare*

Plant <40cm tall; rachis easily shattering; leaf sheaths without auricles.

*H. jubatum*

### ***Hordeum jubatum* L.**

#### **Foxtail Barley; orge queue-d'écureuil**



*Photo by David Mazerolle*

A slender perennial, the stems are rarely more than 40cm tall. The spike resembles a squirrel or fox tail, with long green or purple awns. The lateral spikelets are reduced to awns. Once mature the spike easily disarticulates, with seven bristles in each cluster. Auricles are absent on the leaf sheaths.

Flowers or fruits in summer.



Photo by Roger Lloyd

Weedy in nature, this plant is found on roadsides, in saltmarshes and dooryards.

Scattered throughout the province and sometimes common.

Ranges throughout the continent, south to South America; native to Eurasia.

Hybrids are known with *Elymus virginicum*. This form is known as *Elyhordeum montanense* (Scribn.) Bowden. It has been collected from Truro area. A leafy plant, it produces two plump green caryopses per spikelet which do not readily break off. The inflorescence is a bit smaller and the awns much shorter than in the parent species.

***Hordeum vulgare* L.**  
**Barley; orge commune**



Photo by Roger Lloyd

An annual cereal crop, 1–2m tall, producing a spike of flowers with long awns on both the lemmas and glumes. Three spikelets are borne at each node, although the lateral ones may be reduced to awns. The leaf sheaths bear conspicuous auricles.

Fruiting during the summer.

Widely cultivated and found as a casual escape nearby. Short-lived and not persisting.

Scattered on the mainland from Yarmouth to Pictou counties.

Widespread on the continent; from Europe.

## ***Leersia* Sw.**

A genus of 10 species of creeping perennials; only one species is found in Nova Scotia. Leaves are broad and flat, the culms bear open panicles. Leaf sheaths have a short firm ligule, extending laterally to form auricles. Spikelets are laterally compressed and crowded distally. Glumes are absent.

### ***Leersia oryzoides* (L.) Sw, Rice Cutgrass; léersie faux-riz**

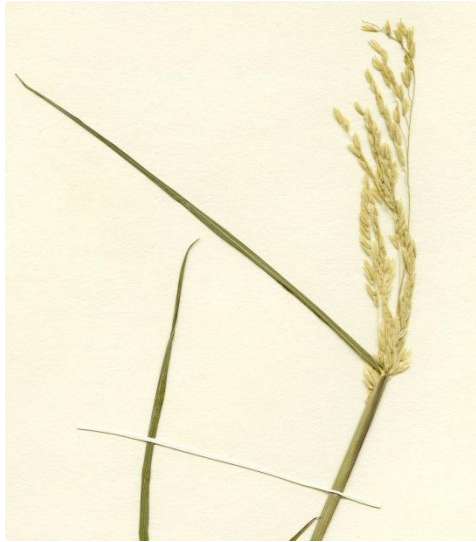


Photo by Roger Lloyd

Forming tangled masses of culms and leaves 1m in height, this plant is noticeably prickly with rough recurved barbs on the leaves and culms. The flattened spikelets are about 5mm long and ciliate. They are borne on filiform branches, within panicles 15cm long. There are also fringes of white hairs around the nodes on the culm.

Fruiting from June through to October.

Found in wet soils or even emergent in shallows of ditches and ponds, lakeshores.

Scattered throughout the province.

Elsewhere ranges from NS to BC, south to WA and FL; absent from AB.

## ***Leymus* Hockst.**

Perennial grasses, they may be caespitose and are often rhizomatous. Culms may reach more than 3m. Leaves are basal or evenly cauline with open sheaths. Ligules are usually auriculate. Blades are veined, with some veins prominently ribbed. Inflorescences are distichous spikes, with 1–8 spikelets per node. The rachis may be ciliate or scabrous. Spikelets are usually sessile, with 2–12 florets, the distalmost reduced. Spikelets disarticulate above the glumes and between the florets. Lemmas are glabrous or pubescent, usually ribbed 5–7 times, and sometimes awned. Glumes are equal or subequal, the lowermost sometimes absent. Of the 50 species of north-temperate grasses here, Nova Scotia has one.



***Leymus mollis* (Trin.) Pilg.**

**(=*Elymus mollis* Trin)**

**American Dune Grass; élyme des sables d'Amérique**



*Photo by Martin Thomas*

A tall stout species, arising from creeping rhizomes, it may reach 120cm tall. Leaves are long and coarse. The spikes are erect, 10–30cm long and crowded with spikelets 1–2cm long arranged in pairs at each node. Plants resemble *Ammophila* but the spikes are much softer and the spikelets are pedicellate in this species. Those of *Ammophila* are sessile.

Flowers and fruits in June and July.

Grows in beaches and sandy coastlines.

General, around the coast.

Ranges from NF to BC, south to CA; south to IL and PA in the east; eastern Asia.



*Photo by Martin Thomas*





*Photo by Sean Blaney*

***Lolium* L.**  
**ryegrass**

A single species of this genus has been introduced to Nova Scotia from Europe. It grows as an annual or short-lived perennial and bears sessile spikelets alternating up the rachis. The internodes look relatively long. Each spikelet is oriented laterally to the spike, or the backs of one row of lemmas lies adjacent to the rachis.

***Lolium perenne* L.**

**Perennial Ryegrass; ivraie vivace**



*Photo by Roger Lloyd*

Typically a slender grass, it reaches 30–60cm in height. Spikes are long and the spikelets conspicuously alternate with narrow edge along the axis. Rachis is smooth. The leaves are folded in the bud.

Ssp. *multiflorum* (Lam.) Husnot or Italian Ryegrass resembles ssp. *perenne* but for the presence of awns on the lemmas and scabrous rachises of the spikes.

Flowers and fruits from May until August.

Planted as a good quality cover crop and turf grass, it is short-persistent in nearby habitats.

Collected from throughout.

Ranges from NS to AK and southward. Absent only from Labrador and NU. Introduced from Europe.

***Milium* L.**

Only six species comprise this genus of temperate grasses, mostly in Europe and Asia. Nova Scotia has one species, one of our rarer grasses. Typically the plants have membranous ligules, sometimes exceeding 1cm in length. Inflorescence is an open panicle, with many small spikelets sparsely arranged along filiform branches. Spikelets are compressed dorso-ventrally and contain only a single awnless floret. Disarticulation is above the pair of equal glumes. The smooth shiny lemma is marked by five ribs, turning dark brown at maturity, slightly obscured by the three-ribbed glumes.

***Milium effusum* L.**

**Milletgrass; millet diffus**



*Photo by Sean Blaney*

A perennial species, its culms may reach 90cm in height. The leaves are narrow, 5–10mm wide. Panicles are erect, stretching 15cm tall, bearing spikelets no more than 3mm long, subtended and enclosed by the glumes.

Flowers and fruits from June to August.

Found only in fertile soils of alluvial forests.

Occasional atop Cape Blomidon, Cape Chignecto and southern Cumberland Co. as well as northern Cape Breton.

Ranges from NF to MB, south to TN and NC. Eurasia.



*Photo by Roger Lloyd*

## ***Molinia* Schrank**

### **Moor Grass**

The five species included here are native to Europe and Asia, with one being introduced to northeastern North America. Cespitose perennials, they have slender leafy culms. The ligule is ciliate. Spikelets are wide spaced, borne on slender pedicels, each with 2–4 florets. The terminal floret is abortive. Glumes have a single rib and are shorter than the lemma, with three ribs. The palea is equal to or longer than the lemma.

### ***Molinia caerulea* (L.) Moench**

#### **Purple Heathgrass; molinie bleue**



*Photo by Roger Lloyd*

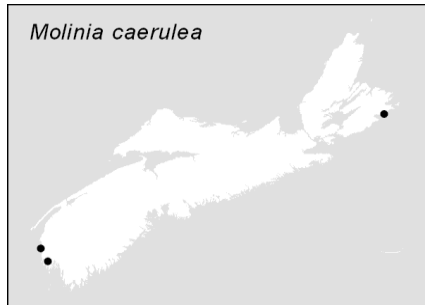
A coarse tussock-forming grass, it reaches 1m in height. The roots are extremely fibrous. Leaves are mostly basal, flat and about 5mm wide. The ligule is a fringe of short hairs. Lemmas are smooth, convex on the back and about 4.5mm long. Acute, they are also three-ribbed.

Fruiting during August and September.

Found in fields and meadows.

Known and collected since the 1940s from Louisbourg and more recently in the Yarmouth area.

Ranges in North America from St. Pierre et Miquelon; NS; QC to ON, south to WI and NJ; OR.



## ***Muhlenbergia* Scribn.**

### **Muhly**

Mostly a genus of the Americas, of the 125 species included, only a few are native to the Eurasian continents. Similar to *Agrostis*, their lemmas have three ribs. The ligule is membranous and never ciliate. Spikelets contain only a single floret with the lemma exceeding the length of the palea.

#### Key to species

A. Panicle open and diffuse; spikelets long-pedicellate.

*Muhlenbergia uniflora*

aa. Panicle contracted; spikelets sessile, or nearly so.

B

B. Glumes shorter than the lemmas or nearly equal; branches of the panicle arcuate; spikelets absent at the base.

*M. mexicana*

bb. Glumes much longer than the lemmas; branches short and stiff, florets or spikelets numerous at the base.

*M. glomerata*



***Muhlenbergia glomerata* (Willd.) Trin**  
**muhlenbergie agglomérée**



*Photo by Sean Blaney*



*Photo by David Mazerolle*

Slender in stature, this species reaches 30–70cm in height, arising from scaly rhizomes. The purplish panicle is 3–5cm long, spikelets borne on short branches and to the base of the panicle. Proximal branches tend to be distant and smaller. Glumes are awned, 1–2mm long; the shorter lemmas are not, and often are pubescent basally.

Flowering and fruiting from August to October.

Various open habitats including cliff ledges, fens, bogs and cobbly shores.

Often common in southwestern counties, from Digby to Halifax; less frequent eastward.

Elsewhere from NF to YT, south to NC and NV.



Photo by Roger Lloyd

***Muhlenbergia mexicana* (L.) Trin**



Arising from conspicuously knotted rootstocks, this more robust grass produces a panicle to 12 cm long. The long branches are contracted or strongly ascending. Lower branches are often devoid of spikelets at the base. There are very short awns on both glumes and lemmas.

Flowering and fruiting from August to October.

Grows in slopes and streamsides in alkaline soils; moist cliff bases and crevices.

Scattered from the Minas Basin to northern Cape Breton.

Ranges from NS to YT, south to CA, TX and NC; AL. Absent from AB and southeast US.

Photo by Roger Lloyd

***Muhlenbergia uniflora* (Muhl.) Fern.**



Photo by Sean Blaney



Photo by Roger Lloyd

A delicate graceful grass, 20–40cm tall, it has a diffuse panicle of divergent branches. The tiny purplish spikelets shimmer distally on filiform branches, each about 1.5mm long. Glumes are slightly unequal, the longer about half the length of the lemma. The widely divergent branches superficially resemble those of *Agrostis hyemalis*, but it is dissimilar to the other *Muhlenbergia* species.

Flowers and fruits from late summer to October.

Grows in poor soils in open fens and between sedge tussocks in wetlands.

Common in southwestern Nova Scotia and scattered to Cape Breton.

Ranges from NF to James Bay, south to NJ and MN; west coast.

***Nardus* L.****matgrass**

A monotypic genus, originating in Europe. Matgrass is perennial and cespitose. The culms may reach 60cm in height. Leaves are mostly basal with open ligulate sheaths. The blades are filiform and tightly convolute. Inflorescence is a one-sided spike, the spikelets in two rows and imbricate. Disarticulation is below the solitary floret. Glumes are greatly reduced or vestigial. The lemmas are awned and three-ribbed, tightly enveloping the paleas, which have two keels.

***Nardus stricta* L.****Moor Matgrass; nard raide**

As described above. The strongly convolute leaves are stiffly ascending and the culms are tightly tufted.

Here, flowers and fruits throughout the summer.

Grows in sandy peaty soils.

Uncommon in southwestern Nova Scotia. Collected from Clyde River and Seal Island, Shelburne Co.

NF; NS; QC to ON, south to MI and NY; OR and ID; Greenland. Introduced from Europe.

***Oryzopsis* Michx.****Ricegrasses**

These are perennial grasses forming loose or dense clumps. Their culms range from 25–65cm tall, usually erect or spreading. Leaves are mostly basal, with glabrous open sheaths. The ligules are membranous and ciliate and longest at the sides. Leaves usually remain green overwinter. The inflorescence is a contracted panicle, of spikelets to 7.5mm long. There is but a single floret. Glumes have 6–10 ribs that are not quite equal; their apices are mucronate. Lemmas are awned and pubescent at the base, covering the paleas. Disarticulation occurs above the glumes, the lemmas and paleas remaining attached to the caryopses.



***Oryzopsis asperifolia* Michx.**

**Ricegrass; oryzopsis à feuilles rudes**



*Photo by Martin Thomas*

A caespitose species, the culms emerge before the leaves unfurl. Panicles are contracted, 3–7cm long bearing awned spikelets 6–8mm long. Glumes are ovate and thin, and only slightly exceeding the lemmas. Leaves are tufted, stiff and shining, persistent over winter. They measure 5mm wide and up to 50cm long.

Flowering begins in April and fruiting continues to early June, one of our earliest.

Found on dry barrens and in forests.

Scattered and not abundant, from Digby and Shelburne counties to northern Cape Breton.

Elsewhere, from NF to YT, south to WA, NM and VA.



*Photo by Martin Thomas*



***Panicum* L.**  
**panicgrasses**

A large genus of more than 450 species, it is best developed in the subtropics and tropical regions, with a few extending into the northern temperate areas. Usually tall, 1–3m, they may be annual or perennial. Florets are borne in a panicle in two-flowered spikelets. Only the upper floret is fertile. Neither is awned. Both glumes are well developed, although the first glume is much shorter than the second glume. Lemma and palea are both hard and shiny.

Key to species

- |   |                                |
|---|--------------------------------|
| A. Annual, from shallow fibrous roots.  | B                              |
| B. Leaf sheaths glabrous.   | <i>Panicum dichotomiflorum</i> |
| bb. Leaf sheaths more or less pubescent.  | C                              |
| C. Spikelets 4.5–5.5mm long; panicle lax.   | <i>P. milaceum</i>             |
| cc. Spikelets 2mm long; panicle erect, diffuse.   | D                              |
| D. Panicle equal in length and width at maturity, exceeding half the total length of the plant. | <i>P. capillare</i>            |
| dd. Panicle width only half the length, less than half of the total length of the plant.        | <i>P. philadelphicum</i>       |
| aa. Perennials, deep-rooted.  | E                              |
| E. Culms soft, compressed; spikelets diffuse and not secund; anthers about 2mm long.            | <i>P. longifolium</i>          |
| ee. Culms round, densely cespitose; spikelets secund; anthers about 0.5mm long.                 | <i>P. virgatum</i>             |

***Panicum capillare* L.**

**Witchgrass**



Photo by Roger Lloyd

An annual species, its culms stand from 30–80cm, bearing leaves 5–12mm wide. Plants are generally pubescent. Panicles are large, more than half the length of the plant. They have long filiform branches with spikelets 2mm tall. The glumes and sterile lemmas are acutely pointed at the apices.

Flowers and fruiting from July to October.

Found along roadsides, in gardens and most disturbed and sandy sites.

Scattered from Annapolis to Cumberland and east to Halifax and Cape Breton.

Ranges from NS to BC, south to FL and TX. Considered to be an introduced species in NS although native in some parts of eastern North America.

***Panicum dichotomiflorum* Michx.**

**Fall Panicgrass; panic d'automne**



Photo by David Mazerolle

A coarse annual, its culms may reach more than 1m, from a reclining base. The leaves are glabrous. Panicles 10–20cm long, bearing spikelets 2.5mm high and clustered distally.

The two varieties var. *puritanorum* Svenson and var. *dichotomiflorum* are no longer recognized.

Flowering and fruiting from June through October.



Photo by Roger Lloyd

Ranges from NS to ON; BC south to FL and CA.

***Panicum miliaceum* L.**

**Millet; Proso; panic millet**



Photo by David Mazerolle

A stout species from 40–80cm tall. The leaf blades are wider than 1cm; their sheaths are pubescent. Panicles are large, drooping at maturity. Spikelets are numerous and large, 4–5.5mm long. The caryopses vary from white to orange.

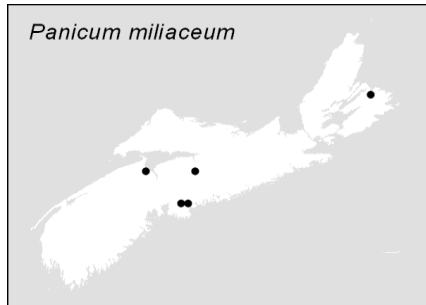
Found around old gardens and on roadsides. Formerly cultivated and occasionally introduced in birdseed. Not long-persistent.



Photo by Roger Lloyd

Collections from Wolfville, Halifax and Sydney area.

Scattered across Canada and southward. Introduced from Eurasia.



***Panicum philadelphicum* Bernh.**  
**panic de Philadelphie**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

Resembling Witchgrass, this species has more slender, long  
 tenuous branches. It branches freely from the base. The  
 spikelets are shorter and nearly sessile or on very short  
 pedicels distally on the branches.

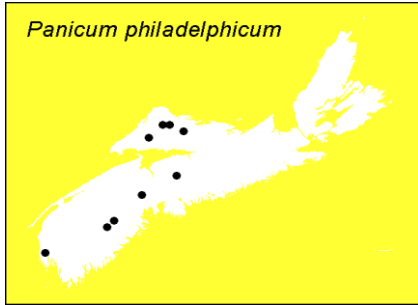
Flowering and fruiting from June to October.

Found on streamsides, in bogs, often in sandy soil.

Ranges from southwestern part of the province to  
 Cumberland Co.

Ranges from NS to MB, south to TX and AL and GA.

STATUS: YELLOW-listed in NS.



***Panicum longifolium* Torr.**  
 (= *Panicum rigidulum* Bocs. ex Nees, var. *pubescens*)  
 panic fausse-agrostide



Photo by David Mazerolle



Densely cespitose, the flattened culms reach from 30–50cm from a knotty crown. Leaves are long and narrow, 2–4mm wide and smooth along the sheaths. Panicles are erect and sparsely branched. The long spreading branches bear spikelets about 2.5mm tall. Lower glumes are about half as long as the sterile lemma.

Fruiting from July to late fall.

Grows in sand and peat substrates and gravelly lakeshores. A coastal plain species.

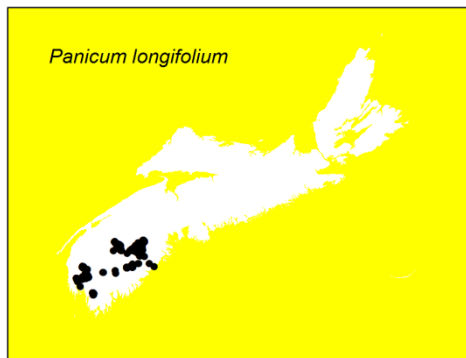
Found from Yarmouth Co. to Lake Kejimikujik National Park, where it is common along the Mersey River at the outlet to the lake.

Ranges from NS; ON, south to FL and TX; west coast.

STATUS: YELLOW-listed in NS.



Photo by Roger Lloyd



***Panicum virgatum* L.**  
**Switchgrass; panic raide**



Photo by David Mazerolle

A tall cespitose plant, 60–100cm bearing long, narrow leaves 3–4mm wide. Panicles may be as much as 50cm long, bearing spikelets 3mm long.

Some of our material belongs to var. *spissum* Linder. These plants arise from short knotty rootstocks. It is restricted to NS and QC, south to NY.

Flowers and fruits from July to September.

Grows in sandy, gravelly lakeshores and thickets.

Restricted to southwestern counties, from Halifax to Yarmouth.

Ranges from NS; ON to SK, southward to NV, TX and FL



Photo by Roger Lloyd

***Phalaris* L.**  
**canarygrass**

Tall perennials or annuals, these densely caespitose or creeping species form coarse colonies. Fifteen species occur in total; two reach Nova Scotia. Leaves are mostly glabrous and bear membranous ligules. Inflorescence is a spicate panicle. Each spikelet contains three florets, only the uppermost is perfect. The lower two are reduced, the proximal one may be reduced to a scale. Glumes are equal in size and large, dorsally flattened and awnless, but keeled. Keels may also be winged. Fertile lemma is glossy and firmer than the glumes, sometimes pubescent.

Key to species

Creeping perennial, with an elongated spikelike panicle.

*Phalaris arundinacea*

Annual, caespitose, with a contracted elliptic panicle.

*P. canariensis*

***Phalaris arundinacea* L.**  
**Reed Canarygrass; alpiste roseau**



A tall leafy grass, its culms reach 1.5m tall. The panicle is erect, lanceolate, 8–15cm long, sometimes some of the branches may be distant. Wide glumes are papery, 4–5mm long, exceeding the florets. Sterile florets are much-reduced, about 1mm long, pubescent and inconspicuous.

Ribbongrass is a cultivar sometimes seen as an ornamental. Its leaves are striped white and green.

Common and becoming more frequent; invasive of disturbed marshes.

Photo by Sean Blaney



Photo by Roger Lloyd

***Phalaris canariensis* L.**

**Canarygrass; alpiste des Canaries**



Photo by Roger Lloyd

An erect grass to 1m in height, it bears leaves 5–8mm wide. The panicles are densely packed into an ovoid inflorescence. The broad flat glumes are 7–8mm long. Sterile florets are narrow barely 2mm long. It is an unusual species and rather attractive.

Found beneath bird feeders and occasionally seen roadside when spread by birds.

Occasional. Collections from Halifax and Wolfville to Sydney.

Found from NF to AK and southward. Introduced to North America.

***Phleum* L.**

A genus of 10 species, limited to the temperate zones of both hemispheres. Two are found in Nova Scotia. Leaf blades are flat, with a membranous ligule to 6mm long. The dense panicles are soft and spicate, with each spikelet of a single floret. Glumes are equal in length, laterally flattened and with three ribs. The awn is

very short. Lemmas are also membranous, marked by 3–7 ribs. They are broad, obtuse and awned, but exceeded in length by the glumes.

Key to species

Plant widespread; exceeding 50cm in height; panicle cylindric.

*Phleum pratense*

Plants northern or alpine; less than 30cm high; panicle contracted to an ovoid or ellipsoid panicle.

*P. alpinum*

***Phleum alpinum* L.**

**Mountain Timothy; fléole alpine**



Photo by Roger Lloyd

This neat plant resembles the next species, but in miniature. A native grass, it barely reaches 50cm tall. The inflorescence is shorter, ovoid in outline. Spikelets are similar but the longer awns to 2mm, lend a more ragged appearance.

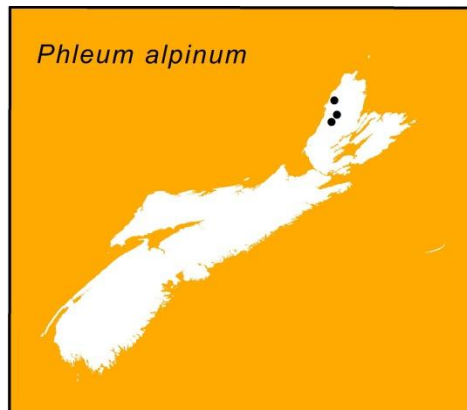
Flowers and fruits during July and August.

Cliff ledges along northern streams.

So far know from the Cheticamp River, LeBlanc Brook and the Northeast Margaree River in Inverness Co.

Elsewhere, known from NF to ON, south to MI and NH; AK to CA; South America; Eurasia.

STATUS: ORANGE-listed in NS.



***Phleum pratense* L.**

**Timothy; fléole des prés**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

One of our most familiar grasses, standing 50–100cm tall. The soft cylindric panicles are 7–8mm thick. The inflorescence sometimes persists through the winter. Occasional fasciculation occurs in the florets, producing leaflike structures.

Flowering and fruiting throughout the summer.

Desirable as forage and escaping to nearby fields, roadsides and fallow soils.

Abundant and common.

Introduced from Europe and now throughout Canada and the US.



## ***Phragmites* Adans.**

### **Reed**

A genus of only 2–3 species, they are stoloniferous perennials. Our single species sometimes surpasses 3m in height, its leaves up to 3cm wide. The large panicle is densely packed with tawny spikelets, each with 3–7 florets on pilose rachillas. Glumes are unequal in size and the lemma is acuminate.

### ***Phragmites australis* (Cav.) Trin.**

#### **Common Reed; roseau commun**



*Photo by Sean Blaney*

This species is easily our largest grass, averaging at more than 2m. The inflorescence is plumose, 20–30cm long and crowded. The long pubescence on the axes is apparent. We have two distinct varieties found here, one native and one introduced and invasive.

Shiny red-purple lower stem internodes; ssp. *americanus*  
ligule membranous, 0.4-1mm long; lower  
glume 4-7mm long. Native.

Dull yellow-ochreous brown lower stem internodes; ssp. *australis*  
sheaths persistent after culm senescence; ligule  
<0.4mm long; lower glume 2.6-4.8 mm long;  
introduced.

(after Voss & Reznicek, 2012).

Flowering and fruiting from late July to September.



Photo by Roger Lloyd

Native subspecies found in upper saltmarshes, bogs;  
introduced subspecies scattered colonies roadside.

Scattered throughout the mainland: introduced subspecies  
colonies along 100 series highways and at Annapolis Royal.

Ranges across the continent and south to the Gulf of  
Mexico.

There has been wide concern about invasive ssp. *australis*  
that is appearing across North America.

### ***Piptatherum* P.aBeauv.**

A genus of perennial grasses, they were formerly included with *Oryzopsis*. Ranging in height from 10–140cm, the erect culms are smooth and glabrous, branching from the base. Cauline leaves are sometimes absent. Leaf sheaths are open and ligulate, with no auricles. The terminal panicles may be open or contracted, 1–40cm tall. Spikelets contain a single floret, disarticulating above the glumes. Of 30 species of this predominantly Eurasian genus, only two reach Nova Scotia.

#### Key to species

Awns 5–10mm long.

Awns 1–2mm long, or lacking.

*Piptatherum canadense*

*P. pungens*

***Piptatherum canadense* (Poir.) Dorn**  
**(=*Oryzopsis canadensis* (Poir.) Torr.)**  
**Canadian Ricegrass; oryzopsis du Canada**



*Photo by Roger Lloyd*

A slender species, its stiff narrow leaves may be 10–30cm long but only 2–3mm wide. The loose panicle is open, the spikelets borne singly at the ends of filiform branches. The long contorted awns are at least 5mm long. Glumes are thin textured and enclose the floret. Lemmas are pubescent.

Early flowering and fruiting.

Grows in dry sandy soils.

Local and scattered from Shelburne to Halifax and Colchester counties.

Ranges from NF to AB, south to NY and MN; WVA.

STATUS: YELLOW-listed in NS.



*Photo by Sean Blaney*

***Piptatherum pungens* (Torr.) Dorn**  
**oryzopsis piquant**



Photo by Roger Lloyd

Generally smaller than the species above, it also has involute leaves, whose length is only half of that of the culm. Awns are barely 1–2mm long and usually straight.

Flowers and fruits in May and June.

Frequents dry woods and clearings in sandy soils.

So far only collected from Shelburne and Queens counties although historic reports indicate it grows in Cape Breton.

Ranges from NS to YT, south to CO and NJ.

STATUS: YELLOW-listed in Nova Scotia.

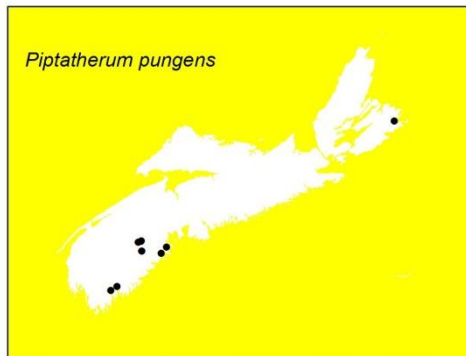


Photo by Sean Blaney

***Poa* L.**  
**bluegrasses**

The species of *Poa* are both native and introduced. Some are cultivated for turf or forage and their variability makes identification complicated. The best characters are of the spikelets and not vegetative characters. Both glumes and lemmas are flattened, forming a dorsal keel, along the midribs. Lemmas are never awned in this genus, but in perennial species, the callus bears a tuft of coiled pubescence.

# Key to species

B. Annual; webby hairs absent from callus; last year's leaves not persistent.	<i>P. annua</i>
bb. Perennial; callus with or without webby hairs; old leaves persistent.	C
C. Webby hairs absent; rare arctic-alpine species.	<i>P. glauca</i>
cc. Webby hairs present; habitat not as above.	D
D. Stoloniferous, or with basal offshoots.	E
E. Lemma faintly ribbed; culms strongly flattened; panicles stiff.	<i>P. compressa</i>
ee. Lemmas with 5 strong ribs; culms not strongly flattened; panicles flexuous.	<i>P. pratensis</i>
dd. Cespitose or not stoloniferous; basal offshoots absent.	F
F. Marginal veins of lemma ciliate, at least basally.	G
G. Ligules of cauline leaves <1.5mm long; truncate.	<i>P. nemoralis</i>
gg. Ligules 2–5mm long, ovate.	<i>P. palustris</i>
ff. Marginal veins of lemma smooth.	H
H. Panicle branches solitary or paired; keel of lemma smooth.	<i>P. saltuensis</i>
hh. Panicle branches whorled, 4–8; keel of lemma pubescent or scabrous.	I
I. Leaf sheaths smooth; ligules <2.5mm long.	<i>P. alsodes</i>
ii. Leaf sheaths scabrous; ligules >2.5mm long.	<i>P. trivialis</i>

## ***Poa alpina* L.**

A densely cespitose perennial now considered to be EXTIRPATED from NS. A single collection exists from Ciboux Island, Victoria Co. It is a circumboreal arctic-alpine species, ranging from NF to AK, south to NV, NM and MI; Greenland.



***Poa alsodes* Gray**  
**pâturin des bosquets**



Photo by Roger Lloyd

Loosely cespitose, this species produces large open panicles borne well above the leaves. Branches numbering three or more, arise at each node soon spreading or reflexed. Most spikelets contain three florets. Lemmas are pubescent on the keels, but the marginal ribs are smooth. Ligules are short. Resembles no other *Poa* in its habitat.

Flowers and fruits early, during May and June.

Riparian zones, thickets, deciduous forests in pockets of loamy soils.

Infrequent and local, from Digby to northern Cape Breton.

Ranges from St. Pierre and Miquelon to ON, south to SC and TN.

***Poa annua* L.**  
**Annual Speargrass; pâturin annuel**



Photo by Roger Lloyd

A low-growing weedy annual, 20–40cm tall. Culms are tightly cespitose, soon decumbent, bearing short leaves. There is no web of cottony hairs on the callus, although the marginal ribs and midrib keel are pubescent. Lemmas are also marked by five distinct ribs. Light green in colour and the multiple panicles separate this introduced turf species.

Fruiting from spring through fall.

Found in lawns, gardens, edges where soil is compacted.

Scattered throughout the province.

In North America absent only from NU. Introduced from Europe.

***Poa bulbosa* L.** was collected once recently from a disturbed section of lawn in Wolfville. It is unknown yet if this species is persisting in NS.

***Poa compressa* L.**

**Canada Bluegrass; p  turin comprim  **



Photo by Roger Lloyd

Long stoloniferous, this species produces strongly flattened culms. Panicles are narrow and only 4–10cm tall, typically with pairs of short branches. Callus of the lemma has only scant pubescence, although the keel and marginal ribs are ciliate.

Flowers and fruits throughout the summer.

Grows in open dry soils of sand and gravel; roadside banks, fallow fields. Produces an open sod.

Found from Digby to northern Cape Breton, with fewer Atlantic coastal collections.

Absent only from FL and NU. Introduced from Europe.

***Poa glauca* Vahl.**

**p  turin glauque**

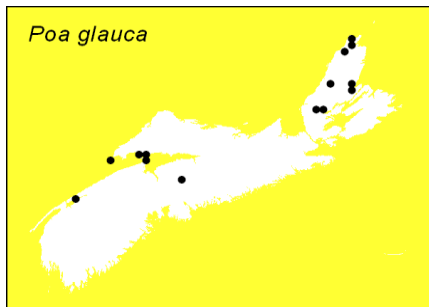


This is a slender species, only reaching 30cm in height. Leaves are narrow and the ligule is only 1mm long. Plants have a glaucous blue cast, unlike other grasses in similar habitats. Panicles are small, 3–5cm tall, with 2–3 short branches per node. The keeled lemma is ciliate on the marginal ribs, but the callus is smooth.

Alpine, on talus and in crevices.

Limited to Cumberland Co. and Blomidon peninsula as well as northern Cape Breton.

Photo by Roger Lloyd



Found from NF to AK, south CA, NM and PA; Greenland. Circumboreal.

STATUS: YELLOW-listed in NS.

***Poa nemoralis* L.**

**Woodland Bluegrass; pâturin des bois**



Photo by Roger Lloyd

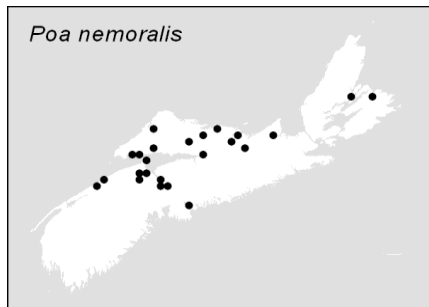
A tall cespitose species, bearing short divergent leaves, with a wide obtuse ligule 0.5mm long. There are numerous branches at each node in the panicle. Lemmas are three-ribbed, with the marginal ones lightly pubescent at the base.

Flowers and fruits throughout the summer.

Found in fields, on roadsides and about towns.

From Kings and Halifax counties, east to Cape Breton Co.

Ranges from NF to AK, south to CA, TX and SC. Only partly native to Canada and introduced to Nova Scotia.



***Poa palustris* L.**

**Fowl Bluegrass; pâturin des marais**



*Photo by Roger Lloyd*

A tall species, it is best identified in the field by the smooth leaf sheaths bearing long ligules. Panicles are large, producing many branches at each node. There are numerous spikelets, each about 5mm long and bronze or reddish distally. Callus of the lemmas is ciliate on the marginal ribs and keel.

Flowers and fruits throughout the summer.

Grows in moist soils in meadows, streambanks; tolerates open sites.

Common.

Ranges from NF to AK, south to CA, NM and NC; Eurasia.

***Poa pratensis* L.**  
**Kentucky Bluegrass**



*Photo by David Mazerolle*



*Photo by Roger Lloyd*

A variable species with *ssp. pratensis* and *ssp. irrigata* (Lindm.) H. Lindb. confirmed for Nova Scotia.

Culms > 20 cm; plants usually not glaucous; panicle with 3-5 branches per node.	<i>ssp. pratensis</i>
Culms < 25 cm; plants usually glaucous; panicle with 1-2 branches per node.	<i>ssp. irrigata</i>

It is strongly stoloniferous, a character it shares here only with *P. palustris*. Panicles have several branches at each node. Lemmas are marked with five ribs, pubescent on the keel and the marginal ribs. Its short ligule will separate it from *P. palustris*.

A vigorous species, it has been introduced as a turf grass.

Flowers and fruits, when not mowed, from June to August.

Found in fields, meadows and gardens, even roadsides.  
Cultivated.

Common throughout.

Ranges from NF to AK, south to the Gulf of Mexico.



***Poa saltuensis* Fern. & Wieg.**



Photo by Roger Lloyd

Another slender species, its culms may reach 80cm tall. Typical plants have pairs of branches at each node. Spikelets are borne distally on the slender arcuate branches. Lemmas are devoid of pubescence on the keel and ribs.

Flowers and fruits from late May through August.

Grows in fertile soils of deciduous forests and alluvium.

Mostly northern, from Digby and Cumberland counties to northern Cape Breton.

Ranges from NF to ON, south to TN and NC.

***Poa trivialis* L.**

**Rough Bluegrass; pâturin rude**



Photo by Roger Lloyd

A tall dominant in meadows, it may reach 1m in height. Leaf sheaths and distal parts of the culms are scabrous, a key identifying character. Ligules are long and pointed. There are several branches per node within the panicle, each carrying numerous spikelets with 2–5 florets. Lemmas are narrow and acuminate, glabrous on the marginal ribs and sparsely hairy on the keels. Often a lax plant, some strains are more erect making them suitable for cultivation as forage.

Flowers and fruits from June to August.

Grows in moist soils as in meadows, marshes and even gardens.

Yarmouth Co. to northern Cape Breton.

After its introduction from Europe, it is now found from NF to ON; SK, AK to BC, variously south to CA, TX and GA.

## ***Puccinellia* Parl.**

Numbering about 30 species, this genus is primarily of wetland grasses in the cooler regions of North America. Nova Scotia has four species of saltmarshes or alkaline soils. Bearing short leaves, they are usually involute, and with very short ligules. The panicles are drooping or reflexed. Each spikelet bears numerous flowers. Lemmas are convex and faintly ribbed. Glumes are unequal in size, the first has a single rib while the second has three ribs.

### Key to species

- |   |                             |
|---|-----------------------------|
| A. Lemmas 3–4mm long; anthers >1.5mm long.                                    | <i>Puccinellia maritima</i> |
| aa. Lemmas <2.6mm long; Anthers <1.0mm long.                                  | B                           |
| B. Spikelets borne from proximal end of panicle branches to the tip.          | <i>P. fasciculata</i>       |
| bb. Spikelets borne only on the distal half of the branches.                  | C                           |
| C. Lemma obtuse, often ciliate; panicle branches scabrous below the pedicels. | <i>P. distans</i>           |
| cc. Lemmas acute; panicle branches glabrous below the pedicels.               | <i>P. tenella</i>           |

## ***Puccinellia distans* (Jacq.) Parl.**

### **Weeping Alkaligrass; puccinellie à fleurs distantes**



Short in stature, it rarely exceeds 30cm in height. Lemmas are about 2mm tall, convex and truncate, often ciliate at the apex. The anthers are very short. Magnification is required to see the scabrous nature of the panicle branches, just below the spikelet attachment.

Flowers and fruits until October.

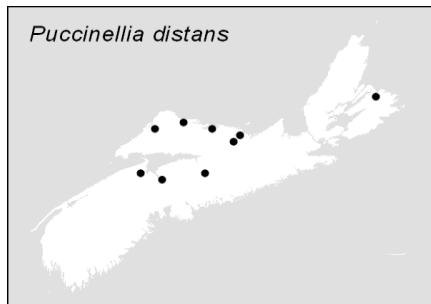
Waste soils and roadsides, brackish muds. Spread is enhanced by use of road salt.

About towns in the province after its initial introduction in ballast.

Photo by Sean Blaney

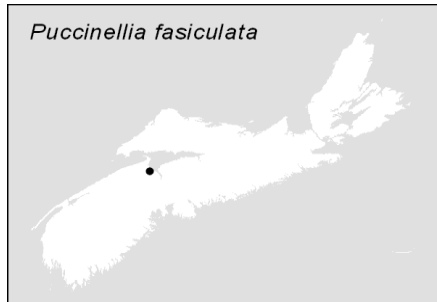


Photo by Roger Lloyd



Ranges from NF to AK, south to CA, NM and VA. Introduced from Europe.

***Puccinellia fasciculata* (Torr.) Bickn.**  
**puccinellie fasciculée**



A stout plant to 50cm, bearing leaves 2–4mm wide. Panicles are crowded but narrow and ovoid, with at least the lower branches bearing spikelets their full length. Spikelets are 3–4mm long, lemmas barely 2mm long.

Early-maturing, until July.

Associated with saltmarshes and dykelands.

Collected only from the Fundy coast, at Kentville and Grand Pré.

Ranges from NS; ON, south to VA; southwestern. Sometimes considered native to Canada.

***Puccinellia maritima* (Hudson) Parl**  
**puccinellie maritime**



Photo by Roger Lloyd

Another stout species, although this one is taller, from 50–80cm. Panicles may reach 15cm long, the branches reflexed or drooping. Leaves are relatively short and involute. Lemmas often purplish, 3–4mm long and truncated or obtuse at the apex.

Flowers and fruits during June and July.

Found on saline or brackish soils and one of the early colonisers on new saltmarshes and dyked land.

Common from Shelburne around the coast and up the Bay of Fundy. Less frequent on the Atlantic coast and so far absent from the Northumberland region.

NS to QC; WA; CA and Greenland.

***Puccinellia tenella* (Lange) Holm.**



Photo by David Mazerolle

A small species only 20–40cm, it resembles *P. distans* but is more robust. The panicle branches are smooth. Lemmas are 2–4mm long and acute, with only an occasional blunt-tipped one. Our material is included as ssp. *langeana*.

Flowers and fruits all summer.

Saline soils.

Scattered to common coastal regions.

Species ranges from NF to NT; AK south to MB and NY. Greenland.

***Schedonorus* P. Beauv.**

Three species of Eurasian grasses of this genus have been introduced to North America; one reaches NS. Formerly included in *Festuca*, it is now accepted that their affinity lies with *Schedonorus*. Perennial species, they may be caespitose or rhizomatous, producing culms to 2m tall, erect or decumbent. The sheaths of the leaves are open, smooth or scabrous. The ligules are smooth and membranous, the auricles clasping. Erect panicles produce smooth or scabrous branches. Spikelets are pedicellate, with 2–22 compressed florets. Glumes are equal and shorter than the lemmas, awnless and ribbed. Lemmas are veined, acute awned or not covering the paleas.

**Key to species**

Auricles glabrous; lemmas usually smooth, unawned or with a tip to 0.2mm. *Schedonorus pratensis*

Auricles ciliate, with at least 1–2 hairs; lemmas scabrous or hispid, unawned or with awn to 4mm long. *S. phoenix*



***Schedonorus phoenix* (Scop.) Holub.**

**(=*Lolium arundinaceum* (Screb.) SJ Darbyshire)**

**fétuque élevée**



*Photo by David Mazerolle*



*Photo by Sean Blaney*

A perennial grass that is sometimes rhizomatous, its culms may reach 120cm. The leaves are convolute when young. Panicles may reach from 10–35cm with usually a pair of branches at the base. Lemmas exceed the paleas in length.

Flowers throughout the late summer and fall.

Found on roadsides and in dryer soils.

No collections have yet been made, but the species is to be expected given travel into Nova Scotia from other parts of the continent.

Cultivated throughout North America as a soil stabilizer, forage or turf. Introduced from Eurasia.

***Schedonorus pratensis* (Huds.) P. Beauv.**

**(=*Festuca pratensis* Hudson)**

**Meadow Fescue; fétuque des prés**



*Photo by Roger Lloyd*

A tall glabrous grass to 120cm, its narrow leaves are 3–4mm wide. The nodding panicle produces plump spikelets, 8–10mm long, mostly awnless.

Flowers and fruits throughout the summer.

Found on roadsides, fields and meadows in rich soils.

Planted as a forage crop.

Frequent here.

Ranges from NF to AK, south to CA, TX and FL. Naturalised from Europe.

### ***Schizachne* Hack.**

A genus of only two perennial species, one is found in Nova Scotia. It is a tall cespitose grass, with long narrow leaves and closed leaf sheaths. The inflorescence is a loosely arranged raceme, terminal atop a simple culm. Lemmas are lanceolate bearing straight awns.

***Schizachne purpurascens* (Torr.) Swallen**

**False Melic; schizachné pourpré**



Photo by Roger Lloyd

A slender grass, its leaves are flat. Inflorescence has lax branches, the pedicellate spikelets have 3–5 florets, their bodies about 10mm long. Lemmas are awned, the awns to 1cm between long-exserted terminal teeth. The callus bears a corona of stiff hairs. This character separates this species from *Bromus* to which it was once associated.

Flowers and fruits in summer.

Dripping cliff ledges, deciduous woodland floodplains and damp woods.

Occasional about the Bay of Fundy in Kings, Hants, Colchester and Cumberland counties and in northern Cape Breton.

Ranges from NF to AK, south to NM and WVA; FL; Eurasia.

***Schizachyrium scoparium***, little bluestem is a tall ornamental that has been occasionally been found on roadside embankments. Known from Wolfville and Cherryfield, Lunenburg Co., it will no doubt be found elsewhere. Cespitose, it produces leaves up to 2cm wide and long branches bearing up to 20 sets of spikelets.

***Secale* L.**

**rye**

Rye includes five species, originating from Eurasia. A single introduction is occasionally seen in disturbed soils where seed is accidentally dispersed. It differs from wheat on the basis of the awl-shaped glumes having a single rib, while the glumes of wheat are three-nerved.

***Secale cereale* L.**

**Cultivated Rye; seigle commun**



*Photo by Roger Lloyd*

Standing up to 2m in height, the culms are topped by a short densely flowered spike, 8–15cm long. Each node bears a single sessile spikelet, with two florets, lending a flattened appearance. The lemmas are long-awned. Glumes are also awned and narrow.

Common cereal crop on light soils and sometimes persisting the following year.

Frequently found in the Annapolis Valley.

Ranges across the continent and south to the Gulf of Mexico.

***Setaria* P. Beauv.**

**Foxtail grasses**

The genus is best developed in the tropical and subtropical regions of Asia, with a few in the Americas. Nova Scotia hosts three introduced annual species. The terminal spicate panicles have long bristles arising from below the spikelets, which give the inflorescence the appearance of a foxtail or bottlebrush. The spikelets are soon deciduous, separating from just above the bristles. The fertile lemma is firm and roughened. First glumes are half as long as the spikelet.

**Key to species**

Bristles numerous, 4–12, below each spikelet; spikelets 2.5–3mm long.

*Setaria pumila*

Bristles fewer, 1–4 for each spikelet; spikelets about 2mm long.

*S. italica*

***Setaria italica* (L.) Beauv., German Millet** has been found about gardens and not persisting. Reports are unsubstantiated by collections for NS. Ranges from NS to MB; AB to BC and south to CA and FL.

***Setaria pumila* (Poir.) R&S**

(=*S. glauca* (L.) Beauv)

**Yellow Foxtail; sétaire glauque**



Photo by Roger Lloyd

An erect grass, from 20–70cm tall. The spicate panicle is 2–8cm long, bearing tufts of yellowish bristles, about twice as long as the spikelets. Ligules are in the form of short scales. The leaves have long twisted hairs on the upper surface.

Flowers and fruiting from June to September.

Fallow soil and gardens.

Widely scattered and common in the Annapolis Valley.

More common in the west but found throughout the continent, but for the arctic. Introduced from Eurasia.

***Setaria viridis* (L.)**

**Green Foxtail Grass; sétaire verte**



Photo by David Mazerolle

Larger than the species above, its culms reach 1m, sometimes decumbent at the base. Panicles are thick and stiffly erect, 5–10cm long and 1.5cm thick. The rachis is puberulent. Spikelets are ellipsoid, 2mm long and surrounded by 1–4 bristles, 2–3cm long. Green leaves are glabrous, 4–15mm wide and up to 30cm long forming a compressed purplish sheath. Edges of the sheath are overlapping, the ligule is reduced to a fringe of hairs with no





Photo by Roger Lloyd

auricle. Fruits are smaller than in the previous species and the inflorescence is green.

Flowers and fruits through the summer to October.

Found on roadsides and in cultivated fields.

Common in the Annapolis Valley and scattered throughout.

Widespread introduction from Eurasia.

## ***Spartina* Schreber**

### **cordgrasses**

A North American genus primarily, with 16 species included. Three are found in Nova Scotia as native grasses. All perennial and rhizomatous, the plants produce thick leathery leaves with long flat or involute blades. Ligules are reduced to a fringe of hairs. The spikelets are densely packed on strongly ascending or erect branches of the racemiform inflorescence. Each spikelet contains one floret. A pair of keeled unequal glumes subtend them. Awnless lemmas are also keeled and marked with 1–3 ribs.

#### Key to species

A. Low-growing grass, usually lax, to 60cm; the narrow leaves revolute.

*Spartina patens*

aaTaller grass, to 2m; leaves are flat.

B

B. Leaf margins, apices and glumes scabrous.

*S. pectinata*

bb. Leaves and glumes smooth.

*S. alterniflora*

***Spartina alterniflora* Loisel.**  
**Cordgrass; spartine alterniflore**



Photo by David Mazerolle



Photo by Roger Lloyd

An erect grass, its culms reach 0.5–1m tall. The inflorescence has the branches tightly appressed. Spikelets are loosely arranged, 10–12mm long. The glumes are awnless.

Flowers and fruiting from August to September.

Halophytic, intertidal flats and saltmarshes, beaches. Often dominant.

Ranges from NF to QC, south to TX; west coast from WA to CA.

***Spartina patens* (Ait.) Muhl.**  
**Saltwater Hay; spartine étalée**



Photo by Sean Blaney

A low growing grass, forming dense matted patches, it only reaches 60cm tall. The leaves are long, narrow and revolute. Inflorescence is 6–7cm long and is sparingly branched, each 3–5cm long. The spikelets are imbricate. Some of the glumes are awned, 1–3mm long. Its small neat appearance readily separates it from the other species.

Flowers and fruits from August to September.



Photo by Roger Lloyd

Found in saltmarshes and often forming horizontal zones between *S. alterniflora* and *Juncus arcticus*.

Found throughout the coastal areas.

Ranges from NF to ON, south to MI and along the coast to TX; west coast.

HYBRIDS: Forms a hybrid with the next species named *S. x caespitosa* (AA Eaton) Fern. It is intermediate in size and leaf width between the two parent species. In NS it has been found at Annapolis Royal and Lower Onslow. It only grows from NS south to VA.

### ***Spartina pectinata* Link** **Prairie Cordgrass**



Photo by David Mazerolle

This is the largest of our species, its culms reaching 1–2m. The imbricate spikelets along the secund branches are distinctive. The second glume is awned and 3–10mm long, unlike our other *Spartina* with similar inflorescences.

Flowers and fruits from August through September.

Upper saltmarshes, marshes, lakeshores in southwestern NS; roadsides in Annapolis Valley.



Photo by Roger Lloyd

Frequent coastally and common along Cobequid Bay.  
Scattered inland collections as along the rocky lakeshores in southwestern Nova Scotia.

Elsewhere from NF to NT south to OR, TX and NC.

## ***Sphenopholis* Scribn.**

A genus of short-lived perennials or annuals, there are only seven species included, North American and Caribbean in distribution. Leaves are flat and soft. Panicles bear spikelets containing 2–3 florets. Proximal glume is long lanceolate while the second glume is broader and obtuse, usually shorter than the lemma of the adjacent floret. Lemmas are unmarked or faintly ribbed with five ribs. Our single species has the spikelets awnless.

### ***Sphenopholis intermedia* Rydb.**

#### **Slender Wedgegrass**



Photo by David Mazerolle

Culms are weak or lax and only 20–40cm tall. Leaves are barely 1–2mm wide. Spikelets are numerous, green and 2–3mm long, arranged in a panicle 4–8cm tall. The distal glume just about obscures the first lemma, while the lower one is hardly wider than the midrib. Lemmas are merely acute, not awned.

The vars. *pilosa* and *major* are now included in the typical form and not recognized as distinct.



Photo by Roger Lloyd

Flowers and fruiting from June through August.

Grows in rocky cliff faces and steep slopes on basalt, limestone or other basic rock.

Found along the Cape Blomidon peninsula and in Hants, Cumberland and Colchester counties. More frequent in central and northern Cape Breton.

Ranges from NS; ON to AK, south to FL and CA.

## ***Sporobolus* R. Br. dropseed**

This genus includes 100 worldwide species, with only a single species introduced to Nova Scotia. Ours is an annual, intolerant of competition and cespitose in habit. Short leaves are only to 2mm wide forming long sheaths. Ligules are in the form of long spreading hairs. Panicle is enclosed at the base by the uppermost sheath, 1–5cm long. Glumes are unequal in size and marked by a single rib as are the lemmas, which are longer, and awnless.

### ***Sporobolus vaginiflorus* (Torr.) Wood Povertygrass; Sheathed Dropseed**



Photo by David Mazerolle

An annual grass, it produces short and very stiff leaves. There are long hairs on the base of the leaf blade extending to the ligule which is also pilose. The small narrow inflorescence is mostly enclosed by the terminal leaf sheath. Spikelets are crowded, 4–5mm long and each bearing a single floret. Paleas are conspicuously longer than the lemmas.

Flowers and fruits from late August to September.





Photo by Roger Lloyd

Found along roadsides and in other open sandy sites.

Ranging in the province from Digby Neck northeastward to Halifax, Hants, Pictou and Guysborough counties. A single Cape Breton locality to date.

Elsewhere it is found from NS to ON, south to FL and TX. Various western localities. Introduced from the midwest to NS.

## ***Thinopyrum* A. Löve**

A recent segregate from *Elymus* and other Triticeae grasses, it includes 10 species, mostly Mediterranean in origin. All are perennials and may be caespitose or rhizomatous. The culms range from 10–250cm tall, usually held erect. The open sheaths may be glabrous or ciliate, with very short auricles or none. The leaves are flat or convolute and the ligules are membranous. The terminal inflorescence is a distichous spike, not disarticulating at maturity. Most nodes bear a single spikelet. Spikelets are diamond shaped and often arching outward at maturity. Glumes are rectangular or lanceolate and distally stronger ribbed than basally, with 4–9 ribs. They may be smooth or pubescent. Lemmas are five-ribbed, smooth or pubescent and awned, or not.

### ***Thinopyrum pycnanthum* (Godr.) Barkworth**

**(=*Elymus pungens* (Pers.) Gould)**

**Tick Quackgrass; agropyre littoral**



Photo by Sean Blaney

A long-rhizomatous species, this quackgrass has culms from 10–120cm tall. The culms are glabrous, the lower sheaths and ligules are ciliate. Leaf blades may be up to 35cm long and 2–6mm wide, flat or inrolled and glaucous. The spikes are 4–20cm tall, made up of spikelets 1–2cm long, each with 3–10 florets. The glabrous glumes are 4.5–8mm long, weakly keeled and with 4–7 ribs, acutely pointed. Lemmas may be slightly longer and awned, or not.



Photo by Roger Lloyd

Fruiting during July and August.

Found on brackish or coastal shores.

Scattered localities from Yarmouth to St. Paul Island and through Inverness and Victoria counties.

Elsewhere it grows from NS; AB, New England States and other widely scattered states. Introduced from the coasts of southern Europe.

Historically, *T. junceiforme* was planted experimentally at Conrad's Beach and Chezzetcook for erosion control. It is unknown if these populations are extant. Also *T. intermedium* was once reported from Lower Truro, Colchester Co., but no collections are extant. *T. ponticum* was collected from Wolfville, but once.

## ***Torreyochloa* Church**

Rhizomatous perennials, the culms are 18cm–1.5m tall, sometimes decumbent and rooting at the lower nodes. Sheaths are open to the base, with membranous ligules. There are no auricles. The terminal panicles have scabrous branches, densely so distally. The pedicellate spikelets have 2–8 florets are laterally compressed. The spikelets are deciduous, disarticulating above the glumes and beneath the florets. Glumes are unequal and shorter than the lowest lemma and awnless, though marked with three ribs. Lemmas are usually marked with 5–9 ribs and are also unawned.

### ***Torreyochloa pallida* (Torr.) Church**



This species is divided into two varieties, which in our material may be difficult to separate. The typical variety has the leaves, 2–4mm wide and 4–7 florets per spikelet. Similar to *Glyceria*, but for the open leaf sheaths to the base. Var. *fernaldii* (Hitchc.) Dore has narrower leaves, less than 3mm wide and fewer florets, 3–5 per spikelet. It is our more common species in eastern Canada, but easily missed

Photo by David Mazerolle



Photo by David Mazerolle

amongst taller more robust grasses in its habitat. It ranges from NF to BC south to VA and TN.

Flowers and fruits from June through August.

Frequents wet soils in bogs and meadows, marshes and savannahs.

The typical variety was historically found along the Tusket R. It may now be extirpated. Var. *fernaldii* is found throughout the province.

The typical variety is found from NS; QC to MB south to GA.



Photo by Roger Lloyd

### ***Trisetum Pers.***

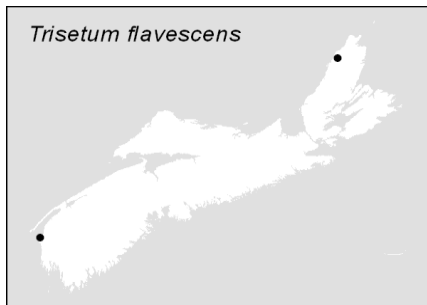
Temperate and boreal in the eastern and western hemispheres, there are about 75 species in total. Plants are caespitose or rhizomatous, annuals or perennials with compressed panicles borne on slender culms. Leaf blades are flat and the sheaths are split to the base where they may be fused. Rachillas are pilose and exerted beyond the uppermost floret. Florets number 2–5 per spikelet. Generally the thin glumes exceed the length of the floret. Awnless, they are marked by 1–3 ribs, unequal in size. Lemmas are toothed, with five ribs and bent or straight awns.

Key to species

- A. Lemmas awnless or with inconspicuous awns not exceeding the lemmas. *Trisetum melicoides*
- aa. Lemmas definitely awned, awns 3–14mm long, exceeding the apex. B
- B. Plants with rhizomes; culms solitary, exceeding 40cm; leaves 2–5mm wide. *T. flavescens*
- aa. Plants cespitose; culms multiple, <30cm tall; leaves 2mm wide. *T. spicatum*

***Trisetum flavescens* (L.) Beauv.**

**Yellow Oatgrass; trisète jaunâtre**



Loosely cespitose, its culms reach 40–90cm tall. Leaves may be 2–5mm wide. The contracted panicles are silvery in appearance, 5–8cm long. Spikelets are about 4.5mm long, their twisted awns 2–4mm long and borne between the two teeth on the lemmas. Both lemmas and rachillas are glabrous.

Flowers and fruits earlier, in June and July.

Persisting in old fields after cultivation as a forage.

Collections are widespread, Digby Co and Inverness, with reports from localities between.

NS; QC and ON; AB and BC and southward. Naturalized from Europe.

***Trisetum melicoides* (Michx.) Scribn.**

**(=*Graphephorum melicoides* (Micx.) Desv., erroneous)**

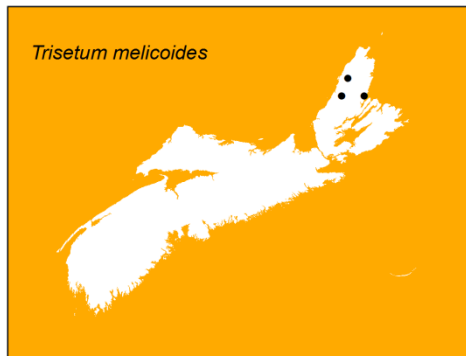
**trisète fausse-mélisque**



A slender glabrous species, from 20–100cm tall. The long leaves are 2–10mm wide. The loose panicle is lax, silvery green in colour, fading to a whitish brown at maturity. The scabrous rachilla is densely pilose. Glumes are unequal in size.

Flowers and fruits until August.

Photo by Sean Blaney



Alkaline soils on gravelly banks and shores.

Known only from Indian Brook, Victoria Co.

Ranges from NF to ON, south to WI and NY.

STATUS: ORANGE-listed in NS.



Photo by David Mazerolle

***Trisetum spicatum* (L.) K. Richter**  
**trisète à épi**



Photo by David Mazerolle

A short grass, rarely exceeding 30cm tall. Its leaves are mostly basal and about 2mm wide. The inflorescence is crowded in compressed into a spicate panicle, 3–5cm long. Sometimes it is partly interrupted at the base. Each spikelet contains several florets, 6–7mm tall. The upper floret is awned, the twisted awn 2–4mm long and borne just below the two teeth of the lemma. The glumes may be pilose on the keel and ciliate or hirsute.





Photo by Roger Lloyd

Flowers and fruits from June through August.

Grows in rocky soils on outcrops, cliffs, streamsides. Found on Cape Blomidon Cape d'Or and scattered from Halifax and Hants counties to northern Cape Breton.

Elsewhere found from NL to AK, south to CA, NM, and variously in the east to NC; Greenland.

## ***Triticum* L.**

### **wheat**

One of the most important cereal crops of the western temperate zones, it includes about 30 species, originally native to southern Europe and western Asia. There are many cultivars, bred for specific crop needs. One species is sometimes found adjacent to cultivated fields and nearby roads and rails. It is distinguished from rye on the basis of the glume characters. *Triticum* glumes have three ribs and no awns, or very short ones.

***Triticum aestivum* L.**

**Wheat; blé commun**



*Photo by Roger Lloyd*

An annual species, its upright culms are 40–60cm tall, bearing spikes 6–8cm long. Each node bears a single spikelet, subtended by spatulate glumes. Leaf sheaths are auriculate.

Found in farmyards, roadsides, wasteland and around grain elevators.

Scattered around the arable parts of the province but not persistent.

Introduced from Asia Minor and widespread throughout North America.

***Zizania* L.**

**wild rice**

A genus of tall emergent plants, only one is found in Nova Scotia, as an introduction. Typically the leaves are broad, and possess a very large ligule. Panicles are large and spikelets are unisexual. The lower panicle branches bear the pendulous staminate spikelets, while the ascending or erect upper branches produce pistillate spikelets. Lemmas of both are awned

***Zizania palustris* L.**

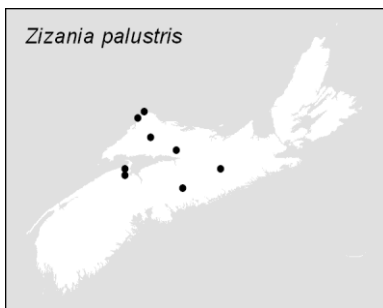
**Northern Wild Rice; zizanie des marais**



Photo by Sean Blaney



Photo by Roger Lloyd



A tall annual species, it stretches over 1m in height. Leaves are up to 1.2cm wide, It is a distinctive grass and resembles no other species. The long awns of the pistillate florets form a brushlike cluster distally on the panicle. The horizontal staminate branches are well below.

Var. *interior* (Fassett) Dore is larger than the typical variety, with the leaves 1–4cm wide. Its pistillate branches have 11–30 spikelets each. This variety was historically planted in the Canard River opposite Port Williams. Possibly introduced elsewhere in waterfowl impoundments.

Flowers and fruits throughout the summer.

Found in shallow, freshwater marshes.

Known from Long Lake near Amherst, the Amherst marshes, Port Hood and elsewhere. Most likely introduced to Nova Scotia for waterfowl.

Ranges from NS to SK, south to CO, AL and NC; western locations.

## **Pontederiaceae**

### **pickerelweed family**

All perennial herbs, the nine genera of 30 species are mostly subtropical and tropical, associated with wetlands or water. A single colonial aquatic species reaches Nova Scotia. Its glossy cordate leaves reach above the shallows in which it grows. Flowers are purple, borne in an erect spike above the water, 3–7cm long. Flowers are cleft into two limbs, the upper limb has three lobes, connate for half their length. The lower has three lobes, nearly separate from each other.

### ***Pontederia* L.**

#### **Pickerelweed**

Described above.

### ***Pontederia cordata* L.**

#### **pickerelweed**



*Photo by David Mazerolle*

A robust plant, generally growing in large colonies, emerging from pond or lacustrine shallows. The flowering stems are upwards of 50cm tall, terminating in a spike 2–3cm thick. Flower colour is violet-blue although lighter and darker shades and hues are also seen. The leaves are variable in length and width, but all are attached by a wide sheath, differentiated from the thickened and grooved petiole.



Photo by Sean Blaney

Flowers and seeds produced from June through November.

Usually found on the mucky margins of lakes and ponds, or even sluggish streams. Colonial.

Frequent throughout but for northern Cape Breton.

Ranges from NS to ON, south to FL and TX; OR.

## Potamogetonaceae pondweed family

Only two genera form the pondweeds, numbering about 90 species worldwide. All have perfect flowers arranged in a spike or head. Perianth is absent; flowers are four-merous. Some species exhibit heterophyllous leaves. An important character is the presence or absence of lacunae, rows of colourless cells on either side of the central axis. All perennial, they are an important food source for waterfowl. (Haynes and Hellquist, 1996, 2000)

Stipular sheaths of submersed leaves free from base of leaf blade, or adnate  $< \frac{1}{2}$  length of stipule; leaves both submersed and floating or all submersed, submersed blades translucent, not channelled, flattened; peduncle stiff, if long enough then projecting inflorescence above surface of water. *Potamogeton*

Stipular sheaths of submersed leaves adnate to base of leaf blade for  $\frac{2}{3}$  or more length of stipule; leaves all submersed, blades opaque, channelled, turgid; peduncle flexible, not projecting inflorescence above surface of water. *Stuckenia*



## ***Potamogeton* L.**

### **pondweeds**

Herbaceous aquatic species, they are found in estuarine waters or fresh water. The leaves may be aerial, emergent, floating or wholly submerged. All are alternate along the rooting stems. The flower spikes are sheathed by stipules in bud, expanding upon a peduncle to the surface as they mature. Fruit is a drupe, soon becoming compressed.

Hybridization is common as are sterile plants. The following key is of some field value, if material is mature. Morphological characters are often not sufficient to separate some of the more difficult species and their hybrids.

#### Key to species

- |   |                                |
|---|--------------------------------|
| A. Plants heterophyllous, floating and submerged.   | B                              |
| B. Leaves large, submerged 4-6mm wide, >25 veins, may be plicate.                                       | <i>Potamogeton amplifolius</i> |
| bb. Leaves much smaller.  | C                              |
| C. Floating leaves reddish and translucent.   | <i>P. alpinus</i>              |
| cc. Floating leaves thick and opaque.   | D                              |
| D. Submerged leaves bladeless.  | E                              |
| E. Floating leaves >5cm long; fruits >3.5mm long.   | <i>P. natans</i>               |
| ee. Floating leaves <6cm long; fruits <3.5mm long.  | <i>P. oakesianus</i>           |
| dd. Submerged leaves with blades.   | F                              |
| F. Submerged leaves with >7 veins.  | G                              |
| G. Submerged leaves with wide lacunae; stipules short, deltate.   | <i>P. epihydrus</i>            |
| gg. Submerged leaves with narrow lacunae; stipules acuminate, if otherwise, restricted to Sable Island. | H                              |
| H. Submerged leaves 1–3cm wide, veins 9–18, 8–15cm long; fruit with prominent beak.                     | <i>P. pulcher</i>              |
| hh. Submerged leaves <1.5cm wide; veins 7–11; <9cm long; fruit beakless; limited to Sable Island.       | <i>P. oblongus</i>             |
| ff. Submerged leaves with <7 veins.   | I                              |
| I. Submerged leaves 2–4cm long, veins <3; spikes sometimes sessile in axils.                            | <i>P. spirillus</i>            |
| ii. Submerged leaves >3cm long, veins >3; spikes on long peduncles.                                     | J                              |

J. Submerged leaves acuminate, on long petioles.	<i>P. nodosus</i>
jj. Submerged leaves acute, on short petioles.	<i>P. gramineus</i>
aa. Plants homophyllous, submerged only.	K
K. Submerged leaves 4mm wide, cordate and clasping.	L
L. Stipules present and persistent, 2–7cm long.	M
M. Leaves crowded, 2-ranked, apices flat; stipules adnate.	<i>P. robbinsii</i>
mm. Leaves alternate or scattered; apices keeled; stipules free.	<i>P. praelongus</i>
ll. Stipules absent or soon deciduous, <2cm long.	N
N. Submerged leaves lanceolate.	<i>P. richardsonii</i>
nn. Submerged leaves ovate or globose.	<i>P. perfoliatus</i>
kk. Submerged leaves <2mm wide, not cordate nor clasping.	O
O. Leaves >3 veins.	P
P. Veins 15–35; leaves 2–5mm wide.	<i>P. zosteriformis</i>
pp. Veins 5–9; leaves <3.5mm wide.	<i>P. friesii</i>
oo. Leaves with <3 veins.	Q
Q. Blade with single midvein; stem very soft and delicate.	<i>P. confervoides</i>
qq. Blade of leaf with 3 veins.	R
R. Leaves 2–4mm wide; apex blunt.	<i>P. obtusifolius</i>
rr. Leaves mostly <2mm wide; apex acute.	S
S. Glands present at the leaf base; spike on scape, cylindrical, <5cm long.	<i>P. pusillus</i>
ss. Glands absent; spike forming a globose head on a scape, <1cm long.	<i>P. foliosus</i>

***Potamogeton alpinus* Balbis**

**potamot alpin**



Photo by Roger Lloyd

Entire plant has a reddish colour. Floating leaves are sometimes absent, but if they are present, they are opposite, tapering to a short petiole scarcely differentiated from the blade. The submerged leaves are long and lanceolate or narrow and oblong, to 1cm wide. Veins range from 5–9 in number. Spikes are densely flowered. Achenes are pitted at maturity.

Found in ponds and streams.

Collected from Kings and Lunenburg counties to Cape Breton in more alkaline waters.

Ranges across Canada, south to northern NJ, NM and CA; Greenland.

***Potamogeton amplifolius* Tuckerm.**  
**potamot à grandes feuilles**



Photos by David Mazerolle

A large pondweed, it has lots of large luxuriant leaves. The submersed leaves are elliptic and often plicate, reaching 6cm across. Lower leaves tend to be narrower. Floating leaves are 5–10cm long, borne on long petioles and rounded at the base.

Flowers from July to September.

Frequents ponds and rivers, never in brown-water lakes. (humic).



Photo by Roger Lloyd

Found throughout but less common in the acidic waters of southwestern counties.

Ranges from NF to BC, south to GA and CA. Absent from AB and the arid southwest.

Forms hybrids with *P. gramineus*, *P. alpinus* and *P. pulcher*.

***Potamogeton confervoides* Reichenb.**  
**potamot confervoïde**



Photo by David Mazerolle

This species is the smallest and most delicate of our pondweeds. There are no floating leaves; the submersed ones are barely 5mm wide, with a single vein and a filiform apex. Freely branched, the filiform clusters may be distant from each other. The inflorescence is short, and has few flowers tightly clustered in contrast with the long zigzagging spike of *Stuckenia pectinatus*.



Photo by Roger Lloyd

Flowers and fruit from June to August.

Characteristic of brown water, as in bog pools, acidic lakes and sluggish streams feeding them.

Uncommon in north-central counties. Frequent in Yarmouth Co., becoming less frequent along the Atlantic to Cape Breton.

NL to ON, south to WI and NJ; NC and SC.

***Potamogeton epihydrus* Raf.**  
**potamot émergé**



Photo by Sean Blaney

Heterophyllous, this species is one of our more common pondweeds. Floating leaves are narrowly obovate, tapering at the base to a short petiole. The submersed leaves are ribbonlike, 2–10mm wide and marked by at least seven veins. Lacunae are present on either side of the midvein. Spike is short but densely flowered. Achenes are marked by three keels on dorsal surface.





Photo by Roger Lloyd

Found in shallows of ponds, pools and streams.

Common throughout except in brackish water.

Ranges from NF to AK, and south to CA and FL. Absent from alkaline regions of the prairies and plains.

***Potamogeton foliosus* Raf.**  
**Leafy Pondweed; potamot feuillé**



Photo by Roger Lloyd

This pondweed bears only submersed leaves. Only 2mm wide, they are marked by three veins, the midvein most prominent. There are rarely basal glands present, but 1–3 rows of lacunae at the base are common. The small spike is carried on a short peduncle. Achenes often have a narrow sharp wavy keel.

Usually in ponds and pools, less frequent in flowing water.

Ranges from Digby to Cumberland Co. and east to central Cape Breton.

Ranges from NL to AK, south to Mexico; absent only from Labrador and NU.

***Potamogeton friesii* Rupr.**  
**potamot de Fries**



Photo by Roger Lloyd

This northern species has submersed leaves only, 1–3mm wide and faintly marked with five veins. They are ribbonlike with short acute apices. There are 4–5 rows of lacunae on either side of the midvein, extending about two-thirds of the leaf length. The flower spikes are slender, comprising several whorls. The achenes are rounded on the back with three obscure keels.

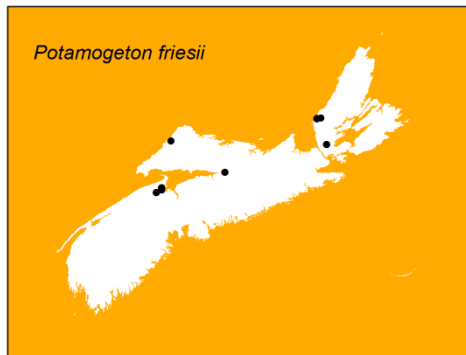
Flowers and fruit from July to September.

Found in quiet waters of ponds and streams.

An uncommon species, found in the Habitant and Canard rivers of Kings Co.; Salmon River, Colchester Co. and at West Mabou Harbour, Inverness Co.

Ranges from NF to AK, south to UT, IL and PA; Eurasia.

ORANGE-listed for Nova Scotia.



***Potamogeton gramineus* L.**  
**potamot à feuilles de graminée**



Photo by David Mazerolle



Highly variable, this species can be difficult to identify. If floating leaves are present, they are 3cm long and elliptic. The submersed leaves are narrow, ranging from 6–15mm wide.

Flowers and fruit from July through September.

Found in lakes, rivers and ponds, especially where water flow is fast and substrate is shingly.

Common in less acidic regions particularly in coastal areas of northern counties.

Ranges from NL to AK, south to CA, NM and KY; Greenland.

Forms hybrids with *P. alpinus* (*P. x nericus*), *P. amplifolius* and *P. perfoliatus*. (*P. x nitens*).

Photo by Roger Lloyd

***Potamogeton natans* L.**  
**potamot flottant**



A leafy species, the floating ones are elliptic, 5–10cm long and 4cm wide. The long linear submersed leaves are only 1–2mm wide and are bladeless. Spikes are dense and relatively long. Achenes are large to 5mm long and without a keel.

Flowers and fruits from July to September.

Found in lakes, ponds and streams.

Photo by Sean Blaney

Common throughout.

Ranges from NF to AK, south to NJ, OK and CA; Greenland; Eurasia.

***Potamogeton nodosus* Poir.**

**Longleaf Pondweed; potamot nouveaux**



Photo by Sean Blaney

Although this species resembles *P. gramineus*, it may be separated on the presence of long acuminate stipules.

Flowers and fruits later than other species, in August and September.

Freshwaters of ponds and streams.

Recently discovered here and known from the East River St. Mary's, Antigonish Co.

Ranges from NS to BC, south to CA and FL. Absent from MB.

ORANGE-listed for NS.



Photo by Roger Lloyd

***Potamogeton oakesianus* JW Robbins**  
**Whitestem Pondweed; potamot d'Oakes**



Photo by David Mazerolle



Photo by Roger Lloyd

This species resembles *P. natans* in having both floating and submersed leaves. However this plant is generally smaller. Floating leaves measure 4 cm long and 2cm wide. The very fragile submersed leaves are only about 1mm wide. The inflorescence is a densely packed spike, producing achenes less than 3.5mm long.

Flowers and fruit from July to September.

Bog pools and slow-moving headwater stream, lakes.

Frequent to scattered throughout.

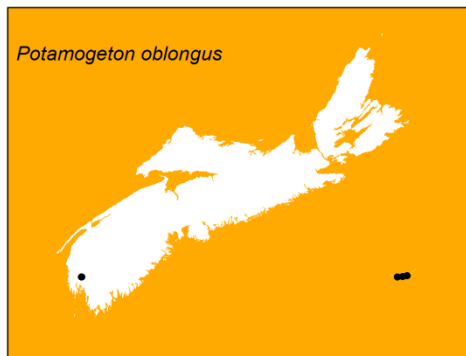
Ranges from NF to ON, variously south to TN; BC; MT.

***Potamogeton oblongus* Viviana**  
**potamot oblong**





Photo by Roger Lloyd



The ovate floating leaves are 3–8cm long. Submersed leaves may be absent, but if present they are lanceolate and only to 1.5mm wide. There are 2–4 rows of lacunae on either side of the midrib as well as 7–11 veins. The spikes may be 8cm long, producing prominently beaked achenes.

Flowers and fruit in August and September.

Ponds and ephemeral pools.

Known from Sable Island where it is abundant; southwestern collection.

NF, St. Pierre et Miquelon; Sable Island; NJ.

Listed as an ORANGE species for Nova Scotia

### ***Potamogeton obtusifolius* Mert. & Koch** **potamot à feuilles obtuses**



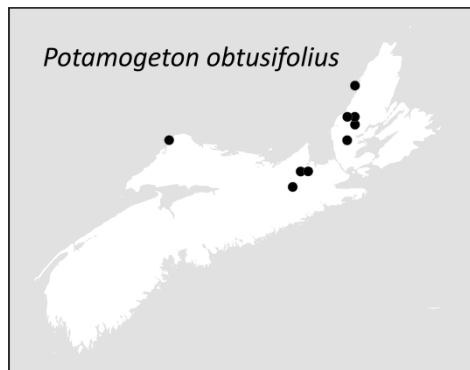
Photo by Sean Blaney

Similar to *P. foliosus* and may form hybrids with that species and *P. pusillus*. Its submersed leaves are translucent with a noticeable gland at the base on either side. They are also blunt-tipped and only to 4mm wide. There are three veins. Floating leaves are absent. The achene is keeled, its ridge low and sharp.

Flowers and fruit July to September.



Photo by Roger Lloyd



*Potamogeton obtusifolius*

Ponds, pools, lakes and sluggish streams often over deep mucky substrate.

Northern from Cumberland Co., to northern Cape Breton.

Ranges from NS to AK south to NJ, KS and WA; Eurasia.

May form hybrids with *P. pusillus* (*P. x saxonicus*)

***Potamogeton perfoliatus* L.**  
**potamot perfolié**



Photo by Sean Blaney

Another species with only submersed leaves, this species has distinctively round or elliptic sessile leaves, clasping the stems. The stipules are soon deciduous.

Flowers and fruits from July to October.

Found in brackish waters, even alkaline. Frequently seen at the mouths of rivers.



Photo by Roger Lloyd

Throughout.

Ranges from NF to ON, south to OH and NC; Gulf States; AK to BC.

***Potamogeton praelongus* Wulfen**  
**potamot à longs pédoncules**



Photo by Roger Lloyd

Floating leaves are absent, its submersed leaves are 1–3cm wide and slightly rounded or clasping at the base. Stramineous stipules are free from the leaves, 1–3cm long and persistent. The stem is long and often angled in a zigzag pattern. Resembles *P. robbinsii* but for the free stipules.

Flowers in June and July, but rarely found in fruit.

Usually in deep water.

Collected from Kings Co. to Cape Breton.

Ranges across the continent and south to CA and MD; Eurasia.

May form a hybrid with *P. perfoliatus* (*P. x cognatus*).

YELLOW-listed.

***Potamogeton pulcher* Tuckerm.**  
**potamot gracieux**



Photo by Sean Blaney

This large-leaved species has both floating and submerged leaves. The underwater ones range from 10–30mm wide and have crisped margins and 9–15 veins. Floating leaves may reach 6cm in length, round or cordate at the base. The stem is covered by sticky black glands, an easy character to separate this species from other similar ones.

Flower and fruits from July to September.

Found on muddy margins of ponds and lakes, streams.

Collected from Yarmouth, Queens and Halifax counties. Also reported from Digby Co.

Ranges from NS; ON; ME to MN, south to FL and TX.

STATUS: YELLOW-listed in NS.

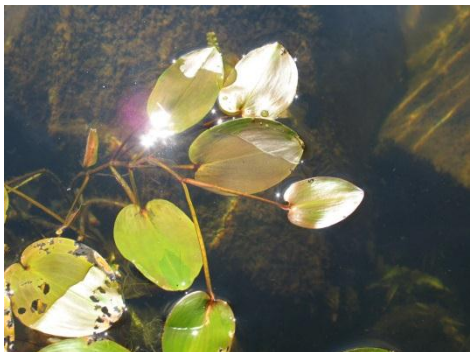
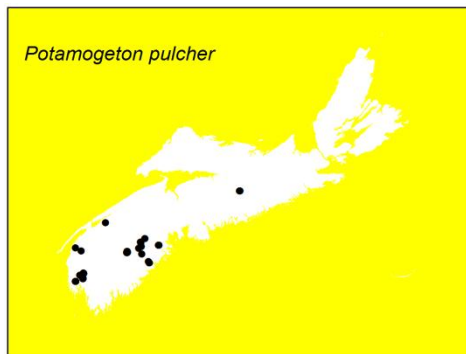


Photo by David Mazerolle



***Potamogeton pusillus* L.**  
**potamot nain**



Photo by Roger Lloyd

Another plant with only submerged leaves. Leaves are only to 2mm wide, with three veins; only the midvein is conspicuous. There are also three rows of lacunae on either side of it, running for most of its length. Most leaves bear a pair of glands at their bases and the apices are acute. There is a low rounded keel on the back of the achenes.

Two subspecies are listed as present in Nova Scotia. Our material should be examined for clarity. Ssp. *pusillus* and ssp. *tenuissimus* (Mert & Koch) Haynes and CB Hellquist. Both are continental in scope.

Flowers and fruits from July to September.

Limited to alkaline waters.

Scattered throughout mainland Nova Scotia and more frequent and abundant in Cape Breton.

Throughout the continent.

***Potamogeton richardsonii* (Benn) Rydb.**

**Redhead Pondweed; potamot de Richardson**



Photo by Roger Lloyd

Floating leaves are absent in this species and the submerged leaves are lanceolate to ovate, 5–30mm wide, 10cm long. They are coarsely veined, cordate and clasping at the base. Stipules soon disintegrate into strong white fibres.

Flowers and fruits from July to September.

Frequents lakes and streams in brackish or alkaline water.

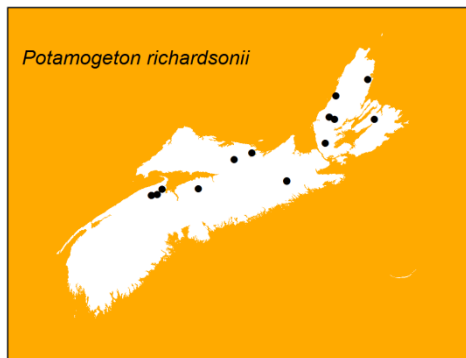




Photo by Roger Lloyd

Scattered from Kings and Cumberland Cos. to eastern Cape Breton.

Ranges from NF to AK, south to CA, NM and MD.



### ***Potamogeton robbinsii* Oakes**



Photo by Sean Blaney

This pondweed is distinctive and easy to recognize. Floating leaves are absent. The submerged leaves are arranged in two ranks, perpendicular to each other. They are 2–5mm wide and up to 10cm long. The tips are pointed and the bases have rounded auricles. They crowd the stem, sometimes only 1cm apart. Each is marked by a midvein. Fruiting plants have not been preserved in our material.

Flowers during July and August.



Photo by Roger Lloyd

Prefers slow-flowing water of streams and lakes.

Collected from Digby to northern Cape Breton, and most common north-centrally.

Found across Canada, NF to NU; AK, variously south to CA, CO, VA and AL.

***Potamogeton spirillus* Tuckerm.**

**potamot spirillé**



Photo by Sean Blaney

A freely branching plant, it has heterophyllous leaves. The submerged ones are linear, 2–4cm long. The floating leaves if present, are ovate, acute at both ends. The stipules are united to the leaves about half their length, with only the tips free. Leaves may be single veined, with a few faint lateral ones. There are numerous spikes, the lower ones sessile in the leaf axils. Flowers number 1–6 becoming larger towards the apex and on longer peduncles. The coiled



Photo by Roger Lloyd

seedling is clearly marked on the lower surface of the achene.

Flowers and fruits from July to November.

Common in quiet waters of shallows.

Common throughout but for northern Cape Breton.

Ranges from NF to MB, south to VA and NB.

***Potamogeton zosteriiformis* Fern.**

**Flat-stem Pondweed; potamot zostériforme**



Photo by Sean Blaney

Floating leaves are absent; submerged leaves are long flexuous and ribbonlike. Unlike *P. robbinsii*, those of this plant are not in two ranks. There are also numerous veins on this plant, another key character. The inflorescence is short and the achenes have a narrow dorsal keel.

Flowers and fruit July until September.

Grows in less acidic conditions and deep water.

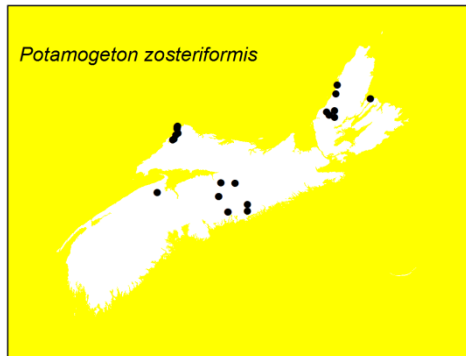
Rare in Kings Co. to central Cape Breton.

Ranges from NF to AK, south to VA, KS and CA; Eurasia.

YELLOW-listed.



Photo by Roger Lloyd



## **Stuckenia Borner**

A worldwide genus of only six species, these plants were once included in *Potamogeton*. The genus was separated on stipule and leaf characteristics and also the position of the inflorescence. *Stuckenia* species do not project the spikes above the water surface. Plants are flexuous, drifting in the water column. The leaves are opaque, sessile and alternate, with stipules adnate to the leaf blades for at least two-thirds of their length. They are also channelled.

Of the six species, three are found in Nova Scotia.

### Key to species

- |   |                            |
|---|----------------------------|
| A. Leaf apex acute or mucronate; sheaths of stipules not inflated; stems freely branched; fruits beaked.                              | <i>Stuckenia pectinata</i> |
| aa. Leaf apex notched, obtuse, or round; sheaths often inflated; stems scarcely branched; fruits beakless.                            | B                          |
| B. Stipules with distinct ligules; top of the stipules tight to stem, especially those of the midstem, not inflated; fruit <3mm long. | <i>S. filiformis</i>       |
| bb. Stipules without ligules or with minute ones; top of stipules inflated; fruit >3mm long.  | <i>S. vaginata</i>         |

***Stuckenia filiformis* (Pers.) Boërner**  
**(=*Potamogeton filiformis* Pers.)**  
**potamot filiforme**



Photo by Roger Lloyd

Freely branching, this species grows erect from a creeping rhizome. The linear leaves on stems branching from the base. They are marked by one vein but no lacunae. Achenes are dorsally rounded.

Plants >20cm; stipules inflated proximally, *ssp.occidentalis*  
deciduous; fruits absent.

Plants 10–30cm; stipules tightly clasping, persistent; *ssp. alpina*  
fruits common.

The subspecies *ssp. alpina* (Blytt) Haynes, Les & M. Kral and *ssp. occidentalis* (JW Robbins) Haynes, Les & M. Kral are both present here but herbaria should be canvassed for exact distribution of each.

Cold lacustrine waters, pools and even brackish water, over a substrate of sand or gravel.

Ranges from Annapolis Co. to western Cape Breton.

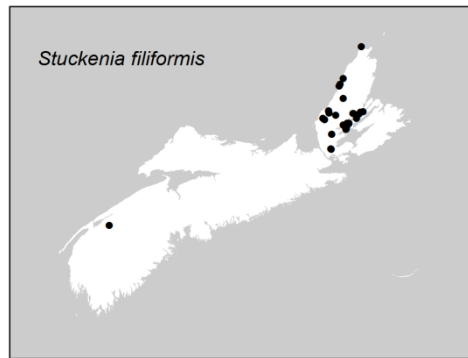
Ranges from NF to AK, south to CA, NM and NJ; Eurasia.

Its status in Nova Scotia is undetermined.



Photo by Roger Lloyd





***Stuckenia pectinata* (L.) Boërner**  
**(= *Potamogeton pectinatus* L.)**  
**Sago Pondweed; potamot pectiné**



*Photo by Ross Hall*



The submersed leaves are generally less than 1.5mm wide, acute and single-veined. Plants are loosely branching, the branches clustered about 1–3cm apart. Spikes have several whorls of 3–4 flowers, which are widely spaced lending a zigzag appearance to the inflorescence.

Flowers and fruit from July through September.

Typical species in brackish waters or alkaline sinkhole pools.

Yarmouth Co. eastward to Cape Breton.

Ranges throughout North and South America. Absent from NU and Labrador.

Photo by Roger Lloyd

***Stuckenia vaginata* (Turcz.) Holub**  
**(=*Potamogeton vaginatus* Turcz.)**  
**Bigsheath Pondweed; potamot engainé**



Photo by Roger Lloyd

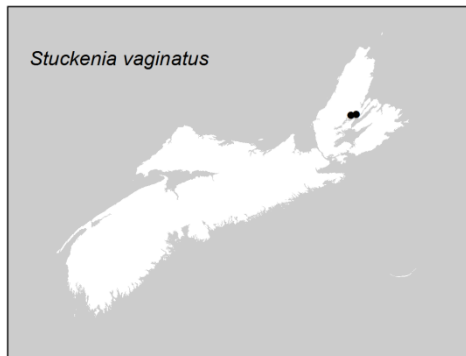
While similar to *S. pectinata*, it differs in having prominent swollen bases of the sheaths of the leaves. They are at least twice the width of the stem. Additionally the flower clusters in this species are larger, with 6–10 per whorl.

Flowers and fruits later, from August to October.

Found in deep water, brackish or fresh.

So far known only from Baddeck River, Cape Breton.

NS; QC to AK, south to OR, UT, OH and NJ.



## **Ruppiaceae**

### **ditchgrass family**

Ditchgrasses are aquatic species, rooting in mud in fresh or brackish waters. Their perfect flowers are borne on long tenuous and coiled peduncles from the axils of upper leaves. Arranged in short spikes, each flower is initially concealed within a spathe. Stamens are two. Leaves are alternate or opposite, each with a single midrib.

## ***Ruppia* L.**

As described above. There are 10 species in this worldwide genus; one is found in Nova Scotia.

### ***Ruppia maritima* L.**

#### **Ditchgrass; ruppie maritime**



*Photo by Alex Wilson*

A very slender and submerged plant, rooting from the proximal nodes. Freely branching, each bears leaves scarcely 0.5mm wide. The stipules sheath the base of the leaves for approximately 1cm. The peduncles arise from the sheath, bearing the spikes. Fruits are ovoid and beaked or strongly compressed. A variable species, all previously named varieties are included here.

Flowers and fruits from July through October.

Frequents saline or brackish pools and marshes, standing water in ditches.

Common around the entire coast.

Ranges from NF to SK, south along the Atlantic and Gulf coasts; west coast from AK to CA.

## **Scheuchzeriaceae**

A monotypic family, the single species is a plant of peatlands. The stems are simple, sheathed basally by the remains of old leaves. Flowers are borne on racemes extending above the leafy stem. The leaves are round in cross-section and not differentiated into blades. Petals and sepals each are three-merous.

### ***Scheuchzeria* L.**

Typically the inflorescence has persistent petals and sepals that are widely divergent. The carpels are connate proximally, forming inflated follicles.

#### ***Scheuchzeria palustris* L.**

#### **Pod-grass; scheuchz rie des marais**



*Photo by David Mazerolle*

An erect plant, it may reach 30cm in height. The round leaves are 1–3mm wide, with enlarged pubescent sheaths at the base. Plants are generally glabrous, but for the leaf sheaths. Flowers have three or six pistils, borne in a short terminal raceme. Follicles formed 2–3, each 5–7mm long and stramineous.

Flowers early in May through July.

Peat substrates in bogs and along lakeshores, where shrub cover is absent.

Ranges from Yarmouth to Cape Breton. Locally abundant.

Found from NF to AK, south to CA, WY and VA; NM. Eurasia.



*Photo by Martin Thomas*



*Photo by Sean Blaney*

## **Smilacaceae**

### **catbrier family**

Four genera include about 375 species throughout the tropical and subtropical world. A few are temperate. Nova Scotia has a single species, here limited to southwestern counties. They may be shrubs, herbs or vines, perennial and rhizomatous. The leaves are opposite or alternate and prominently three-ribbed. The flowers are generally imperfect, borne in umbels, less often in racemes or spikes. The species are dioecious. Tepals number six, rarely forming a tube. Stamens are arranged in 2–3 whorls. Fruits are baccate bearing 1–3 seeds.

### ***Smilax* L.**

#### **catbrier**

*Smilax* is generally woody, arising from rhizomes. The stems are armed or unarmed with stout prickles. Leaves are deciduous or evergreen and stipulate. Tendrils are present or not, originating at the petioles. Leaves may be variously shaped. The flowers are unisexual with six tepals, yellow or greenish and ovate to elliptic. Berries are green becoming black, but fruit set is uncommon in Nova Scotia.



***Smilax rotundifolia* L.**

**Catbrier; Greenbrier; smilax à feuilles rondes**



*Photo by Sean Blaney*

This species is Nova Scotia's only woody monocot. It is a vine, freely branching and clamouring over shrubs and trees. The stems are very thorny, armed with recurved prickles and tendrils and may reach 10m in length. The leaves are nearly round, smooth and glossy, with three main veins.

Flowers from May to June.

Found in thickets, lakeshores and streamsides, forming dense tangles.



*Photo by David Mazerolle*

Somewhat common from Digby to Queens counties, especially close to the coast. Less common inland.

Elsewhere from NS; ON; ME to SD, south to FL and TX.

**Sparganiaceae**

**bur-reed family**

The family comprises a monogeneric group of aquatic perennials, totalling 15–20 species of the north-temperate zones. Leaves are long and narrow and may be basal or cauline. Submerged and emerged leaves both have septa. Easily distinguished, they produce a flexuous and sometimes branched inflorescence of persistent burrs; flowers are imperfect. Inflorescence arises from the axil of the bracteal leaf or above, the staminate heads distalmost. Perianth is reduced to 3–6 tepallike scales. Fruits are achenes within a hard bony covering, one seed per locule.

***Sparganium* L.**

**bur-reeds**

Floating or erect, all are aquatic or emergent, with long ribbonlike leaves.

1446

A. Stigmas 2; fruit more than 4mm thick, flattened across the top.

*Sparganium eurycarpum*

aa. Stigma 1; fruit 1.2–3mm thick, ovate or elliptic.

B

B. Beak of the fruit long and slender.

C

C. Beak of the fruit. long and curved.

*S. fluctuans*

## Key to species

***Sparganium americanum* Nutt.**  
**rubanier d'Amérique**



*Photo by Sean Blaney*



*Photo by Alain Belliveau*

A stout emergent plant, the stem bears a branching inflorescence, with 2–3 pistillate heads on each branch. These or their pedicels arise directly from the axils of the bracteal leaves. Each achene tapers distally, ending in a long slender beak.

Grows in muddy substrates along sluggish streams or lakeshores.

Common throughout, but most abundant in the southwestern counties where large colonies are found around shallow lakes.

Ranges from NF to MB, south to FL and TX.

***Sparganium angustifolium* Michx.**  
**rubanier à feuilles étroites**



*Photo by Sean Blaney*



*Photo by Roger Lloyd*

A long floating plant, with long narrow leaves, 1.5–4mm wide, broader at the base and rounded on the back. Pistillate heads are often exerted above the axils. Achenes are short beaked.

Limited to sandy substrates of ponds, shallow lakes and freshwater marshes.

Common throughout, especially along the Atlantic coast. Scattered elsewhere.

Ranges from NF to AK, south to CA and NM in the west and IL and VA in the east. Absent from the plains area.

***Sparganium emersum* Rehmann**  
**rubanier à fruits verts**



*Photo by Martin Thomas*



*Photo by Roger Lloyd*

Smaller even than the previous species, its erect leaves far exceed the height of the fruiting branches, which may be scarcely above the base of the plant. Leaves are usually closer to 5mm wide.

Usually in wet mucky soils and shallow waters of brackish ponds, lakes, bog pools, etc.

Common throughout.

Ranges from NF to AK, south to CA, NM and NC.



***Sparganium eurycarpum* Engelm.**  
**Giant Bur-reed; rubanier à gros fruits**



*Photo by Martin Thomas*

The largest of our *Sparganium* species, its culms may reach more than 1m in length. There are two stigmas and the fruit is abruptly truncated at the top.

Fertile swamps as at the edges of sinkholes and pools behind coastal beaches.

Found from Halifax and Cumberland Co. and in Inverness Co. locations. Absent from the southwest and in eastern Cape Breton.

Ranges from NF to NT, south to CA, NM, OK and VA.

***Sparganium fluctuans* (Morong) BL. Robins**  
**rubanier flottant**



*Photo by Martin Thomas*

The leaves are thin and translucent and all floating. The achenes have long curved beaks. Noticeable is the presence of papery sepals basally attached to the short stipe of the achene.



*Photo by Roger Lloyd*

Limited to the colder waters of lakes and ponds in siliceous areas.

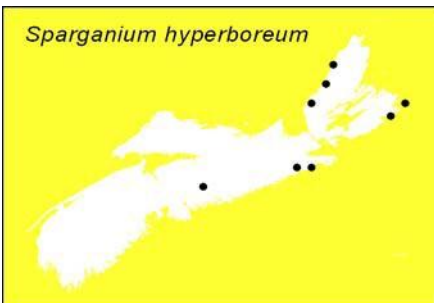
Scattered to uncommon in NS.

Elsewhere from NF to BC south to ID and NJ.

***Sparganium hyperboreum* Laestad.**  
**rubanier hyperboréal**



*Photo by Roger Lloyd*



Our smallest species, its leaves are scarcely 4mm wide. Pistillate flowers are borne above the bracteate leaf axil. Beak length is hard to determine in flower. At maturity, no beak remains on the yellowish achenes.

Peaty pools.

Rare in Cape Breton. On the mainland, collected from Drumhead and New Harbour, Guysborough Co.

Elsewhere from NF to AK; NS. Arctic and boreal.

***Sparganium natans* L.**  
**rubanier nageant**



*Photo by Roger Lloyd*

A small species with thin floating leaves, it is easily overlooked. The achenes have short stubby beaks, a key feature. Pistillate flower heads all arise from the bracteal leaf axils.

Found in shallows of pools, pond edges and alkaline sink holes.

Widely scattered and infrequently reported from Digby to eastern Cape Breton.

Ranges from NF to AK, south to CA, IL and NJ; absent from the southern plains; Eurasia.

**Typhaceae**  
**cat-tail family**

A monogeneric family, there are about 10 species of wetland perennials included. Height ranges from 1–2m, the erect stems terminating in a thick cylindric spike. Each pistillate flower is minute, forming seeds that disperse amidst a tangle of cottony fibre. Staminate flowers form a narrower spike above, soon becoming deciduous.

## ***Typha* L.**

### **cat-tails**

Flowers as described above. The leaves are very long and narrow, somewhat flat and thickened towards the centre.

#### Key to species

Leaves flat to 2.4cm wide; staminate and pistillate spikes close together,  
if not touching.

*Typha latifolia*

Leaves planoconvex, less than 7mm wide; staminate and pistillate spike  
gap 1–8cm.

*T. angustifolium*

### ***Typha angustifolium* L.**

#### **Narrow-leaved Cat-tail; quenouille à feuilles étroites**



*Photo by Martin Thomas*

The long narrow leaves are scarcely 7mm wide, usually rounded on the lower surface and exceeding the spikes. Leaf sheaths are auriculate. Staminate and pistillate spikes are separated by at least 5mm and sometimes as much as 12cm apart. Staminate spikes are dark brown at anthesis. Pistillate spikes reach up to 2cm thick. During the growing season the plant appears to be darkly glaucous.

Flowers produced from May through July.





Photo by Alain Belliveau

Found in brackish swales near the coast, swamps, marshes, ditches and streamsides.

Scattered and local and appears to be absent from southwestern counties.

Ranges from NS to BC, largely south to CA, NM, MS and SC; Eurasia.

### ***Typha latifolia* L.**

#### **Broad-leaved Cat-tail; quenouille à feuilles larges**



Photo by Sean Blaney

The leaves are wider than in the previous species, sometimes exceeding 2cm. Pistillate spikes may have a diameter of 1–3cm. The leaf sheaths taper into the blades, which may be equal in height to the spikes or taller. Staminate and pistillate spikes are usually touching. At anthesis the staminate flowers are green and the pistillate spike exceeding 3cm in diameter.

A dominant species in freshwater marshes, found in swamps, ditches and estuarine conditions.

Common throughout but for the Cape Breton highlands.

Ranges from NF to AK, south to Mexico; Eurasia and Africa. Absent only from Labrador and NU.



Photo by Alain Belliveau

Forms hybrids with our other species, named *T. X glauca* Godr. The leaf width ranges from 6–15mm and the spike gaps are 0.5–4cm, making the intermediate between the two parents. This is known to be more invasive than its parents, though it may make few seeds. It is local at Dartmouth Crossing, Halifax Co.

## **Xyridaceae**

### **yellow-eyed grass family**

The family includes nearly 300 species in four genera. Only *Xyris* is found in Nova Scotia.

### ***Xyris* L.**

#### **yellow-eyed-grasses**

Low-growing plants with simple stems, these herbs may reach 50cm in height. The grasslike leaves are basal and erect. The single inflorescence is borne on a scape. The flowers are terminal on a scaly receptacle. Each has three petals appearing at intervals between the scales of the spike.

Key to species

Plants <20cm tall, leaves 1–2mm wide, 1/3 the length of the scape;

heads 4–8mm tall.

*Xyris montana*

Plant >20cm tall; leaves to 15mm wide, ½ length of scape or more;  
heads >10mm tall.

*X. difformis*

***Xyris difformis* Chapman**  
**Bog Yellow-eyed-grass**



Photo by David Mazerolle



Photo by Sean Blaney

Distinctly larger than the following species, it is taller, to 50cm and the leaves broader, to 15mm wide. The heads may be broader than tall and rounded or squared at the base. Scales are stramineous, but with greenish centres.

Flowers from July through September.

Found on sand and peat along lakeshores, barrens and often found with the next species.

Common in southwestern Counties, scattered east to Kings and Halifax counties.

Ranges from NS; ON, ME to MI and south along the coastal plain to TX and FL.

***Xyris montana* Ries.**  
**Northern Yellow-eyed-grass**



Photo by Martin Thomas

Much smaller in stature, rarely reaching 20cm in height, this species also bears much narrower leaves. The spike is ovate tapering to the base and has a few brown scales below the yellow flowers.

Flowers during July and August.



Photo by Martin Thomas

Typical species of peat on barrens, bogs and lakeshores.

Common in southwestern counties, east to Scatarie Island, Cape Breton. Scattered and less frequent inland.

Ranges from NF to ON, south to NJ and MN.

## Zannichelliaceae

### horned pondweed family

All aquatic plants, they frequent fresh or brackish waters. A small family, there are only four genera. A single species reaches North America including Nova Scotia. Typically, they have submerged unisexual flowers, arising from the leaf axils. Perianths are absent or reduced to three minute tepals. Stamens are solitary; ovaries 1-9. The fruits are achenes bearing persistent styles. Leaves opposite or whorled, scalelike or linear, with a single vein. The stems are dimorphic, upper ones are leafy while the lower ones are stoloniferous.

### *Zannichellia* L.

#### Horned Pondweed

This monotypic genus has paired flowers, one staminate and the other pistillate, on a bifurcate stem.

### *Zannichellia palustris* L.

#### Horned Pondweed; zannichellie des marais



Photo by David Mazerolle

A fragile tenuous plant, this freely branching plant remains completely submerged. The leaves are barely 3-5mm wide and up to 10cm long. The fruit is distinctive when present, resembling tiny pods in clusters of 2-5 arising on short peduncles from the axils. They are 3-5mm long, with short beaks, 1-1.5mm long.

Flowers and fruit from spring through summer.



Photo by Roger Lloyd

Frequently found in saline or brackish waters or in streams just above the tidal reach.

Scattered around the coast.

Ranges from NF to AK, south to Mexico; nearly cosmopolitan.

## Zosteraceae

### eelgrass family

Only three genera comprise this family, with a single species included in Nova Scotia's flora. Plants are aquatic, their leaves completely submerged or with the uppermost ones floating. The stems are jointed, sheathed by the leaf bases. Flowers are unisexual, each type with a single pistil or stamen. They are borne on a spadix, hidden within a spathe. Fruits are drupelike.

### ***Zostera* L.**

#### **Eelgrass**

Grassy in appearance and in our province, it is our only truly marine vascular species. The genus is cosmopolitan and includes 10 species.

### ***Zostera marina* L.**

#### **Eelgrass; zostère marine**



Long leaves reaching 50cm in length are sessile along a slender stem. Leaves are marked by 3–5 strong veins and several faint ones visible on the lower surface. Flowers are much reduced and seldom seen.

Frequents saline lakes and coastal marine waters. Forms an important component of beach wrack.



*Photo by Ross Hall*



*Photo by Roger Lloyd*

Frequent around the coast.

Ranges from Greenland to NU, south to MB and along the coast to NC; AK to CA; Eurasia.

## CITATIONS

ACAD (E.C. Smith Herbarium, Acadia University, Wolfville, NS).

Al-Shehbaz, I. A. 2010. *Brassicaceae*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 18+ vols. New York and Oxford. Vol. 7.

Argus, George. 2007. Willow Workshop, E.C. Smith Herbarium, Acadia University, Wolfville, NS

Arsenault, M, G.H. Mittelhauser, D. Cameron, A.C. Dibble, A. Haines, S.C. Rooney, and J.E. Weber. 2013. Sedges of Maine: A Field Guide to Cyperaceae. The University of Maine Press, Orono, Maine.

Ball, Peter W., A. A. Reznicek and David F. Murray. 2002. *Cyperaceae*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 18+ vols. New York and Oxford. Vol. 23.

Blaney, CS, no date; personal communication (Poaceae).

Blaney, CS, 2010; personal correspondence.

Blaney, CS, 2014; personal correspondence (*Boehmeria cylindrica*).

Brouillet, L., F. Coursol, S.J. Meades, M. Favreau, M. Anions, P. Bélisle & P. Desmet. 2010+. VASCAN, the Database of Vascular Plants of Canada. <http://data.canadensys.net/vascan/>\*

CAN (National Herbarium, Canadian Museum of Nature, the Natural Heritage Campus, Gatineau, Quebec)

CBU (CBU Herbarium, Cape Breton University, Sydney, NS).

Dore, W. G. 1970. personal communication.

Edward G. Voss and Anton A. Reznicek. 2012. Field Manual of Michigan Flora. University of Michigan Press, Ann Arbor, MI. 1008 pp.

Nova Scotia Endangered Species Act (S.N.S. 1998, c.11).

Flynn, Andrea, Anthony G. Miller and David J. Garbary. 2013. *Coronilla varia* L. (Fabaceae): An Invader of a Coastal Barrier Beach in Nova Scotia, Canada. Proc. N.S. Inst. Sci 47 (2): 221-238.

GoBotany (<https://gobotany.newenglandwild.org/>).

Haines, Arthur, 2011. Flora Novae Angliae, A Manual of the Identification of Native and Naturalized Higher Vascular Plants of New England. Yale University Press, New York. 973 pp.

Haynes, Robert R. and C. Barre Hellquist. 2000. *Potamogetonaceae* In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 18+ vols. New York and Oxford. Vol. 22.

Hinds, Harold R. 2000. Flora of New Brunswick, Second Edition: A Manual for Identification of the Vascular Plants of New Brunswick. Biology Department, University of New Brunswick, Fredericton. 695 pp.

ITIS, Integrated Taxonomic Information System (ITIS) (<http://www.itis.gov>).\*

IWK Poison Centre Database query, 2014; personal communication with staff (*Cypripedium*)

Lawson, George. 1875-76. Notes on some Nova Scotian Plants. Proc. N. S. Inst. Sci. 4(2): 167-179.

M. Lemieux, 2014, personal communication (*Acer saccharinum*)

Magee, Dennis W. and Harry E. Ahles. 1999. Flora of the Northeast, A Manual of the Vascular Flora of New England and Adjacent New York. University of Massachusetts Press, Amherst, MA. 1213 pp.

McNeill, John, 1996; personal correspondence (*Alchemilla*)

Mihai Costea, personal correspondence, 2014 (*Cuscuta*)

MT (Marie-Victorin Herbarium, University of Montreal, Montreal, Quebec)

NSPM (Nova Scotia Museum Herbarium, Halifax, NS)

Scoggan, H. J & National Museum of Natural Sciences (Canada) (1978). *The flora of Canada*. National Museum of Natural Sciences, National Museums of Canada; available from National Museums of Canada Marketing Services, Ottawa

USDA, NRCS. 2014. The PLANTS Database (<http://plants.usda.gov>, 18 October 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA.\*

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Although not cited directly within the text, these websites (Canadensys-VASCAN, ITIS, and mikmaqonline.org ) were frequently referenced during the course of writing this e-flora, especially for currently accepted vernacular names. The authors would like to acknowledge the usefulness of these websites and thank their creators.

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# NOVA SCOTIA PLANTS

**Marian C. Munro, Ruth E. Newell, Nicholas M. Hill**

Nova Scotia is home to around 1600 species of ferns, conifers and flowering plants. This book provides keys to aid in identification, distribution maps and species descriptions. Full-colour photographs have been crowd-sourced and used with permission. The geographical context of our flora, history of NS botanical exploration and this e-publication process are all discussed by the authors. The book also includes an index to scientific, English, French and Mi'kmaq names in addition to notes on those plants harmful to our health. The three authors share a history with Acadia University and were all students of the late SP VanderKloet. We are grateful for the support of the EC Smith Herbarium and the K.C. Irving Environmental Science Centre in addition to the Fernhill Institute.

We dedicate this work to those who came before us and those who follow us in the study of Nova Scotia Plants.

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