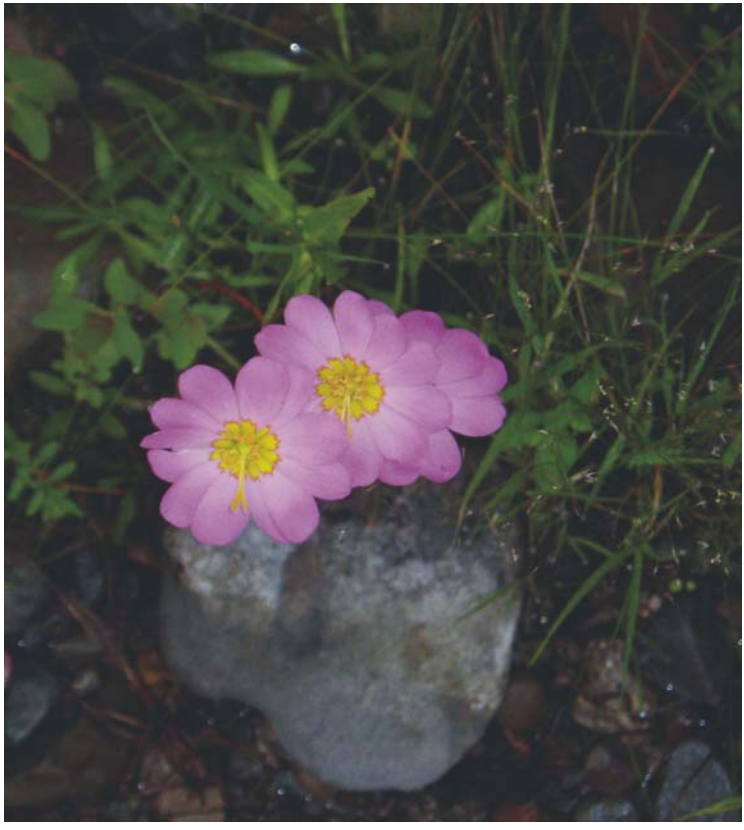
GUIDE TO THE ATLANTIC COASTAL PLAIN FLORA OF NOVA SCOTIA

by

The Nova Scotia Nature Trust



NOVA SCOTIA NATURE TRUST

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The Nova Scotia Nature Trust is a non-government, charitable organization dedicated to protecting ecologically significant areas of private land in the province. Since 1994, we have worked with landowners to protect over 2600 acres of conservation lands in Nova Scotia, including unspoiled lakeshores, old-growth forests, pristine coastal islands, and important wildlife habitat. The Nature Trust also has a mandate of public education to increase awareness of, and support for, land conservation. The Nature Trust is actively protecting critical habitat for Atlantic coastal plain species, as well as other endangered species.

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INTRODUCTION

The Atlantic Coastal Plain Flora

Southwest Nova Scotia is home to a unique group of flowering plants known as Atlantic coastal plain flora. These plants are one of the most endangered plant groups in Canada. Of the sixty-four species, eleven are extremely rare and listed as either nationally ***endangered, threatened*** or ***of special concern*** by the Committee on the Status of Endangered Wildlife in Canada, and are found in Canada only in Nova Scotia. Five species are considered to be ***globally threatened***, and twenty-five are listed as ***at risk or sensitive*** by the Nova Scotia government (see List of Coastal Plain Flora, page 6).

Coastal plain plants probably colonized Nova Scotia following the last glacial period, 10,000 – 14,000 years ago. About 14,000 years ago most of mainland Nova Scotia and parts of the continental shelf were covered by a kilometer-thick ice sheet. Sea level was about 60m lower than it is today, as water was locked up in the ice. Therefore much of the now water-covered area between Nova Scotia and Massachusetts was land. Plants invaded this exposed land and followed the retreating glaciers northward. Later as climate became warmer, melt water from the glaciers caused sea level to rise and the coastal plain flora in Nova Scotia were cut off from their mainland populations to the south. These Nova Scotia plants, now at their northern geographical limits, have survived amongst more aggressive and robust plant communities, and are now found in isolated pockets in southwest Nova Scotia. The Nova Scotia coastal plain habitats are amongst the least disturbed in North America (Fig.1). Coastal plain plants are found predominantly on the shores of freshwater lakes (Fig. 2) and in bogs; a few species also occur on streamsides and estuaries.

Coastal plain flora have been unable to colonize new habitat and survive disturbances due to three main factors: the plants are tightly constrained in the kind of habitat that they can occupy, few seeds are produced, and human disturbance has taken a high toll on their fragile wetland habitats. Because many coastal plain species are small and slow-growing, competition with larger, faster-growing plants is difficult. Instead, they survive in relatively extreme habitats, such as wet areas where environmental conditions are too severe for other plants to survive. Frequently, they are found along the gently sloping sand or gravel shores of low nutrient lakes, where seasonal changes in water level and exposure of the shoreline to wind, waves and ice reduce competition from plants that are unable to withstand periodic flooding and low nutrient levels. Low seed production limits the ability of these flora to spread and to regenerate.

The most serious problem for the survival of this fascinating group of plants is human activity that threatens their critical wetland habitats. Human disturbance takes a variety of forms such as hydroelectric dams which stabilize water levels and allow aggressive shrubs to invade coastal plain habitat; and improper

logging practices and sewage disposal which increase nutrient runoff and allow stronger competitors to invade coastal plain habitat. At the present time, however, the greatest impacts are from residential development and its associated uses. Plants damaged by trampling, cottage development, shoreline alteration, and flower picking are slow to recover because growing conditions are harsh and the plants are subject to continual disturbance. ATV use destroys fragile shoreline habitat.

Current efforts to conserve coastal plain flora and their critical wetland habitats include those by the Nova Scotia Nature Trust and the Atlantic Coastal Plain Flora Recovery Team. In 1998, the Nova Scotia Nature Trust developed the *Coastal Plain Stewards* project to work with private landowners to protect the significant coastal plain wetlands of these plants. More recently, through the *Plants on the Edge* project, the Nature Trust has extended this work, and continues to engage in outreach and educational activities to raise the awareness of landowners, local communities, recreational lakeshore users and others of the value and importance of protection of this habitat. The Atlantic Coastal Plain Flora Recovery Team has a working Recovery Plan in place which identifies the threats faced by coastal plain flora, and outlines what must be done to recover and support the species. Members of the team come from government, academia, industry, and non-government organizations.

Clearly one of the most important activities in providing protection for these plants is to increase our knowledge and awareness, particularly those of us who share the lands on which the coastal plain flora live. What we understand, we can begin to protect. In a move to increase our understanding, the Nova Scotia Nature Trust has produced this field guide, describing thirty of the Atlantic Coastal Plain Flora. The guide includes all of the 15 rare and endangered species found in freshwater wetlands, and an equal number of the more common species of interest (see List of Coastal Plain Flora, pg. 6). We plan to add additional coastal plain species to future versions of this guide. Appended at the end of the guide are descriptions of Blandings Turtle and the Eastern Ribbon Snake. These are two endangered reptilian species which share the coastal plain habitat. Hopefully you will be able to use this field guide to identify the coastal plain plants occurring on your property or on land you visit, and take steps to protect our endangered and vulnerable plants.

Ways to Help Conserve Coastal Plain Plants

Many coastal plain plants grow on the lakeshores of southwest Nova Scotia - a habitat also favoured by cottagers, anglers, hikers, ATV users and other recreational users. Therefore it is especially important that we learn how to share these places without threatening the continued existence of these plants. Several suggestions are listed below:

1) Learn to recognize these plants and their typical habitats. This is the first step toward any attempt at conservation.

2) When building wharves or boat haul-ups, beaches, or any other shoreline structure, select locations away from species of concern.
3) Maintain septic systems in proper working order, and do not use lawn fertilizers. Nutrient-poor shorelines are important to restrict competition from other species.
4) Use floating docks rather than fixed docks or beaches.
5) Leave buffers of natural vegetation along lakeshores and waterways to preserve water quality, and do not put in lawns, especially those close to the water.
6) Do not drive ATVs along lakeshores or in bogs. Driving ATVs in these areas destroys both habitat and plants.
7) Do not introduce alien invasive plants to your property. These can out-compete coastal plain plants and take over their habitat.
8) Get involved in activities that support the conservation of these plants. The Nova Scotia Nature Trust engages interested landowners in stewardship programs that help landowners to protect rare plants on their land. Or, become a volunteer Rare Plant Monitor through the Nature Trust and collect valuable information about the status of coastal plain plants in your area.

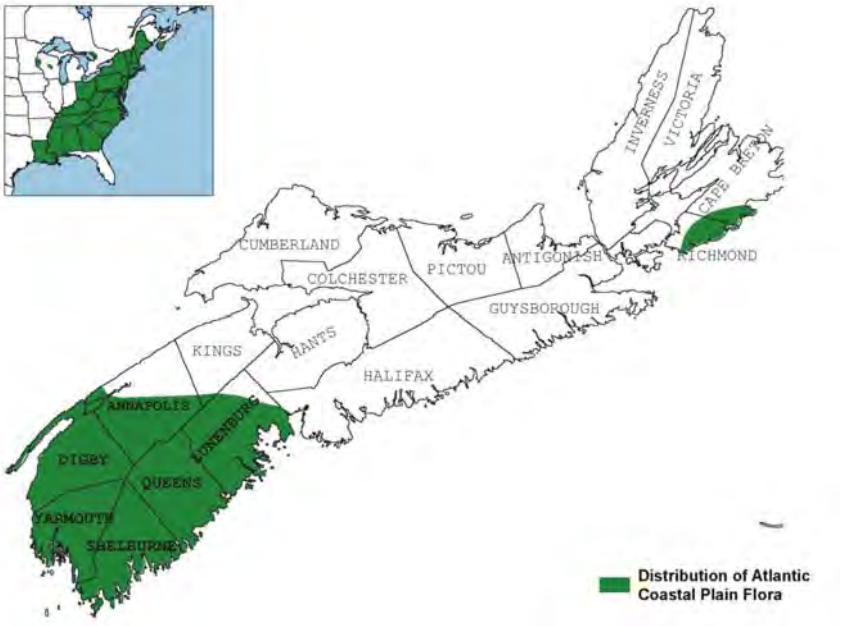

FIGURE 1: Distribution of Atlantic coastal plain flora in Nova Scotia and in eastern North America (inset).

Explanation of Different Ranking Systems

Four different ranking systems are used in this field guide. Rankings identify which plant species are at risk at provincial, national, and global levels. Included are two provincial rankings, one national ranking, and one global ranking.

A national ranking for the status of species comes from the **Committee on the Status of Endangered Wildlife in Canada (COSEWIC)**. Species considered at risk are given a status of Endangered, Threatened, or Special Concern:

> ***Endangered*** – Any species facing imminent extinction or extirpation (local extinction)
> ***Threatened*** – Any species that is likely to become endangered if limiting factors are not reversed
> ***Special Concern*** - Any species that is of special concern because it is particularly sensitive to human activities or natural events

For more information on COSEWIC, visit their website at www.cosewic.gc.ca.

The **Nova Scotia Department of Natural Resources (NSDNR) General Status Ranking** is a provincial ranking that identifies species that are at risk within the province. Species rankings include Red, Yellow or Green:

> ***Red*** – Any species that is known or believed to be at risk
> ***Yellow*** – Any species that is known or believed to be particularly sensitive to human activities or natural events
> ***Green*** – Any species that is known or believed to be not at risk

The **Nova Scotia Endangered Species Act (NSESA)** lists species that are Endangered, Threatened, and Vulnerable within the province:

> ***Endangered*** – Any species facing imminent extinction or extirpation (local extinction)
> ***Threatened*** – Any species that is likely to become endangered if limiting factors are not reversed
> ***Vulnerable*** - Any species that is of special concern because it is particularly sensitive to human activities or natural events

The **Global Ranking** of a species is determined by a group of international and local experts. Five species of Atlantic coastal plain flora are considered globally at risk: Pink Tickseed, New Jersey Rush, Plymouth Gentian, Long's Bulrush, and Narrow-Leaf Golden-Rod. The remaining species covered in this guide are not considered to be globally at risk.

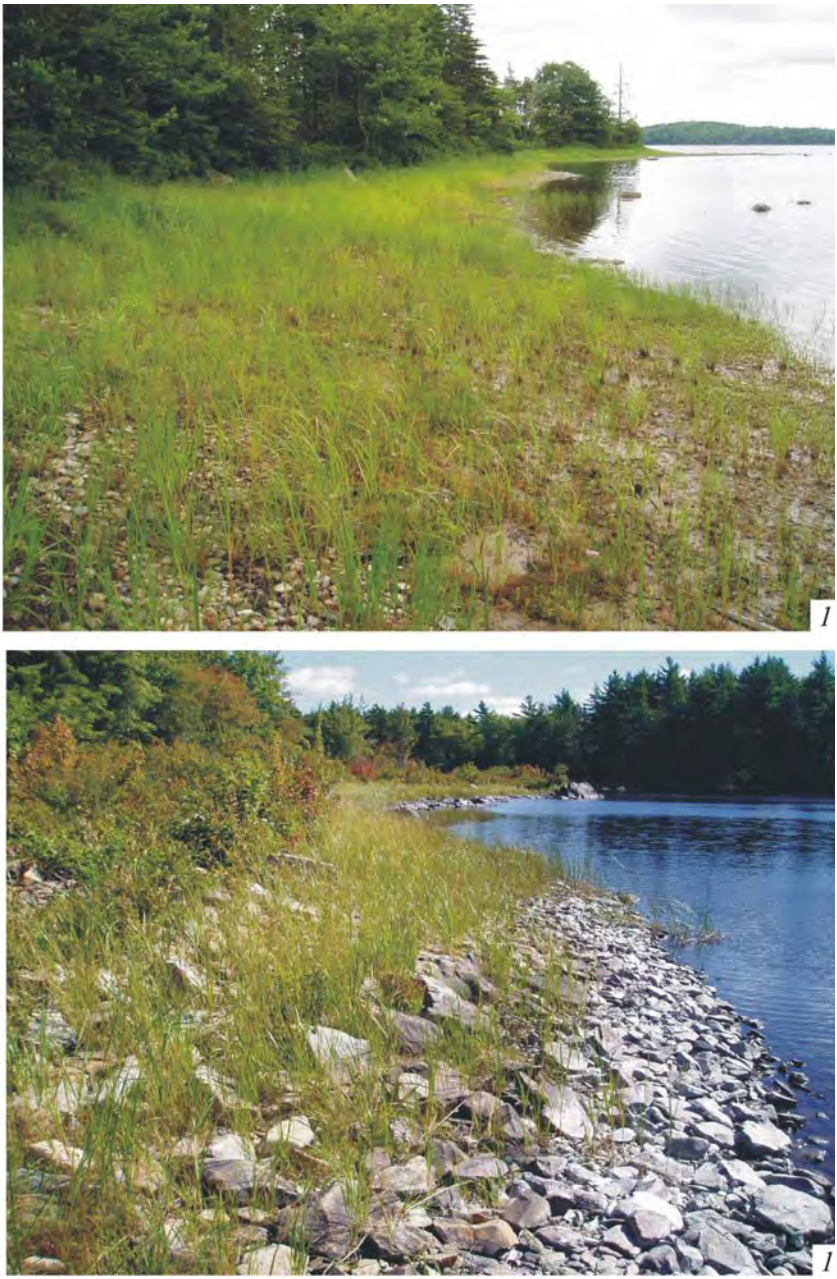

FIGURE 2: Typical lakeshore habitats of the Atlantic coastal plain flora

List of Coastal Plain Flora and Page Number (if included)

Common Name	Scientific Name	Pages, if Included
Bayberry (Northern Bayberry)	*Myrica pensylvanica*	8-9
Beaked-rush (Brownish Beakrush)	*Rhynchospora capitellata*	-
Bladderwort (Humped Bladderwort)	*Utricularia gibba*	-
Bladderwort (Purple Bladderwort)	*Utricularia purpurea*	-
Bladderwort (Small Swollen Bladderwort)	*Utricularia radiata*	-
Bladderwort (Northeastern Bladderwort)	*Utricularia resupinata*	-
Bladderwort (Zigzag Bladderwort)	*Utricularia subulata*	-
Blue-eyed Grass (Eastern Blue-Eyed-Grass)	*Sisyrinchium atlanticum*	10-11
Bog Huckleberry (Dwarf Huckleberry)	*Gaylussacia dumosa*	-
Brookside Alder	*Alnus serrulata*	12-13
Buttonbush (Common Buttonbush	*Cephalanthus occidentalis*	14-15
Catbrier (Common Greenbrier)	*Smilax rotundifolia*	16-17
Chokeberry (Red Chokeberry)	*Aronia arbutifolia(Photinia pyrifolia)*	-
Clubmoss (Southern Bog Clubmoss)	*Lycopodiella appressa*	18-19
Dwarf Chain Fern (Netted Chainfern)	*Woodwardia areolata*	20-21
Fringed Orchid (Southern Rein Orchid)	*Platanthera flava var. flava*	22-23
Golden-crest	*Lophiola aurea*	24-25
Golden-pert (Golden Hedge-Hyssop)	*Gratiola aurea*	26-27
Goldenrod (Grass-Leaved Goldenrod)	*Euthamia tenuifolia (Euthamia caroliniana)*	-
Goldenrod (Narrow-Leaf Golden-Rod)	*Euthamia galetorum*	28-29
Grass-pink	*Calopogon tuberosus*	30-31
Hudsonia (Golden-Heather)	*Hudsonia ericoides*	-
Inkberry	*Ilex glabra*	-
Joe-pye-weed (Joe-Pye Thoroughwort)	*Eupatorium dubium*	32-33
Lance-leaved Violet	*Viola lanceolata*	34-35
Lilaeopsis (Eastern Lilaeopsis)	*Lilaeopsis chinensis*	-
Long's Bulrush	*Scirpus longii*	36-37
Manna-grass (Blunt Manna-Grass)	*Glyceria obtusa*	-
Marsh St. John's-wort	*Triadenum virginicum*	38-39
Massachusettes Fern (Bog Fern)	*Thelypteris simulata*	-
Mermaid-weed (Comb-Leaved Mermaid-Weed)	*Proserpinaca pectinata*	-

Mild Water-pepper	*Polygonum hydropiperoides*	-
New Jersey Rush	*Juncus caesariensis*	40-41
Panic Grass (Eaton's Witchgrass)	*Panicum spretum(Dichanthelium spretum)*	-
Panic Grass (Matting Witchgrass)	*Panicum leucothrix(Dichanthelium meridionale)*	-
Panic Grass (Old Switch Panic Grass)	*Panicum virgatum var. spissum*	-
Panic Grass (Redtop Panic Grass)	*Panicum longifolium (Panicum rigidulum var. pubescens)*	-
Panic Grass (Spreading Panic-Grass)	*Panicum dichotomiflorum var. puritanorum*	-
Pink Tickseed (Rose Coreopsis)	*Coreopsis rosea*	42-43
Plymouth Gentian	*Sabatia kennedyana*	44-45
Poison-ivy	*Toxicodendron radicans*	46-47
Pondweed (Spotted Pondweed)	*Potamageton pulcher*	-
Redroot (Carolina Redroot)	*Lachnanthes caroliana*	48-49
Rush (Bayonet Rush)	*Juncus militaris*	-
Rush (Grassleaf Rush)	*Juncus marginatus*	-
Rush (Woods-Rush)	*Juncus subcaudatus (Juncus subcaudatus var. planisepalus*	-
Screw-stem (Twining Bartonia)	*Bartonia paniculata (Bartonia paniculata ssp. iodandra)*	-
Screw-stem (Yellow Screwstem)	*Bartonia virginica*	-
Sedge (Atlantic Sedge)	*Carex atlantica spp. atlantica*	-
Sedge (Button Sedge)	*Carex bullata*	-
Sedge (Howe Sedge)	*Carex atlantica spp. capillacea*	-
Spikerush (Capitate Spikerush)	*Eleocharis flavescens var. olivacea (Eleocharis olivacea var. olivacea)*	-
Sundew (Spoon-Leaved Sundew)	*Drosera intermedia*	50-51
Sundew (Thread-leaved)	*Drosera filiformis*	52-53
Swamp Rose	*Rosa palustris*	54-55
Sweet Pepperbush (Coast Pepper-Bush)	*Clethra alnifolia*	56-57
Tubercled Spikerush (Long-Tubercled Spike-Rush)	*Eleocharis tuberculosa*	58-59
Virginian Meadow-beauty	*Rhexia virginica*	60-61
Water-milfoil (Low Water-Milfoil)	*Myriophyllum humile*	-
Water Pennywort (Many-Flowered Pennywort)	*Hydrocotyle umbellata*	62-63
Water Smartweed (Stout Smartweed)	*Polygonum robustius*	-
Water-willow (Hairy Swamp Loosestrife)	*Decodon verticillatus var. laevigatus*	-
White Fringed Orchid	*Platanthera blephariglottis*	64-65
Yellow-eyed Grass	*Xyris difformis*	66-67
Blanding's Turtle	*Emydoidea blandingii*	68-69
Eastern Ribbon Snake	*Thamnophis sauritus*	70-71

Common Name: Bayberry

Scientific Name: *Myrica pensylvanica*

Family: Bayberry Family (Myricaceae)

Diagnostic Features:

Form: Deciduous shrub with many branches; male and female flowers are on separate plants.
Height: Up to 2.5m
Stems: May have glandular hairs
Leaves: Lance-shaped or oval leaves that are broadest towards the tips. Leaves are glossy and sometimes have a few teeth at the apex.
Catkins: Male catkins are slightly longer (1.2 cm) than female catkins (1.0 cm).
Fruit: Nutlets are nearly round, occur in small clusters, and are several millimeters wide. They are covered in a white waxy substance.

Flowering Period: June

Habitat: Best known from coastal headlands and beaches; but in southern Nova Scotia, also occurs in open swamp and boggy forest, dry rocky forest and semi-open rocky ridges.

Range: North Carolina north to Ontario, southeastern New Brunswick, Nova Scotia, and Newfoundland

Distribution: Abundant in southwestern Nova Scotia; infrequent in the centre of the province

Points of Interest: The entire plant is fragrant; crush a few leaves in your hand!

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Notes:

Bayberry (*Myrica pensylvanica*). Inset: Close-up of Bayberry leaves.

Common Name: Blue-Eyed Grass (Eastern Blue-Eyed Grass)

Scientific Name: *Sisyrinchium atlanticum*

Family: Iris Family (Iridaceae)

Diagnostic Features:

Form: Slender grass-like perennial plant
Height: 50 cm tall
Stems: Wiry, two-edged
Leaves: Narrow, often spreading
Flowers: Bluish-purple with a yellow centre, enclosed by two large bracts; petals have narrow points. Flowers are 1.25 – 2 cm wide.

Flowering Period: July

Habitat: Damp, peaty to poorly drained, sandy or gravelly soil

Range: Newfoundland to Ontario, south to Virginia

Distribution: Common from Yarmouth and Shelburne Counties to Lunenburg; scattered throughout the rest of the province

Points of Interest: The flower of Blue-Eyed Grass lasts for only one day a year, and can be seen in July.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Similar to Common Blue-Eyed Grass (*S. montanum*), Stout Blue-Eyed Grass (*S. angustifolium*) and Slender Blue-Eyed Grass (*S. mucronatum*). The stems of both Stout and Eastern Blue-Eyed Grass have a bract in the middle, from which the long flowering stems branch. Neither Common nor Slender Blue-Eyed Grass have this bract, and the stem of both these flowers is unbranched. The stems of Stout and Common Blue-Eyed Grass have distinct flat edges, while the stems of Eastern Blue-Eyed Grass do not.

Notes:

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Blue-Eyed Grass (*Sisyrinchium atlanticum*).

Common Name: Brookside Alder

Scientific Name: *Alnus serrulata*

Family: Birch Family (Betulaceae)

Diagnostic Features:

Form: Tall woody shrub with one or more stems
Height: Up to 5 m
Stem: Most stems are up to 5 cm in diameter, but can be up to 12 cm wide. Branches arch outwards from the main stem.
Bark: Smooth, pale grey
Leaves: Simple, alternate, oval leaves that are 4-8 cm long. Leaves are broadest toward the apex (which is the key distinguishing feature from our other two alders) and tapered toward the stem. Margins are finely toothed.
Female Catkins: Small catkins in groups of two to four are borne on short branches, angled away from the supporting twig. After male catkins fall off, females go on to become cone-like fruiting structures, 8-14mm long.
Male Catkins: Larger and longer than female ones, on branches that are angled away and downward from the supporting twig. In blooming period, are 3-5 cm long and are whitish to yellowish-green and brown.

Flowering Period: February - May

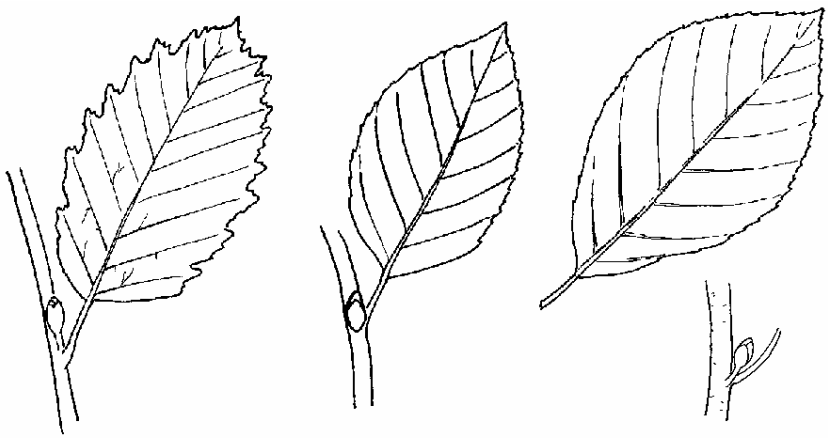
Habitat: Lakeshores and associated swampy areas

Range: Florida to Louisiana, north to southern Ontario, Quebec, New Brunswick and Nova Scotia

Distribution: Southwestern Nova Scotia, but uncommon and local

Status: COSEWIC ranking: N/A
NSDNR ranking: Yellow
NSESA ranking: N/A

Similar Species: Similar to Downy Alder (*Alnus viridis*) and Speckled Alder (*Alnus incana*); can be distinguished by the leaves. Leaves of Downy Alder are oval, and broadest at the base; leaves of Speckled Alder are broadest at the base or middle, and margins are more deeply toothed. In contrast, leaves of Brookside Alder are broadest at the apex. Another feature that distinguishes Brookside Alder is the presence of cross-veins that disappear towards the edge of the leaf. Also, the buds of Brookside Alder and Speckled Alder are on short stalks, while those of Downy Alder lack stalks.



Speckled Alder Downey Alder Brookside Alder

Brookside Alder (*Alnus serrulata*). Note that the leaves are broadest towards the tip and taper towards the stem. Sketches (lower) comparing leaves of the three alder species found in Nova Scotia. Note that the buds of Brookside Alder and Speckled Alder grow on a short stalk, while the buds of Downy Alder do not.

Common Name: Buttonbush

Scientific Name: *Cephalanthus occidentalis*

Family: Madder family (Rubiaceae)

Diagnostic Features:

Form: Upright, branching shrub with woody stems
Height: Up to 3m
Leaves: The ***whorled*** leaves (3 leaves coming from same point on the stem) are unique among our region's shrubs. Leaves are sometimes opposite (in pairs), but in examining the whole shrub one can always find some leaves in threes. Leaves are oval in shape and narrowed to a point at both ends. They are 7-15cm long with a shiny dark green upper surface. Veins curve towards the tip of the leaf and the margins are untoothed.
Flowers: The flowers of Buttonbush are unique: ball-shaped clusters of small, white, tubular flowers with a protruding style. Round heads are 2-4 cm in diameter.
Fruit: Small, round, hard cluster of dark brown nutlets, many remaining on the shrub after leaf.

Flowering Period: July 15 – August 15

Habitat: Rocky shores of lakes and rivers in moist soils; less commonly in boggy wetlands

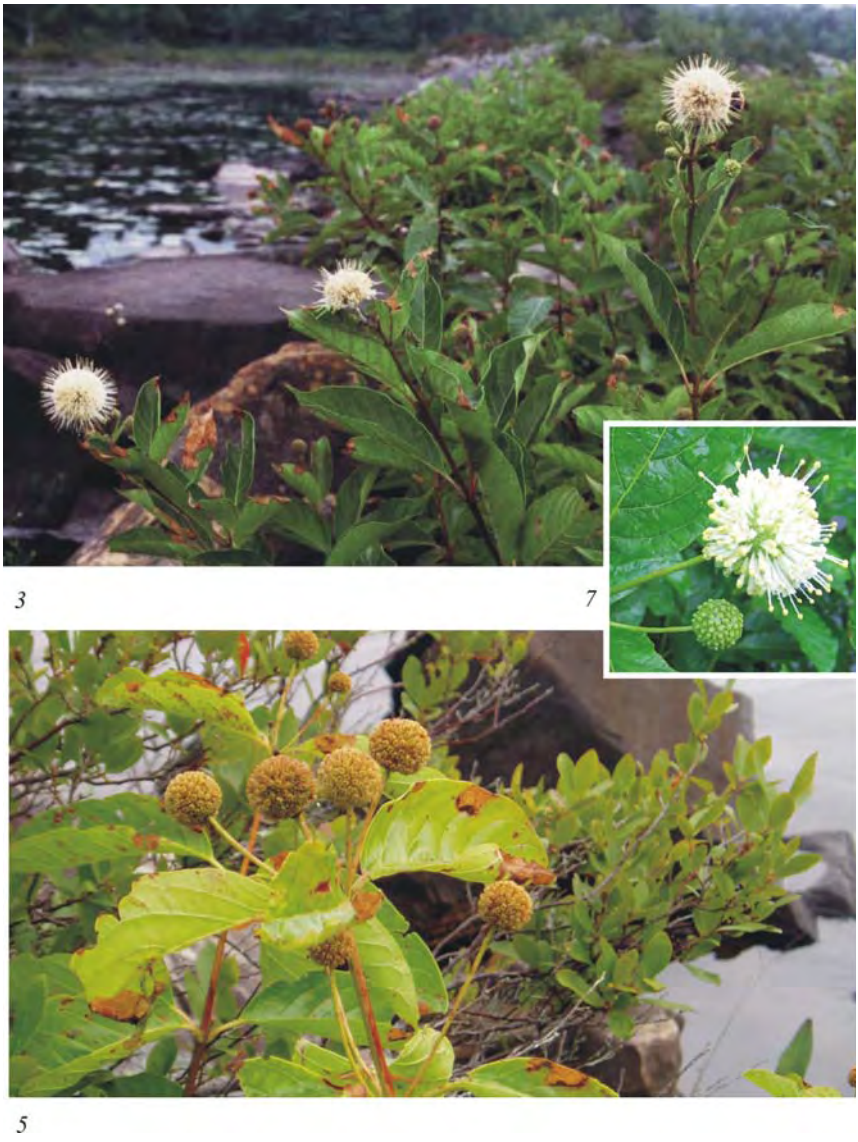
Range: Florida to Mexico, north to Nova Scotia, southern New Brunswick, Ontario, Quebec

Distribution: Along the Medway River system and upper Mersey River in Queens County; Yarmouth County; Deception Lake, Roseway River, Jordan River, and Lake John in Shelburne County

Points of Interest: Buttonbush seeds are eaten by ducks, geese, and shorebirds, and many small animals use the plant for cover. The plant is poisonous to humans.

Status: COSEWIC ranking: N/A
NSDNR ranking - Yellow
NSESA ranking – N/A

Notes:



Buttonbush (*Cephalanthus occidentalis*) in bloom (top), flower (inset), post-bloom (lower).

Common Name: Catbrier (Round-Leaved Greenbrier)

Scientific Name: *Smilax rotundifolia*

Family: Catbrier Family (Smilacaceae)

Diagnostic Features:

Form: Woody vine, creeping over shrubs and into trees; very branched and strongly armed with thorns.
Length: Up to 10m
Stem: Green, covered in green rigid thorns; attaches by curving tendrils.
Leaves: Smooth, glossy, nearly round or heart-shaped; have three main veins.
Flowers: Small, greenish; seldom seen
Fruit: Small bluish-black berries; seldom seen

Flowering Period: Late April - June

Habitat: Thickets, and the borders of lakes and rivers; often found growing in dense piles on top of other shrubs

Range: Florida and Texas, north to Nova Scotia and southern Ontario

Distribution: Frequent in Digby, Yarmouth, Shelburne, and Queens Counties; rarer inland, but scattered near Kejimkujik

Points of Interest: Catbrier is Nova Scotia's only woody monocot (a group of flowering plants that can be distinguished by having parallel, unbranched leaf veins).

Status: COSEWIC ranking: N/A (However, the Great Lakes population of Catbrier is considered Threatened by COSEWIC)
NSDNR ranking: Green
NSESA ranking: N/A

Notes:

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Catbrier (*Smilax rotundifolia*) vine showing thorns (upper). Note the climbing growth pattern of the vine (lower).

Common Name: Clubmoss (Southern Bog Clubmoss)

Scientific Name: *Lycopodiella appressa*

Family: Club-Moss Family (Lycopodiaceae)

Diagnostic Features:

Form: Prostrate, creeping perennial herb that resembles a coarse moss.
Height: 8 – 35cm
Stems: Densely leaved, not branched very much. Most stems lie horizontally on the substrate, but scattered upright stems exist as well. Some stems have a 1 - 3 cm long cone-like structure at the top which contains the spores (called a ***strobilus***).
Leaves: Green; very small; cover the stem

Habitat: Beaches, boggy savannas, wet depressions in peatlands

Range: Atlantic provinces, south to Florida, and west to Kansas and Texas; Cuba

Distribution: Scattered in south and southwestern Nova Scotia; Cape Breton

Points of Interest: Clubmosses are a very old group of plants closely related to the ferns. They are not a moss, but are often mistaken for mosses due to their green colour and low growth form.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Looks like *Lycopodiella inundata* (Bog Clubmoss), which, at a height of up to 6 cm, is much smaller than *Lycopodiella appressa*. Leafy stems of *L. inundata* are 0.5 – 0.9 mm in diameter, while those of *L. appressa* are considerably wider.

Notes:

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Clubmoss (*Lycopodiella appressa*). Upper arrow points to a creeping, horizontal stem, while lower arrow shows a vertical reproductive stem (called a strobilus).

Common Name: Dwarf Chain Fern

Scientific Name: *Woodwardia areolata*

Family: Chain Fern Family (Blechnaceae)

Diagnostic Features:

Form: Fern with ***fronds*** (leaf, including blade and stem) divided only once. Fertile fronds are different from non-reproductive fronds; each plant has several non-reproductive fronds. ***Pinnae*** (branches of the fern blade) are not paired along the stem.
Height: 45 – 60 cm
Leaves: Fertile fronds have much narrower leaflets than non-reproductive fronds.
Leaf Stalk: Dull green and slightly scaly on the underside.
Spores: Occur on underside of leaves; arranged end to end, resembling tiny chains.

Spores: July - October

Habitat: Along streams, swamps, bog margins

Range: Nova Scotia, rare inland to Michigan; Florida to Texas; north to southern New Hampshire

Distribution: Yarmouth and Shelburne counties; rarer inland

Status: COSEWIC ranking: N/A
NSDNR ranking: Yellow
NSESA ranking: N/A

Similar Species: Resembles Sensitive Fern (*Onoclea sensibilis*), but the fronds of Dwarf Chain Fern are finely toothed, while Sensitive Fern has wavy margins. The leaflets of Dwarf Chain Fern are narrower and less lobed than those of Sensitive Fern. Sensitive Fern has one leafy frond and a non-leafy fertile frond that resembles an inverted bunch of grapes on a long stalk, while Dwarf Chain Fern has two frond types as described above. Also, the pinnae of Dwarf Chain Fern are not paired along the stem, while those of Sensitive Fern are.

Notes:

Dwarf Chain Fern (*Woodwardia areolata*). Fertile frond (lower), showing spores arranged in a chain-like pattern. Habitat picture of Dwarf Chain Fern (upper). Note that non-reproductive fronds are much wider than fertile fronds.

Common Name: Fringed Orchid

Scientific Name: *Platanthera flava var. flava*

Family: Orchid family (Orchidaceae)

Diagnostic Features:

Form: Slender, herbaceous perennial
Height: 2-14 cm tall
Leaves: Each plant has two or more long, lance-shaped leaves which are quickly reduced in size towards the top of the plant. The lowest leaf is 10-15 cm long, and wraps around the base of the stem.
Flowers: Greenish-yellow flowers on a spike, 5-10 cm long. Each flower is 4-5 mm wide. Flowers have roundish petals and a broad lip, usually with a small tooth on each side; lip has a small protuberance in the centre.

Flowering Period: May - August

Habitat: Sand or gravel beaches; wet woodlands, bogs, swamps, meadows; lake and river shores

Range: Florida, north to New Jersey and Nova Scotia

Distribution: In Nova Scotia, found along the Tusket River in Yarmouth County, and the Medway River in Queens County. Also found in Kings and Colchester Counties.

Status: COSEWIC ranking: N/A
NSDNR ranking: Yellow
NSESA ranking: N/A

Similar Species: Similar to *Platanthera flava var. herbiola*, which is stouter, with leaves that taper only slightly towards the tip and has a smaller flowering head than *Platanthera flava var. flava*.

Notes:

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Fringed Orchid (*Platanthera flava var. flava*).

Common Name: Golden-Crest

Scientific Name: *Lophiola aurea*

Family: Bloodwort Family (Haemodoraceae)

Diagnostic Features:

Form: Unbranched, perennial herb
Height: About 50 cm
Stem: Covered in white wooly hairs
Leaves: Long, narrow, erect leaves that arise from the base of the plant. Leaves are opposite and up to 30 cm long, and are green with red at the base.
Flowers: The flowering stalk branches repeatedly, and is covered with white wooly hairs. Each stalk has a cluster of small, deep yellow flowers at the top.

Flowering Period: August – early September

Habitat: Cobble lakeshores, bogs, low swampy land; in a fen on Digby Neck

Range: Nova Scotia and New Jersey; south to Florida and Mississippi

Distribution: In Nova Scotia, known only in southwestern counties, including Lunenburg, Queens, and Digby

Points of Interest: Golden-crest gets its scientific name from the Greek word *lophia*, which means mane, because of the white wooly cover on its stem and flowers.

Status: COSEWIC ranking: Threatened
NSDNR ranking: Red
NSESA ranking: Threatened

Notes:

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Golden-crest (*Lophiola aurea*). Flower in bloom (lower). Note white, wooly covering of flower.

Common Name: Golden-pert

Scientific Name: *Gratiola aurea*

Family: Snapdragon Family (Scrophulariaceae)

Diagnostic Features:

Form: Small herbaceous plant, creeping to form patches
Height: 10 – 30 cm
Stem: Smooth; may be simple or branched
Leaves: Opposite, broadly oval or lance-shaped. Leaves do not have a stalk, and the base wraps around the stem.
Flowers: Bright yellow, bell-shaped flowers that are 1 – 1.5 cm across and on a stem that is up to 2 mm long.

Flowering Period: July - August

Habitat: Lakeshores, moist areas of dry savannahs

Range: Ontario; Newfoundland; Nova Scotia south to Florida

Distribution: In Nova Scotia, common from Yarmouth and Shelburne Counties to Halifax County

Points of Interest: On the shores of Ponhook Lake, Queens County, there is a population of Golden-pert with a flower that is pure white, except for a yellowish tinge on the interior of the flower.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Notes:

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Golden-pert (*Gratiola aurea*) shown growing in its typical habitat. Golden-pert flowers (lower).

Common Name: Golden-Rod (Narrow-Leaf Golden-Rod)

Scientific Name: *Euthamia galetorum*

Family: Aster Family (Asteraceae)

Diagnostic Features:

Form: Erect, slender perennial plant; stem usually unbranched to the tip.
Height: 1 – 1.5m
Leaves: Long and thin leaves with parallel sides and 3-5 veins. Thick leaves point up, towards the top of the plant.
Flowers: Bright yellow, in a flowering head 1 – 2 cm wide. There are several flowering heads per plant, each with 25-50 tiny flowers.

Flowering Period: August and September

Habitat: Lakeshores; prefers wet, peaty, or sandy soil

Range: Endemic to Nova Scotia (occurs nowhere else in the world)

Distribution: Common in southern Yarmouth County, infrequent in Digby, Lunenburg, and Halifax Counties

Points of Interest: Nova Scotia is the only place in the world where Narrow-Leaf Golden-Rod is found.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Narrow-Leaf Golden-Rod is globally recognized as being at moderate risk of extinction.

Similar Species: Very similar to *Euthamia tenuifolia*, but Narrow-Leaf Golden-Rod is more slender and has a more compact flowering head. The flowering head of *E. galetorum* is 1-2cm wide. The flowering head of *E. tenuifolia* is flat or round-topped, and extends more than halfway down the stem.

Notes:

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Narrow-Leaf Golden-Rod (*Euthamia galetorum*). Note the slenderness of the leaves. The plant growing in its typical habitat (lower).

Common Name: Grass-pink

Scientific Name: *Calopogon tuberosus*

Family: Orchid Family (Orchidaceae)

Diagnostic Features:

Form: Slender herbaceous perennial
Height: 15-30 cm
Leaves: Each plant has only one leaf which sheaths the stem at the base of the plant. Leaves are linear and grass-like.
Flowers: Each plant has 3-8 flowers, each 2-3 cm wide. Flowers are rose-pink to white in colour, and open in succession. Unlike most orchids, the lip grows from the top of the flower, and has many golden hairs on it.

Flowering Period: July

Habitat: Found in mature bogs in Nova Scotia, especially those that are near the sea; also in openings in peaty swamps or along lakeshores, and sometimes in wet, acidic roadside ditches

Range: Nova Scotia to Manitoba, south to Florida and Texas

Distribution: Common throughout the province, including Sable Island

Points of Interest: Although Grass-pink does not offer nectar to pollinators, it attracts bees by mimicking flowers that do.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Resembles Rose Pogonia, but the lip of Grass-pink forms from the uppermost petal, while the lip of Rose Pogonia forms from the lowermost petal.

Notes:

Grass-pink (*Calopogon tuberosus*). Grass-pink flower (inset). Note that the lip grows from the uppermost petal of the flower.

Common Name: Joe-pye-weed

Scientific Name: *Eupatorium dubium*

Family: Aster Family (Asteraceae)

Diagnostic Features:

Form: Tall herbaceous perennial plant
Height: Can be greater than 1 m tall
Stem: Finely spotted with purple
Leaves: Leaves are oval and occur in whorls of 3-7 leaves. They are abruptly contracted towards the leaf stalk and tapered at the tip. Three main veins run lengthwise along the leaf.
Flowers: Flowers are purple or pink, in long branching clusters of small heads, 6-8 cm wide. Each head has 5-12 individual flowers.
Other: Plant is often sticky, especially near the top

Flowering Period: August - September

Habitat: Rocky shores, swamps, and damp thickets

Range: Nova Scotia and Maine, south to South Carolina

Distribution: In Nova Scotia, known from the Tusket River Valley in Yarmouth County; scattered populations towards Lunenburg and Halifax Counties.

Points of Interest: Joe-pye-weed is named after a medicine man from New England known as Jopi.

Status: COSEWIC ranking: N/A
NSDNR ranking: Red
NSESA ranking: N/A

Similar Species: Very similar to *Eupatorium maculatum* which is much more common. *E. maculatum* is the taller of the two species, reaching up to 2m in height. *Eupatorium dubium* has shorter, proportionately wider leaves (oval, rather than lance-shaped), with three main veins running lengthwise along the leaf. Also, *E. dubium* has fewer flowers in each small flower cluster within the flowerhead than does *E. maculatum*.

Notes:

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Joe-pye-weed (*Eupatorium dubium*).

Common Name: Lance-leaved Violet

Scientific Name: *Viola lanceolata*

Family: Violet Family (Violaceae)

Diagnostic Features:

Form: Small perennial that spreads by thin runners
Leaves: All basal (arise from the base of the plant) in a dense clump. Smooth, narrow, lance-shaped leaves that taper towards the stalk. Leaves that arise in the summer are often much wider than those that arise in the spring (when the plant is in flower).
Flowers: White, solitary flowers that are 0.7 – 1 cm long and arise from the end of the stalk. Each flower has five petals, with the lowermost petal slightly larger than the others and veined with purple.

Flowering Period: May - July

Habitat: Low-lying wet habitats; at the edges of pools and lakes, bog shores, damp meadows

Range: Florida to Texas, north to Cape Breton, Quebec, and Minnesota; British Columbia

Distribution: Common in the southwestern half of the province, becoming less frequent eastward to Cumberland County and Cape Breton. Common on Sable Island.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Lance-leaved Violet is easily distinguished from other violets by its narrow, lance-like leaves. Other white violets have round or oval leaves.

Notes:

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Lance-leaved Violet (*Viola lanceolata*). Note lance-shaped leaves. The Lance-leaved Violet flower (lower left) is veined with purple.

Common Name: Long's Bulrush

Scientific Name: *Scirpus longii*

Family: Sedge Family (Cyperaceae)

Diagnostic Features:

Form: Tall, slow-growing perennial sedge that grows in noticeable circular colonies. Colonies are usually 0.75 - 5 m in diameter, but can be up to 10m across.
Height: Up to 1m
Stem: Sheathed by several leaves; thick underground stems connect plants in colonies.
Leaves: Leaves are usually bent over near the top and are very tough, with serrated edges that can cut the skin. Leaves are 0.75 – 1.5 cm wide, 60 – 80 cm long.
Flowers: Flowering is uncommon in Nova Scotia. Flowering stalks are tall shoots with a flowering head at the top. The flowering head consists of many small spikes that are wooly when they mature. There are bracts at the base of the flower cluster that are black and sticky on humid days.
Fruit: Each flower produces one tiny seed with a distinct reddish tint.

Flowering Period: June - July

Habitat: Peaty lakeshores, stillwater meadows, fens, small bogs

Range: Nova Scotia; Maine to New Jersey

Distribution: In Nova Scotia, known from nine locations in Queens, Shelburne, and Yarmouth Counties.

Points of Interest: Long's Bulrush is a very long-lived plant, with clones estimated to live for up to 400 years!

Status: COSEWIC ranking: Special Concern
NSDNR ranking: Red
NSESA ranking: Vulnerable

Long's Bulrush is globally recognized as being at high risk of extinction.

Similar Species: Long's Bulrush is similar in appearance to other bulrushes in the wool-grass group of species. *Scirpus cyperinus* and *Scirpus atrocinctus* are very common throughout the province. *Scirpus longii* can be distinguished by its flowering heads, which occur on individual stalks, not in clusters. Long's Bulrush has a sticky secretion at the base of the flowering head, and the seeds are a reddish colour; other bulrushes have gray or white seeds. Also, Long's Bulrush has thick underground stems and a circular growth pattern.

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Long's Bulrush (*Scirpus longii*) growing in water (upper right). Note circular growth pattern. Long's Bulrush flower (upper left). A semi-circular growth pattern is highlighted by a white line (lower).

Common Name: Marsh St. John's-wort

Scientific Name: *Triadenum virginicum*

Family: St. John's-wort Family (Clusiaceae)

Diagnostic Features:

Form: Unbranched, erect stem
Height: 30 – 45 cm
Stem: Simple, erect
Leaves: Wide, opposite leaves that are oblong to oval in shape; do not have a leaf stalk. Leaves appear at right angles from the leaf pair below them; have small glandular dots on them.
Flowers: Salmon-pink flowers are arranged in small clusters at the end of the stem. Each flower is about 1cm across and has five petals. Leafy bracts (***sepals***) encasing the flower are 5 – 7 mm long.
Other: The entire plant has a pinkish hue

Flowering Period: July - August

Habitat: Muddy shores, boggy lake margins, beaches, low-lying areas

Range: Florida to Mississippi, north to Nova Scotia, New York, and Indiana

Distribution: Common in the southwest of the province, east to Halifax county, and north to Cape Breton county

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Similar to *Triadenum fraseri*, but the leafy bracts (sepals) that encase the flower of Marsh St. John's-wort are long and lance-shaped, while those of *Triadenum fraseri* are shorter and elliptical. The sepals of Marsh St. John's-wort extend beyond the middle of the capsule, while the sepals of *T. fraseri* do not. Also, the style (the narrow extension at the tip of the female flower parts that receive the pollen) of Marsh St. John's-wort is longer than that of *Triadenum fraseri*.

Notes:

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Marsh St. John's-wort (*Triadenum virginicum*). Marsh St. John's-wort in flower (lower). Note pinkish hue of the entire plant.

Common Name: New Jersey Rush

Scientific Name: *Juncus caesariensis*

Family: Rush Family (Juncaceae)

Diagnostic Features:

Form: Grass-like perennial
Height: 40-70 cm
Stem: Hollow, unbranched, rough to the touch
Leaves: Elongated and cylindrical; rough to the touch
Flowers: Flowering heads are branching, and are broadest towards the base and narrow at the tip. The flowers at the tip of each branch bloom first. Flowers are small, green, and found in scattered clusters.
Fruit: Tiny, dust-like seeds occur in huge numbers inside each sharp-pointed, dark capsule.

Flowering Period: July - August

Habitat: Bogs and fens

Range: New Jersey and Maryland to Virginia; Nova Scotia

Distribution: In Nova Scotia, found only in Richmond and Cape Breton Counties fairly near the Atlantic Coast

Points of Interest: New Jersey Rush was thought to be locally extinct in Nova Scotia, but was rediscovered in 1989.

Status: COSEWIC ranking: Special Concern
NSDNR ranking: Red
NSESA ranking: Vulnerable

New Jersey Rush is globally recognized as being at high risk of extinction.

Similar Species: New Jersey Rush is similar in appearance to the other rushes found in the province, but can be distinguished by the rough texture of the stem and leaves. Other species generally have smooth leaves.

Notes:

New Jersey Rush (*Juncus caesariensis*). Arrows (lower) indicate the plant in its habitat.

Common Name: Pink Tickseed

Scientific Name: *Coreopsis rosea*

Family: Daisy Family (Asteraceae)

Diagnostic Features:

Form: Slender, erect, perennial herb
Height: 20 – 60 cm
Leaves: Smooth, grass-like, opposite leaves that are long and thin with parallel sides.
Flowers: Pink (rarely white) daisy-like flowers with a yellow centre. Each flower is about 2 cm in diameter with 4–8 rays. Flower heads usually solitary on short, slender stems.

Flowering Period: late July - August

Habitat: Sandy or cobble beaches; wet shores; margins of lakes and streams

Range: Nova Scotia and Massachusetts, south to New Jersey

Distribution: In Nova Scotia, known only from the shores of three lakes, all in the Tusket River Valley in Yarmouth County

Points of Interest: The plant gets its scientific name from the Greek word *koris*, meaning bedbugs, because its seeds look like bedbugs.

Status: COSEWIC ranking: Endangered
NSDNR ranking: Red
NSESA ranking: Endangered

Similar Species: Pink Tickseed bears a superficial resemblance to another rare coastal plain plant, Plymouth Gentian. Both are small and have a pink flower with a yellow centre. Gentian has wider petals that gradually grade to yellow at the centre, while the flowers of Pink Tickseed are daisy-like.

Pink Tickseed is globally recognized as being at moderate risk of extinction.

Notes:

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Coreopsis vs Gentian

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Pink Tickseed (*Coreopsis rosea*) in flower (upper). The small buds on the left are Pink Tickseed flowers that have not yet bloomed. A comparison (lower left) of Plymouth Gentian (left) and Pink Tickseed (right). The Plymouth Gentian has wider petals that gradually grade to yellow at the centre, while the Pink Tickseed has slender, daisy-like, pale pink petals. Pink Tickseed flower with insects on it (lower right).

Common Name: Plymouth Gentian

Scientific Name: *Sabatia kennedyana*

Family: Gentian Family (Gentianaceae)

Diagnostic Features:

Form: Small herbaceous perennial
Height: 30-50 cm in height
Stem: Single stem, which branches into as many as four stems near the top of the plant, each bearing a single flower.
Leaves: Narrow lance-shaped leaves that are paired along the stem. Some plants do not produce a flowering stem each year, and have only basal leaves (leaves arising from the base of the plant).
Flowers: Pink, grading to yellow towards the centre. Individual flowers grow at the end of long stalks.
Fruit: Cylindrical capsules 7-11 mm in length

Flowering Period: mid-July to mid-September

Habitat: Cobble or sand beaches, and peaty margins of lakes and rivers; bogs

Range: Southwestern Nova Scotia; eastern Massachusetts and Rhode Island

Distribution: In Nova Scotia, known only from the Tusket River Valley in Yarmouth County

Points of Interest: Nova Scotia is home to Canada's only populations of Plymouth Gentian. The plant can take up to three years to flower.

Status: COSEWIC: Threatened
NSDNR: Red
NSESA: Endangered

Similar Species: Plymouth Gentian bears a resemblance to another rare coastal plain plant, Pink Tickseed. Both are small and have a pink flower with a yellow centre. Gentian has wider petals that gradually grade to yellow at the centre, while the flowers of Pink Tickseed are daisy-like.

Plymouth Gentian is globally recognized as being at moderate risk of extinction.

Notes:

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Plymouth Gentian (*Sabatia kennedyana*). Plant with only basal leaves, no stem (upper left). Plymouth Gentian flowers (upper right) and habitat (lower).

Common Name: Poison-Ivy

Scientific Name: *Toxicodendron radicans*

Family: Cashew Family (Anacardiaceae)

Diagnostic Features:

Form: Can occur as a climbing vine, or can be bushy and erect
Height: This species grows as a vine that is typically long and trailing along the ground, but can also climb high into trees. It will also grow as a woody shrub up to about 3 m high, but this is not common in Nova Scotia.
Leaves: Oval and mostly flat; margins may be serrated in sections, or may be smooth; occur in threes. The topmost leaf in a group of three has a long petiole, while the other two have short petioles.
Flowers: Tiny and green; grow in small, branching clusters; difficult to see
Fruit: Gray or whitish

Flowering Period: Late June – early July

Habitat: Low-lying areas, damp thickets, lake shores, along streams

Range: Nova Scotia and southern New Hampshire to Florida and eastern Texas

Distribution: Common in the southwest of the province, becoming rarer in the east.

Points of Interest: All parts of the plant are very poisonous to the touch in all seasons.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Similar to Western Poison Ivy (*Toxicodendron rydbergii*). The leaves of Western Poison Ivy are broader, and the leaves are serrated around the entire margin, while the leaves of Poison-Ivy are only serrated in some areas or not at all. Western Poison Ivy always grows as a low shrub (typically about 40cm high), although it can appear herbaceous in some situations.

Notes:

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Poison-Ivy (*Toxicodendron radicans*). The leaves always occur in threes.

Common Name: Redroot

Scientific Name: *Lachnanthes caroliana*

Family: Bloodwort Family (Haemodoraceae)

Diagnostic Features:

Form: Unbranched perennial herb
Height: 30 – 50 cm
Stem: Pale green, covered in pale yellow hairs.
Leaves: Many plants do not flower every year, so must be identified by their leaves. Leaves are long and thin with parallel sides and are gradually reduced in length towards the top of the plant. Leaves closely resemble iris leaves, but have a distinct greenish-yellow tinge.
Flowers: Flowers are dull yellow and are found in a dense, branching cluster of 10 – 40 flowers at the top of the stem. The flower cluster is covered in pale yellow hairs.

Flowering Period: July - September

Habitat: Peaty shores and lakeside marshes, bogs and fens; also sandy, gravelly, and cobble lakeshores

Range: Nova Scotia and Massachusetts; south near the coast to Florida, Louisiana, and Cuba

Distribution: In Nova Scotia, known only from the shores of six lakes in Queens County: Ponhook, Little Ponhook, Molega, Cameron, Beartrap and Hog Lakes.

Points of Interest: Redroot gets its name from its slender roots, which are blood-red in colour due to a red pigment in the sap.

Status: COSEWIC ranking: Threatened
NSDNR ranking: Red
NSESA ranking: Threatened

Notes:

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Redroot (*Lachnanthes caroliana*). Typical Redroot habitat (upper), flower and leaves (lower). Note greenish-yellow tinge to the leaves (white arrows, lower right).

Common Name: Sundew (Spoon, Spatulate, or Narrow-leaved Sundew)

Scientific Name: *Drosera intermedia*

Family: Sundew Family (Droseraceae)

Diagnostic Features:

Form: Herbaceous perennial
Leaves: Reddish, club-shaped leaves are longer than wide. Leaves arise from the base of the plant and are only slightly ascending. They are covered with long, glandular hairs that are tipped with a clear secretion.
Leaf Stalk: Smooth
Flowers: Small and white; open only in sunshine. Occur on long stalks, with several flowers on each stalk. Stalk is coiled at first, but uncoils as flowers expand; flowers open sequentially.

Flowering Period: July – August

Habitat: Wet depressions within peatlands, and sandy, gravelly or peaty lake and river shores

Range: Newfoundland, south to Florida and Texas; British Columbia; Eurasia

Distribution: Common throughout Nova Scotia, especially abundant on lakeshores in the southwest of the province.

Points of Interest: Sundews are insectivorous plants, capturing insects using the sticky secretions on their leaves. When an insect becomes trapped, the leaf curls around the insect, and enzymes break it down into nutrients that the plant can use.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Similar to Round-leaved Sundew, but the leaves of Spoon-leaved Sundew are longer than they are wide, while the leaves of Round-leaved Sundew are wider than they are long.

Notes:

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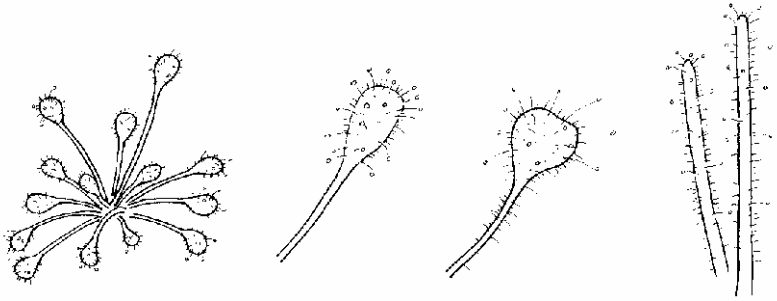

Habit Sketch Spoon-leaved Round-leaved Thread-leaved

Spoon-leaved Sundew (*Drosera intermedia*). The leaves are covered in glandular hairs. Drawings of typical habit of the Sundew (lower left) and a comparison of the leaves of the three Sundew species found in Nova Scotia (lower right). Note long sticky glandular hairs on the leaves of all three species.

Common Name: Sundew (Thread-leaved)

Scientific Name: *Drosera filiformis*

Family: Sundew family (Droseraceae)

Diagnostic Features:

Form: Small perennial herb that grows in colonies
Height: 15 – 25 cm
Leaves: Long, erect, threadlike leaves with parallel sides. Leaves are about as tall as the flowering stem, arising from the base of the plant. They are covered in reddish hairs that secrete a sticky fluid.
Flowers: Small, purple flowers with yellow centers and five petals. Flowers are on a separate leafless stalk. As many as 15 flowers on one stalk, but open only 1-2 at a time, starting at the base of the plant.

Flowering Period: mid July – late August

Habitat: In Nova Scotia, the Thread-leaved Sundew grows only in raised bogs where soil is acidic and infertile.

Range: Nova Scotia; Massachusetts south to Florida and Louisiana

Distribution: In Canada, known only in four bogs in Nova Scotia, all of which are in Shelburne County.

Points of Interest: Sundews are insectivorous plants, capturing insects using the sticky secretions on their leaves. When an insect becomes trapped, the leaf curls around the insect, and enzymes break it down into nutrients that the plant can use.

Status: COSEWIC ranking: Endangered
NSDNR ranking: Red
NSESA ranking: Endangered

Similar Species: There are two other species of sundew found in N.S., but the Thread-leaved Sundew can be distinguished by its long, slender, erect leaves. In comparison, the other species of sundew have roundish leaves, which are not erect. For a comparison of sundew leaves, see Spoon-leaved Sundew, page 50-51.

Notes:

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Thread-leaved Sundew (*Drosera filiformis*) in flower. The long, slender leaves are covered in glandular hairs. Diagrammatic sketch of Thread-leaved Sundew leaves (left) and flowers (right).

Common Name: Swamp Rose

Scientific Name: *Rosa palustris*

Family: Rose Family (Rosaceae)

Diagnostic Features:

Form: Solid, very branched shrub
Height: Up to 2m
Stem: Has thick thorns which are usually hooked
Leaves: Leaves are oval-shaped and shallowly serrated with fine hairs on the bottom side; leaf has a thick appendage at the base, where it connects to the stem. There are normally seven leaflets on each branch.
Flowers: Pink with yellow centre; five petals; usually solitary, but sometimes in groups 4-5 cm wide
Fruit: Hips are red; about 1 cm thick; smooth or covered with tiny hairs

Flowering Period: July

Habitat: Wet ground, lake shores, swamps; most commonly on rocky or peaty lakeshores

Range: Southern Nova Scotia

Distribution: Yarmouth County east to Hants County

Points of Interest: Distribution of Swamp Rose is perhaps less completely known than some other species in this guide because it has not been well-studied in the area.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Swamp Rose can be distinguished from other rose species by its very finely toothed leaflets which are softly hairy on the underside and tend to be comparatively narrow. The narrow ***stipules*** (leafy flanges at the base of the leaf stalk) which are barely wider than the leaf stalk at their base are also distinctive.

Notes:

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Swamp Rose (*Rosa palustris*). Swamp Rose hips (upper right). Swamp Rose flower (lower).

Common Name: Sweet Pepperbush

Scientific Name: *Clethra alnifolia*

Family: White Alder Family (Clethraceae)

Diagnostic Features:

Form: Deciduous woody shrub
Height: 1-2 m
Leaves: Shiny, alternate leaves with toothed margins. Leaves are oval or oblong in shape and 7-15 cm in length.
Leaf stalk: 1-2 cm long and slightly hairy.
Flowers: Flowers are white with five petals, each about 8mm long. Very fragrant and develop in clusters along the end of a short stalk.

Flowering Period: September – mid-October

Habitat: Lake margins, swamps, damp thickets, and sandy woods

Range: Nova Scotia to Florida and Texas

Distribution: Belliveau Lake in Digby County; Canoe Lake and Louis Lake in Yarmouth County; Mill Lake, Mudflat Lake and Pretty Mary Lake in Annapolis County.

Points of Interest: Nova Scotia is home to Canada's only population of Sweet Pepperbush. In Canada, Sweet Pepperbush reproduces mainly by vegetative means (growth of suckers), but recent evidence suggests that seed production may occur occasionally.

Status: COSEWIC ranking: Special Concern
NSDNR ranking: Red
NSESA ranking: Vulnerable

Similar Species: When not in bloom, may be mistaken for Canada Holly. Sweet Pepperbush has shiny leaves, while Canada Holly does not.

Notes:

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Sweet Pepperbush (*Clethra alnifolia*). Sweet Pepperbush flowering stalk (lower left). Leaves (lower right).

Common Name: Tubercled Spikerush

Scientific Name: *Eleocharis tuberculosa*

Family: Sedge Family (Cyperaceae)

Diagnostic Features:

Form: Grass-like plant that grows in dense clumps
Height: 10 – 40 cm
Stem: Stiff, erect
Leaves: Reduced to the base of the plant; wrap around the stem forming a cylinder.
Flowers: Individual flowers are tiny, but are grouped into an oval spike at the top of the stem, about 1 cm long; spikes are covered in brown scales.
Fruit: A small, hard seed having a relatively large cap-like structure (***tubercle***) on top.

Flowering Period: August

Habitat: Sandy or boggy lake shores, gravel bars, on the edges of peaty wetlands

Range: Nova Scotia, south to Florida and Texas, as far inland as Alabama and Tennessee

Distribution: In Nova Scotia, found only on five lakes in Shelburne and Yarmouth counties

Points of Interest: In Canada, the only population of Tubercled Spikerush occurs in Nova Scotia.

Status: COSEWIC ranking: Threatened
NSDNR ranking: Red
NSESA ranking: N/A

Similar Species: There are 12 species of spikerushes in Nova Scotia, which are fairly similar in appearance. Tubercled Spikerush is distinguished by the large cap-like structure (tubercle) on top of the seed (***achene***), which can be larger than the seed itself. Other species have a much smaller tubercle on top of the fruit.

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Tubercled Spikerush (*Eleocharis tuberculosa*). The oval spike at the top of the stem carries the flowers.

Common Name: Virginia Meadow-Beauty

Scientific Name: *Rhexia virginica*

Family: Melastome Family (Melastomataceae)

Diagnostic Features:

Form: Unbranched perennial herb
Height: 30 – 60cm
Stem: Smooth or sparsely hairy
Leaves: Arranged in pairs on opposite sides of the stem. Leaves are egg-shaped or oval, rounded at the base; hugging the stem. They are serrated and strongly ribbed, with distinctive venation; have coarse hairs. Two very small leaves mark the base of the flower stem.
Flowers: Deep pink with four petals; have eight large yellow stamens and a pistil that protrudes from the centre of the flower. There are one or more flowers per plant.

Flowering Period: July - August

Habitat: Peaty lake margins, or wet thickets or bogs

Range: Nova Scotia and Maine to southern Ontario, south to Georgia and Alabama

Distribution: Locally fairly common on lakeshores in southwestern counties, becoming rarer in Annapolis County and east nearly to Bridgewater.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Notes:

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Virginia Meadow-beauty (*Rhexia virginica*). Note the stamens and pistil protruding conspicuously from the flower.

Common Name: Water Pennywort

Scientific Name: *Hydrocotyle umbellata*

Family: Carrot Family (Apiaceae)

Diagnostic Features:

Form: Small, creeping, herbaceous perennial
Stem: Slender, creeps along the ground
Leaves: Round or kidney-shaped, on long petioles, which are attached at the centre of the leaf. Leaves may be erect or floating. Those occurring above water are about 1 cm across, while leaves occurring below water are about 3 cm across.
Flowers: Does not flower regularly, but when it does, it produces a small cluster of white flowers, arranged in an umbrella shape.

Flowering Period: July – September (does not flower regularly)

Habitat: Lake shorelines that have sand or gravel substrate; occurs in a narrow band along the waterline

Range: Florida to Texas, north to Massachusetts and southwestern Nova Scotia; Oregon; Mexico; tropical America

Distribution: In Nova Scotia, known only from one lake in Yarmouth County and two lakes in Queens County.

Points of Interest: Nova Scotia is home to Canada's only population of Water Pennywort.

Status: COSEWIC ranking: Threatened
NSDNR ranking: Red
NSESA ranking: Endangered

Similar Species: Similar to *Hydrocotyle americana*, which has a creeping form, rather than erect, and has more leaves than *Hydrocotyle umbellata*.

Notes:

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Water Pennywort (*Hydrocotyle umbellate*). In water (upper left) and with leaf litter (lower left). Note that the leaf stems attach at the centre of the leaf.

Common Name: White Fringed Orchid

Scientific Name: *Platanthera blephariglottis*

Family: Orchid Family (Orchidaceae)

Diagnostic Features:

Form: Upright perennial herb
Height: 20 – 50cm
Leaves: Several lance-shaped leaves on each plant. Leaves have a sharp ridge, and upper leaves are gradually reduced to very small leaves near the top. Leaves sheath the stem at the base of the plant.
Flowers: Flowers are pure white and fragrant. The lowermost petal is undivided and finely fringed along the sides; there is a long spur behind the lowermost lip. There are 20-30 flowers per plant which together form an oval-shaped flowering head about 5cm tall.

Flowering Period: July - August

Habitat: Bogs, peaty hollows, dry barrens

Range: Newfoundland to Ontario, south to Florida and Mississippi

Distribution: Abundant in Yarmouth and Shelburne Counties; less frequent and more restricted to the margins of bogs throughout the rest of the mainland; often found in mature bogs in Cape Breton

Points of Interest: One of the most attractive native orchids in the province.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Notes:

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White Fringed Orchid (*Platanthera blephariglottis*). The lowermost petal is finely fringed and there is a spur behind it.

Common Name: Yellow-Eyed Grass

Scientific Name: *Xyris difformis*

Family: Yellow-Eyed Grass Family (Xyridaceae)

Diagnostic Features:

Form: Unbranched, grass-like perennial herb
Height: Up to 50 cm
Leaves: Grass-like, stiff and erect leaves that reach above the middle of the flower stalk; arise from the base of the plant.
Flowers: Small, yellow flowers, each with three petals. Flower heads are often wider than they are long, and have a square-shaped base. The base of the flower heads is straw-coloured and scaly in appearance.

Flowering Period: July – early September

Habitat: Sandy and peaty lakeshores, peaty barrens

Range: Florida and Texas, north to central Maine, Ontario, and Nova Scotia

Distribution: Common in the southwest of the province, scattered towards Kings and Halifax counties.

Status: COSEWIC ranking: N/A
NSDNR ranking: Green
NSESA ranking: N/A

Similar Species: Similar in appearance to *Xyris montana*, which grows up to 20 cm tall, but *Xyris difformis* is much larger, growing up to 50 cm tall. *Xyris difformis* has wider leaves and a broader flower head. The flowering head of *Xyris montana* is oval and tapers at the base, while the flowering head of *Xyris difformis* is broader and more rounded at the base. The scales on the flowering head of *Xyris Montana* are dull brown, while those of *Xyris difformis* are straw-coloured with a greenish centre.

Notes:

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Yellow-eyed Grass (*Xyris difformis*). Each flower has three petals (left). Note that the plant in the above picture (right) is unusual in that the leaves do not reach above the middle of the plant, as is usually the case for yellow-eyed grass.

Common Name: Blanding's Turtle

Scientific Name: *Emydoidea blandingii*

Family: Emydidae

Description:

Blanding's Turtles have a smooth, high, dome-shaped upper shell that is grayish black in colour with grayish-yellow speckles. The lower shell is yellow with black patches around the outer edges. Head and neck are dark on the upper surface, and bright yellow on the chin and throat. Limbs and tail are black with yellow undersides. Shell length ranges between 15 and 25 cm for adults. Each section of the shell (upper and lower) has growth rings, which are added each year until maturity. These are most prominent on young turtles, and can be used to age the turtle.

Habitat:

Blanding's Turtles live in freshwater wetlands and are usually found in shallow, vegetated coves, stillwater brooks, marshes, wet meadows and bogs. Often seen basking on moss and grass hummocks, they are most commonly seen during nesting season when females venture on land to seek nest sites.

Natural History:

Blanding's Turtles feed mainly while in the water. They eat a variety of animal matter, including aquatic insects and snails, tadpoles, leeches and small fish, and also carrion and vegetation.

During the winter, Blanding's Turtles hibernate underwater. They emerge in the spring, and mating generally occurs in early spring and fall. Nesting takes place from early June to early July. Blanding's Turtles mature between 18 and 24 years of age, at which time they are able to reproduce. Mature females will travel considerable distances to find a suitable nesting site. Nesting occurs in a variety of habitats including gravel and cobble beaches on lakeshores, gravel roadsides, old gravel pits, and rocky outcrop crevices. Females lay on average 7-10 eggs per nest. The hatchlings emerge from the nest in September or October. Blanding's Turtles can live to be over 75 years old.

Range: In Canada, Blanding's Turtles occur only in southwestern Nova Scotia, southern Ontario and Quebec. In the United States, the main range is south of the Great Lakes, with isolated populations in New England.

Distribution: In Nova Scotia, Blanding's Turtles are found only in three small, isolated populations in the southwestern interior, mainly on the Medway and Mersey River watersheds. These populations are genetically distinct from populations elsewhere in North America.

Points of Interest: The entire Blanding's Turtle population in Nova Scotia is estimated to consist of fewer than 300 adult individuals.

Status: COSEWIC ranking: Endangered
NSDNR ranking: Red
NSESA ranking: Endangered

Similar Species: Three other species of turtles occur in Nova Scotia. Painted turtles have smooth but flat shells, bright yellow stripes on the head, neck, tail and legs and red on the outer shell. Wood turtles have roughly sculptured shells with bright orange on the underside of the neck and legs. Snapping turtles are drably coloured with large heads and long spiked tails.

Blanding's Turtle (*Emydoidea blandingii*). Note the high, dome-shaped shell and the grayish-yellow speckles (upper). Bottom shell of a Blanding's Turtle (lower).

Common Name: Eastern Ribbon Snake

Scientific Name: *Thamnophis sauritus septentrionalis*

Family: Colubridae

Description:

Eastern Ribbon Snakes are slender snakes that can grow up to 65 cm long. Body is dark brown to black in colour, with distinctive yellow stripes that run down the middle and along each side. A dark caramel-brown stripe runs beneath the yellow stripes on the sides. Males are typically smaller than females.

Habitat:

The preferred habitat of the Eastern Ribbon Snake is boggy or grassy areas on the shores of quiet ponds, streams, or lakes. They can be found both in the water and on land, generally near the water's edge.

Natural History:

Eastern Ribbon Snakes hibernate underground during the winter and emerge in the spring. They are active during the day, and eat frogs, newts, insects, and small fish. The young are born alive, with up to ten young per litter.

Range: In Canada, Eastern Ribbon Snakes occur only in southern Ontario and southwestern Nova Scotia. In the United States, they occur in Maine, west to Vermont, and southwest to New York, Indiana and Illinois

Distribution: In Nova Scotia, Eastern Ribbon Snakes occur mainly in Queens and Lunenburg Counties.

Points of Interest: The Eastern Ribbon Snake found in Nova Scotia is actually a subspecies known as the Northern Ribbon Snake. Very little is known about this snake in Nova Scotia. The population is cut off from other populations, so it may be genetically distinct.

Status: COSEWIC ranking: Threatened
NSDNR ranking: Yellow
NSESA ranking: Threatened

Similar Species: Eastern Ribbon Snakes bear a resemblance to Garter Snakes, but Eastern Ribbon Snakes can be distinguished by their three bright parallel yellow stripes and a small vertical white line in front of each eye.

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Eastern Ribbon Snake (*Thamnophis sauritus*). Note the distinctive yellow stripes along the top and sides of the body. A caramel-brown stripe runs below the yellow stripe on the side.

Sources of Plant Images

We are grateful to all who supplied the images that are reproduced here. Their names and affiliations are listed below. Numbers are those shown on the images.

1=Nova Scotia Nature Trust
2=Ruth Newell – Acadia University
3=Atlantic Coastal Plain Recovery Team
(www.speciesatrisk.ca/coastalplainflora/)
4=Jennifer Lusk and Eric Kershaw – Acadia University
5=Charlotte Keen - O Beautiful Gaia Project
6=Charles Cron – Nova Scotia Wild Flora Society
7=Pat Kipping – O Beautiful Gaia Project
8=Connecticut Botanical Society (www.ct-botanical-society.org/galleries/)
9=Jeffie McNeil - Acadia University
10=Tom Herman - Acadia University
11=Nova Scotia Museum, Collections (Alex Wilson)

Sources Used

Atlantic Coastal Plain Flora Recovery Team. (2004). *Nova Scotia's coastal plain flora: conservation and recovery*. Retrieved September 28, 2005 from http://www.speciesatrisk.ca/coastalplainflora/index.html.

Connecticut Botanical Society. (2004). *Connecticut ferns*. Retrieved June 24, 2005 from http://www.ct-botanical-society.org/ferns/woodwardiaareo.html.

Environment Canada. (2003). *Species at risk*. Retrieved June 24, 2005 from http://www.speciesatrisk.gc.ca.

Gilhen, J. (1984). *Amphibians and reptiles of Nova Scotia*. Halifax, Nova Scotia: The Nova Scotia Museum.

Government of Canada. (2005). *Species at Risk Act: Public registry*. Retrieved June 24, 2005 from http://www.sararegistry.gc.ca.

Ho, J. (2000). *Long's Bulrush*. Retrieved June 24, 2005 from http://www.biology.mcgill.ca/undergra/c465a/biodiver/2000/longs-bulrush/longs-bulrush.htm.

Illinois State Museum. (2002). *Forests of Illinois*. Retrieved June 24, 2005 from http://www.museum.state.il.us/muslink/forest/.

Kentucky Nature Preserves Commission. (2003). *Kentucky rare plant database*. Retrieved June 24, 2005 from http://nrepcapps.ky.gov/NPRarePlants/index.aspx.

Natural Resources Canada. (2005). *New Brunswick tree & shrub species of concern: a field guide*. Retrieved June 24, 2005 from http://www.atl.cfs.nrcan.gc.ca/index-e/what-e/publications-e/afcpublications-e/mx212-e/index-e.html.

Newcomb, L. (1977). *Newcomb's wildflower guide*. Toronto: Little, Brown and Company.

Nova Scotia Museum (2000). *Nova Scotia snakes*. Retrieved June 24, 2005 from http://museum.gov.ns.ca/mnh/nature/snakes/ribbon.htm.

Nova Scotia Museum. (2000). *Nova Scotia turtles*. Retrieved June 24, 2005 from http://museum.gov.ns.ca/mnh/nature/turtles/bland.htm.

Orchid Society of Royal Botanical Gardens. *Native orchids of Canada*. Retrieved June 24, 2005 from http://www.osrbg.ca/orchid_native.html.

Parks Canada. *Species at risk: Blanding's Turtle*. (2005). Retrieved September 28, 2005 from http://www.pc.gc.ca/nature/eep-sar/itm3-/eep-sar3b_e.asp.

Peterson, R.T. and McKenny, M. (1968). *A field guide to wildflowers of Northestern and North-central North America*. New York: Houghton Mifflin Company.

Primrose, M. and Zinck, M. (1998). *Wildflowers of Nova Scotia, New Brunswick and Prince Edward Island*. Halifax: Formac Publishing Company Limited.

Rhode Island Wild Plant Society. (2005). *Rhode Island Wild Plant Society: Plant library*. Retrieved June 24, 2005 from http://www.riwps.org/PlantLibrary/plantLibrary.htm.

Virginia Tech Forestry Department. (2005). *Buttonbush*. Retrieved June 24, 2005 from http://www.fw.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=179.

Wellesley College. (2004). *Web of species*. Retreived June 24, 2005 from http://www.wellesley.edu/Biology/Web/.

Zinck, M. (1998). *Roland's flora of Nova Scotia*. Nova Scotia: Nimbus Publishing and The Nova Scotia Museum.

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