



STATE OF MAINE  
DEPARTMENT OF CONSERVATION  
93 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0093

JOHN ELIAS BALDACCI  
GOVERNOR

ELIZA TOWNSEND  
COMMISSIONER

March 16, 2010

Victoria Rutson  
Section of Environmental Analysis  
Surface Transportation Board  
395 E Street S.W., Room 1110  
Washington DC 20423

Re: Rare and exemplary botanical features in proximity to: Montreal, Maine & Atlantic Railway Ltd.,  
Proposed Rail Abandonment in Penobscot and Aroostook Counties, Maine, Preliminary Draft  
Environmental Assessment

Dear Ms. Rutson:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of February 5, 2010 for information on the presence of rare or unique botanical features documented from the vicinity of the five rail line segments in Penobscot and Aroostook Counties, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to our information, there are 15 rare or exemplary natural communities and 67 populations of rare plant species within 250 meters of the segments of rail corridor proposed for salvage and abandonment. Our concern for impacts to these features is 1) that salvage of ties and rails may physically impact the rare plant populations, and 2) that abandonment of the rail bed may lead to changes in hydrology in places where small culverts may be blocked by beaver activity or some other mechanism. Each of the 15 natural communities and 67 populations of rare plant species were evaluated based on these two types of potential impacts and the majority were considered to be of no likely impact. Two sites, each with multiple features, were identified where impacts are more likely. The two sites are Little Crystal Fen in the towns of Crystal and Sherman, and along the Aroostook River in the town of Caribou (see Tables 1 and 2 for a list of features at the two sites).

The concern at Little Crystal Fen (see map) is in regards to both the potential for physical impacts to the rare plant populations during the salvage operation, and for potential changes in hydrology at the small culvert under the line that drains the fen. Physical impacts to the rare plant populations should be avoidable if salvage operations are conducted in such a way as to not disturb any of the vegetation immediately adjacent to the rail bed. Avoiding impacts to hydrology at this site can be accomplished by giving The Nature Conservancy (the adjacent landowner on both sides of the line) the right to manage the culvert. As we understand it, The Nature Conservancy has worked cooperatively with the line owner on this issue in the past.

The concern at the Aroostook River in Caribou (see map) is in regards to the potential for physical impacts to rare plant populations during the salvage operation. Some of the rare plants at this site occur on the margin of the rail bed and in the immediately adjacent woods. Physical impacts to rare plant populations should be avoidable if salvage operations are conducted in such a way as to not disturb any of the vegetation immediately adjacent to the rail bed.

To ensure avoidance of physical impacts to rare plant populations at these two sites, we strongly recommend that either the Maine Natural Areas Program or a qualified botanical consultant flag the sensitive areas prior to the salvage operation. If a consultant is used to flag the sensitive areas at these sites, we recommend that the consultant flag the areas during a time in the growing season when the rare plants can be identified.

The tables below provide information on the natural communities and rare plants in terms of global rarity rank, state rarity rank, and element occurrence rank (see attached explanation of ranks). The element occurrence rank is a system used to rank the overall quality (i.e. condition, landscape context and size) of a natural community or rare plant occurrence.

Table 1. Rare plant species and rare or exemplary natural communities occurring at Little Crystal Fen in the towns of Crystal and Sherman.

Scientific Name	Common Name	Global Rarity Rank	State Rarity Rank	State Protection Status	Element Occurrence Rank
<i>Betula pumila</i>	Swamp Birch	G5	S2S3	SC	A and H
<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	New England Northern Reed Grass	G5T5	S1	E	CD
<i>Carex gynocrates</i>	Northern Bog Sedge	G5	S2	SC	C
<i>Carex livida</i> var. <i>radicaulis</i>	Livid Sedge	G5T5	S2	SC	H
<i>Carex tenuiflora</i>	Sparse-flowered Sedge	G5	S3	SC	A
<i>Cypripedium reginae</i>	Showy Lady's-slipper	G4	S3	T	E
<i>Drosera anglica</i>	English Sundew	G5	S1	E	H
<i>Lonicera oblongifolia</i>	Swamp Fly-honeysuckle	G4	S3	SC	A
<i>Platanthera leucophaea</i>	Prairie White-fringed Orchid	G3	S1	E	C
<i>Valeriana uliginosa</i>	Marsh Valerian	G4Q	S2	SC	E
Shrubby cinquefoil - sedge circumneutral fen	Circumneutral Fen	G2G3	S2		B
Appalachian - acadian basin swamp ecosystem	Appalachian - Acadian Basin Swamp Ecosystem	GNR	S4		B

Table 2. Rare plant species occurring at the Aroostook River in the town of Caribou.

Scientific Name	Common Name	Global Rarity Rank	State Rarity Rank	State Protection Status	Element Occurrence Rank
<i>Asarum canadense</i>	Wild Ginger	G5	S1S2	T	BC

<i>Astragalus alpinus</i> var. <i>brunetianus</i>	Alpine Milk-vetch	G5T3	S3	SC	BC
<i>Polygala senega</i>	Seneca Snakeroot	G4G5	S1	T	BC
<i>Prenanthes racemosa</i>	Glaucous Rattlesnake Root	G5	S3	SC	C
<i>Symphotrichum anticostense</i>	Anticosti Aster	G3	S1	E	BC
<i>Thalictrum venulosum</i>	Boundary Meadow-rue	G5	S1	SC	E
<i>Triosteum aurantiacum</i>	Wild Coffee	G5	S1	E	BC

The enclosed fact sheets provide more information about the plant species and natural communities occurring at the two locations. If you would like more information on the natural communities or rare plant, or would like to schedule a field visit to this area, please contact MNAP ecologist Don Cameron at 287-8041.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$255.00 for our services.

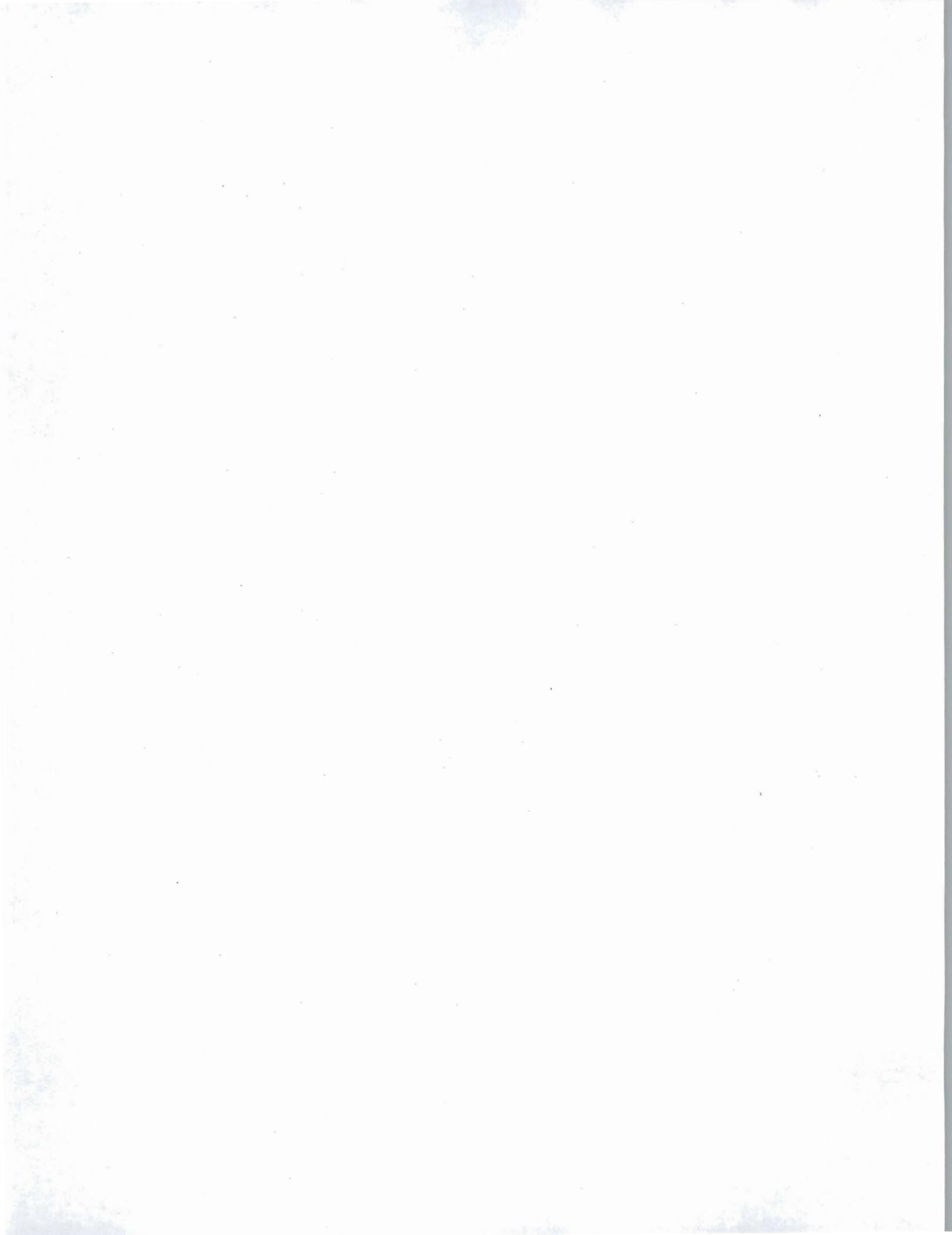
Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Sarah Demers  
Environmental Review Coordinator  
Maine Natural Areas Program  
207-287-8670  
[sarah.demers@maine.gov](mailto:sarah.demers@maine.gov)

Enclosures



### STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

**Note:** State Rarity Ranks are determined by the Maine Natural Areas Program.

### GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

**Note:** Global Ranks are determined by NatureServe.

### STATE LEGAL STATUS

**Note:** State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

### NON-LEGAL STATUS

- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

## ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

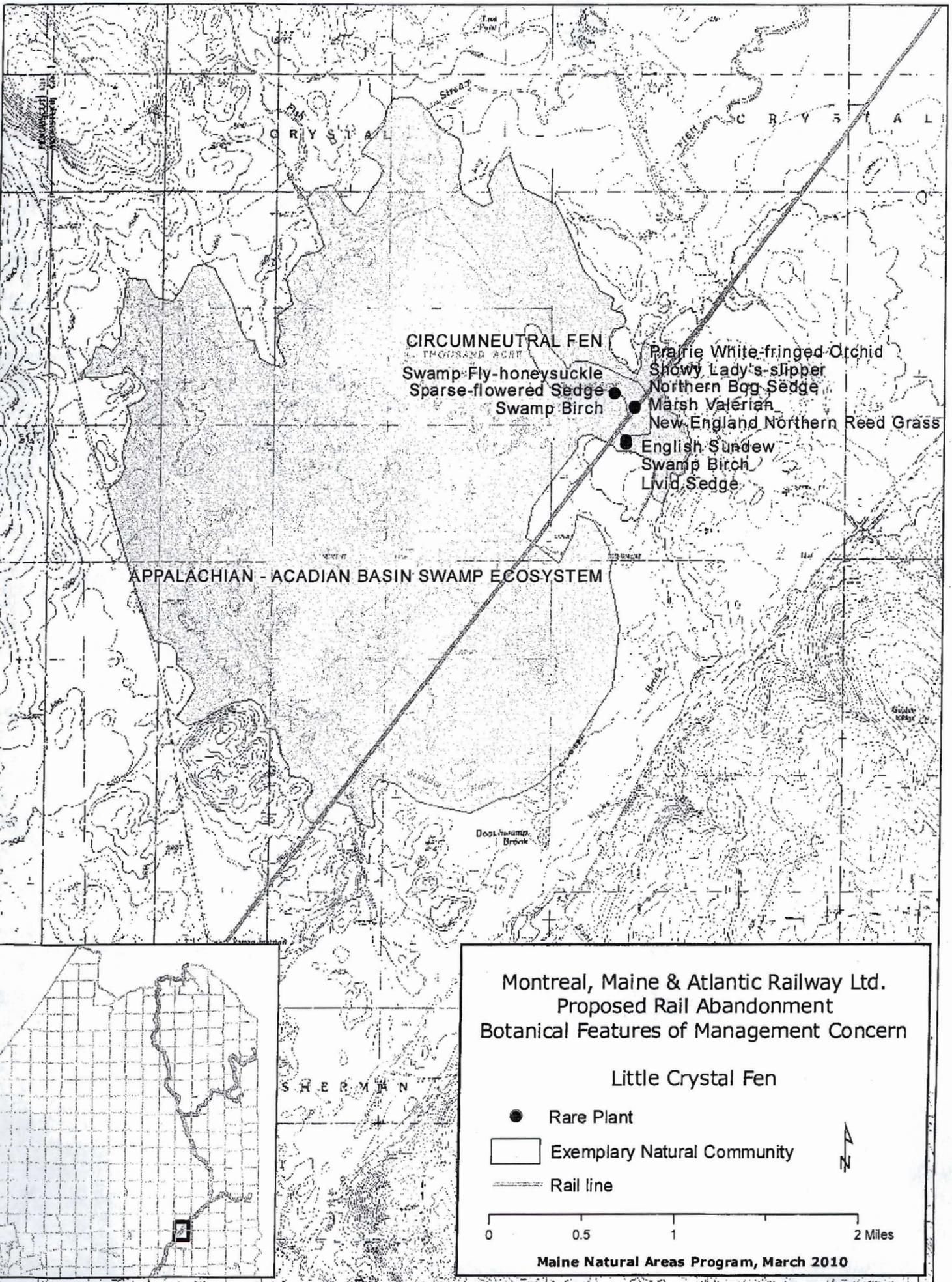
- **Size:** Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition:** For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context:** Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A, B, C, or D**, where **A** indicates an excellent example of the community or population and **D** indicates a poor example of the community or population. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

**Note:** Element Occurrence Ranks are determined by the Maine Natural Areas Program.

Visit our website for more information on rare, threatened, and endangered species!  
<http://www.maine.gov/doc/nrimc/mnap>





**CIRCUMNEUTRAL FEN**

- Swamp Fly-honeysuckle
- Sparse-flowered Sedge
- Swamp Birch

- Prairie White-fringed Orchid
- Showy Lady's-slipper
- Northern Bog Sedge
- Marsh Valerian
- New England Northern Reed Grass
- English Sundew
- Swamp Birch
- Livid Sedge

**APPALACHIAN - ACADIAN BASIN SWAMP ECOSYSTEM**

**Montreal, Maine & Atlantic Railway Ltd.  
Proposed Rail Abandonment  
Botanical Features of Management Concern**

**Little Crystal Fen**

- Rare Plant
- Exemplary Natural Community
- Rail line

0 0.5 1 2 Miles

Maine Natural Areas Program, March 2010



Maine Department of Conservation  
Natural Areas Program

*Betula pumila* L.

Swamp Birch

**Habitat:** Bogs and wooded swamps. [Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]

**Range:** Newfoundland to Ontario, south to Connecticut and west to Wisconsin.

**Phenology:** A perennial woody shrub; deciduous leaves. Flowers in May and June.

**Family:** Betulaceae

**Aids to Identification:** Swamp birch, also called dwarf or low birch, is a medium-sized shrub, 0.3-3 m high, with small, distinctively shaped leaves. The leaves, borne alternately on the dark twigs, are almost round in outline, with very coarse teeth around the leaf margin; they are lighter green or whitish beneath. The aments (elongate fruit clusters typical of birches) are borne upright and are about 2-3 cm in length.



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Ecological characteristics:** Little information is available on the ecology of *Betula pumila*. It is a highly variable species, both morphologically and ecologically; different varieties are found in habitats ranging from Coastal Plain bogs of New Jersey to tundra and alpine barrens of Labrador. In Maine, it is restricted to fen areas in bogs, or to similarly minerotrophic habitats on lake margins. It is sporadic in this part of its range.

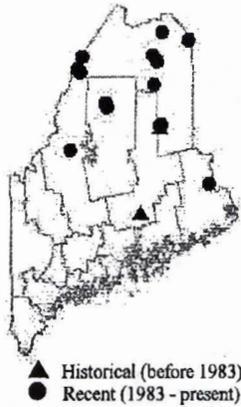
**Synonyms:** Formerly known as *Betula glandulosa* var. *glandulifera* (Regel.) Gleason, *Betula glandulifera* (Regel.) Butler, *Betula pumila* var. *reinifolia* Fern.

**Rarity of *Betula pumila***

<b>State Rank:</b>	S2S3	Imperiled in Maine because of rarity or vulnerability to further decline.
<b>New England Rank:</b>	None	
<b>Global Rank:</b>	G5	Demonstrably widespread, abundant, and secure globally.

**Status of *Betula pumila***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

**Known Distribution in Maine:**

This rare plant has been documented from a total of 14 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis, Somerset, Washington.

**Dates of documented observations are:** 1902, 1961, 1983, 1984 (3), 1985 (5), 1989, 1991, 1992, 1999 (3), 2001, 2002 (2), 2003 (2)

**Reason(s) for rarity:**

Unclear; in Maine, scarcity of suitable calcareous habitat. Local in this eastern portion of range.

**Conservation considerations:**

Appears to be secure where it grows, except where hydrologic alterations favor invasion by other woody species.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 05 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,  
please contact the Natural Areas Program  
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation  
Natural Areas Division

*Asarum canadense* L.

Wild Ginger

**Habitat:** Rich woods and in the vicinity of shaded calcareous ledges. [Hardwood to mixed forest (forest, upland)]

**Range:** New Brunswick and Quebec to Ontario, and Minnesota, south to North Carolina, Alabama, and Arkansas.

**Phenology:** Flowers in spring, in Maine usually in May.

**Family:** Aristolochiaceae

**Aids to Identification:** Wild ginger is a low perennial with two heart-shaped leaves (8-15 cm wide) arising on hairy petioles from a creeping rhizome with the distinct taste and smell of ginger. The single flower, purple-brown and with three long-pointed calyx lobes, grows at the base of leaves.

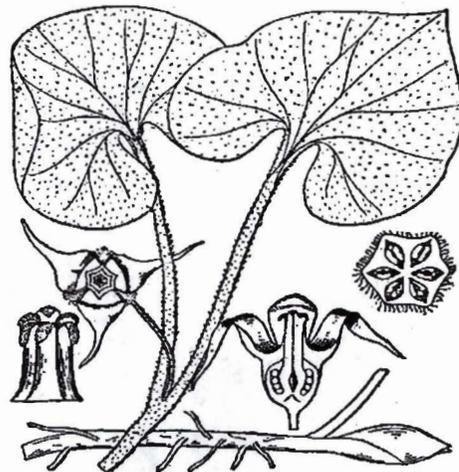


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Ecological characteristics:** Wild ginger spreads vegetatively and usually grows in extensive colonies. It is likely that it is extremely slow to establish itself from seed, so, when eliminated from an area by digging or land development it may be very slow to come back.

**Synonyms:** Formerly known as *Asarum acuminatum* (Ashe) Bickn., *Asarum canadense* var. *acuminatum* Ashe., *Asarum canadense* var. *ambiguum* (Bickn.) Farw., *Asarum reflexum* Bickn.

**Rarity of *Asarum canadense***

**State Rank:** S1S2 Critically imperiled in Maine because of rarity.

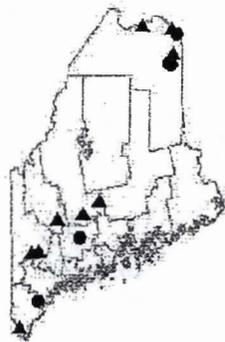
**New England Rank:** None

**Global Rank:** G5 Demonstrably widespread, abundant, and secure globally.

**Status of *Asarum canadense***

**Federal Status:** None No Federal Status.

**State Status:** Threatened Rare and, with further decline, could become endangered; or federally listed as Threatened. Listing criteria met: At edge of range, Declining populations, Vulnerable to human activity.



- ▲ Historical (before 1978)  
● Recent (1978 - present)

### Known Distribution in Maine:

This rare plant has been documented from a total of 14 town(s) in the following county(ies): Aroostook, Franklin, Kennebec, Oxford, Somerset, York.

**Dates of documented observations are:** 1857, 1862, 1893, 1903, 1914, 1928, 1938, 1954, 1982, 1986, 1989, 1991 (2), 1993, 1999

### Reason(s) for rarity:

At northern limit of range.

### Conservation considerations:

Some known populations are vulnerable to conversion of their habitat to residential or commercial use. Because the plant requires shade, heavy logging where it grows could be detrimental; the effects of light to moderate logging are unknown.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 11 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Maine Department of Conservation  
Natural Areas Program

*Astragalus alpinus* L.

Alpine Milk-vetch

- Habitat:** Calcareous ledges and gravels. [Non-tidal rivershore (non-forested, seasonally wet)]
- Range:** Restigouche River (Quebec and New Brunswick), St. John and Aroostook Rivers (Maine), Connecticut River (New Hampshire and Vermont). Typical variety occurs in arctic regions, south to Newfoundland.
- Phenology:** In Maine, begins flowering in early June, continuing through July. Legumes mature late July through the fall.
- Family:** Fabaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** Alpine milk-vetch is a loose, straggling plant restricted (in Maine) to a few river-shore areas. The compound leaves are composed of 5-11 pairs of oblong leaflets. The purplish-white, pea-like flowers are borne in a dense, short raceme (cluster). The legumes, or pods, are slender, curved and gradually tapering, and hairy. The stems are creeping, branching and may form mats up to a meter across. The falcate legume with a deep groove separates *Astragalus alpinus* from the other *Astragalus* species that occurred historically in Maine.

**Ecological characteristics:** This plant is both naturally restricted in its range and at its southern limit in Maine. At its known locations in Maine (along the St. John & Aroostook Rivers), it grows on gravelly banks or beaches where it is frequently subjected to ice-scouring and/or high water. Associates include other subarctic species here at their southern limit, such as *Hedysarum alpinum* var. *americanum*, *Tanacetum bipinnatum* ssp. *huronense*, and *Primula mistassinica*.

**Synonyms:** In Maine, the species is represented not by the nominate variety but by the variety *brunetianus* Fern.

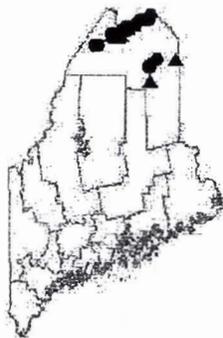
**Rarity of *Astragalus alpinus***

<b>State Rank:</b>	S3	Rare in Maine
<b>New England Rank:</b>	Division 1	Globally rare plant occurring in New England. Only a few occurrences exist within the region.
<b>Global Rank:</b>	G5T3	Species is widespread, abundant, and secure globally. Subspecies is rare or uncommon globally.

### Status of *Astragalus alpinus*

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

#### Known Distribution in Maine:



▲ Historical (before 1982)  
● Recent (1982 - present)

This rare plant has been documented from a total of 11 town(s) in the following county(ies): Aroostook.

**Dates of documented observations are:** 1909, 1976 (9), 1980, 1982 (4), 1983, 1984, 1985, 1986, 1989 (2), 1991 (2), 1993 (6), 1998, 1999, 2001 (10)

#### Reason(s) for rarity:

Naturally restricted range, at southern limit of range, habitat declining.

#### Conservation considerations:

Maintain hydrologic integrity of its rivershore habitat, including natural disturbance by water and ice. Populations could be harmed if all-terrain vehicle use of its habitat increases.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Division's Biological and Conservation Database on 05 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,  
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*Calamagrostis stricta* (Timm) Koel. ssp. *inexpansa* (Gray) C.W. Greene

**New England Northern Reed Grass**

- Habitat:** Damp woods and shaded cliffs. [Rocky coastal (non-forested, upland)]
- Range:** Local, eastern Maine to northern Vermont.
- Phenology:** Fruits in mid-summer.
- Family:** Poaceae

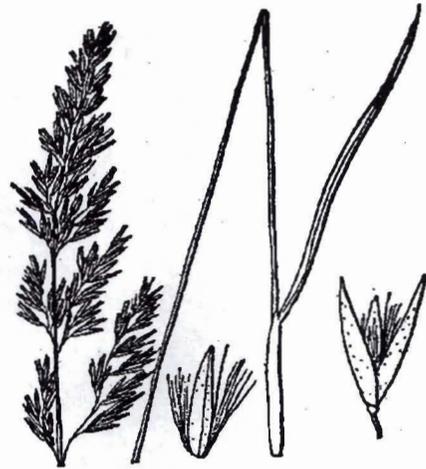


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** Identification of species of the genus *Calamagrostis* is usually difficult and dependent upon rather technical characters. They are all perennial grasses with long, narrow leaves, and 1-flowered spikelets with a tuft of hairs at the base of the lemma. This particular taxon is very similar to neglected reed-grass (*C. stricta* ssp. *stricta*). Both sub-species grow to 0.3-1 m in height, with condensed spike-like flower clusters, and spikelets 3-5 mm long. Subspecies *inexpansa* is characterized by very rough leaves; ligules 3-6 mm long with an erose apex.

**Ecological characteristics:** In Maine this species is known to occur on sparsely vegetated, rocky shorelines, as well as open ledges and outcrops in alpine settings.

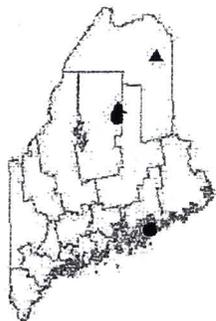
**Synonyms:** Formerly known as *Calamagrostis inexpansa* Gray var. *novae-angliae* Stebbins, *Calamagrostis fernaldii* Louis-Marie, *Calamagrostis inexpansa* Gray. Subspecies not delimited in Gleason and Cronquist (Second ed., 1991).

**Rarity of *Calamagrostis stricta* ssp. *inexpansa***

<b>State Rank:</b>	S1	Critically imperiled in Maine because of extreme rarity or vulnerability to extirpation.
<b>New England Rank:</b>	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
<b>Global Rank:</b>	G5T5	Species and subspecies both demonstrably widespread, abundant, and secure globally.

**Status of *Calamagrostis stricta* ssp. *inexpansa***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Endangered	Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered. Listing criteria met: Special habitat, Declining populations, Vulnerable to human activity

**Known Distribution in Maine:**

- ▲ Historical (before 1982)  
● Recent (1982 - present)

This rare plant has been documented from a total of 5 town(s) in the following county(ies): Aroostook, Hancock, Piscataquis

**Dates of documented observations are:** 1941, 1953, 1979, 1986 (2), 1988, 1990, 1992, 2000 (2)

**Reason(s) for rarity:**

Range is naturally limited.

**Conservation considerations:**

Populations could be threatened by heavy recreational (hiking) use.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 11 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation  
Natural Areas Program

*Carex gynocrates* Wormsk. ex Drej.

**Northern Bog Sedge**

**Habitat:** Peaty soils, often with circumneutral pH.  
[Conifer forest (forest, upland); Forested wetland]

**Range:** Circumboreal, south to Pennsylvania, Michigan, Minnesota, and Utah.

**Phenology:** Fruits June - August.

**Family:** Cyperaceae

**Aids to Identification:** Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. gynocrates* is the only member of the section *Dioicae* in this region. It is identified by its loosely rhizomatous growth, lenticular achenes, slender leaves (1mm wide), solitary spike, and ovoid perigynia, 3-3.5mm long.

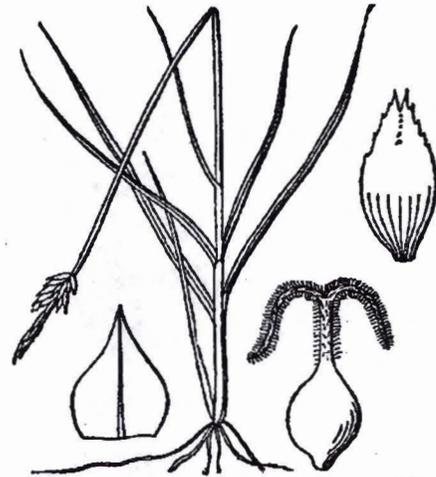


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Ecological characteristics:** This sedge is often found in association with Northern White Cedar fens in Maine.

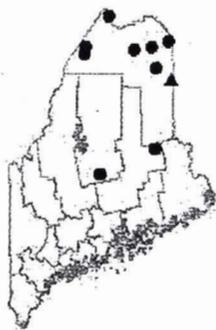
**Synonyms:** Sometimes placed as subspecies *gynocrates* in the circumboreal taxon *C. dioica* (Gleason and Cronquist second ed., 1991), but separated by most authors as a distinct species.

**Rarity of *Carex gynocrates***

<b>State Rank:</b>	S2	Imperiled in Maine because of rarity and vulnerability to further decline.
<b>New England Rank:</b>	INDT	Indeterminate. Under review for inclusion in appropriate division. Taxonomy, nomenclature, or status not clearly understood.
<b>Global Rank:</b>	G5	Demonstrably widespread, abundant, and secure globally.

**Status of *Carex gynocrates***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	
<b>Proposed State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



- ▲ Historical (before 1983)  
● Recent (1983 - present)

### Known Distribution in Maine:

This rare plant has been documented from a total of 11 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis.

**Dates of documented observations are:** 1898, 1984, 1987, 1989 (2), 1990, 1991, 1993, 2001 (2), 2002, 2003

### Reason(s) for rarity:

Scarcity of suitable habitat. May be more common than records indicate.

### Conservation considerations:

This sedge typically occurs in forested habitats. Effects of logging are unknown, but partial removal of the canopy would be less likely to have adverse effects than would complete removal of the canopy.

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The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 06 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Natural Areas Program

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*Carex livida* (Wahlenb.) Willd.

**Livid Sedge**

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- Habitat:** Calcareous meadows, bogs and depressions. [Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** Circumboreal, south to Newfoundland, northern Maine, New York, and New Jersey westward to California.
- Phenology:** Fruits May - July.
- Family:** Cyperaceae

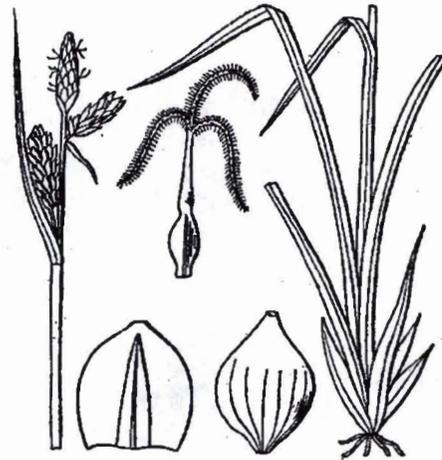


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. livida* is in the section *Paniceae* and it is distinguished by the following characteristics: leaves that are whitish, thin, and narrow (0.5-3.5 mm); perigynia 2.2-4.6 mm long and lacking a beaked tip; stems are smooth and a single stem or a few grow from long rhizomes; sterile, leafy tufts are common. The name refers to the plants bright white roots.

**Ecological characteristics:** Typically found growing in circumneutral fen communities, often in association with several other sedge species such as *Carex exilis*.

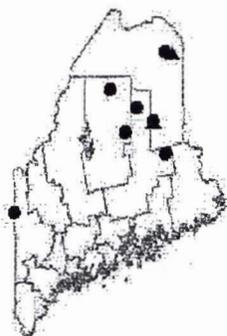
**Synonyms:** Formerly referred to *Carex livida* var. *radicaulis* Paine and *Carex livida* var. *grayana* (Dewey) Fern.

**Rarity of *Carex livida***

<b>State Rank:</b>	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
<b>New England Rank:</b>	Division 2	Regionally rare plant. Fewer than 20 current (seen since 1970) occurrences in New England.
<b>Global Rank:</b>	G5T5	Species and subspecies both demonstrably widespread, abundant, and secure globally.

**Status of *Carex livida***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

**Known Distribution in Maine:**

- ▲ Historical (before 1982)  
● Recent (1982 - present)

This rare plant has been documented from a total of 8 town(s) in the following county(ies): Aroostook, Oxford, Penobscot, Piscataquis.

**Dates of documented observations are:** 1941, 1982, 1984 (2), 1985, 1989, 1992, 1993, 1998

**Reason(s) for rarity:**

Scarce in southern portion of range; scarcity of suitable calcareous habitat.

**Conservation considerations:**

Maintain hydrology of the circumneutral fen habitats in which it occurs.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 11 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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*Carex tenuiflora* Wahlenb.

**Sparse-flowered Sedge**

**Habitat:** Bogs and mossy woods or pond margins, usually higher pH. [Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]

**Range:** Newfoundland to Alaska, south to Maine, New York, and west to Alberta. In New England, this species has only been documented from Maine to Vermont.

**Phenology:** Fruits June - August.

**Family:** Cyperaceae

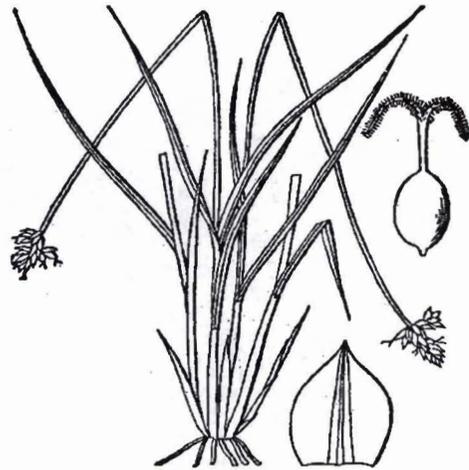


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. tenuiflora* is in the section *Glarosae*. This section is characterized by gynecandrous spikes, caespitose habit, and short perigynia. This species is distinguished by the presence of 2-4 congested spikes bearing white hyaline floral scales.

**Ecological characteristics:** In Maine peatlands, this sedge is found in both forested and open peatlands, usually in circumneutral fen communities.

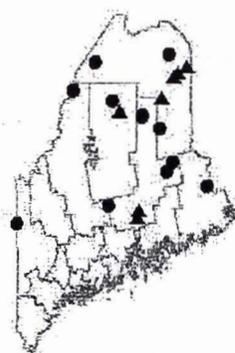
**Synonyms:**

**Rarity of *Carex tenuiflora***

<b>State Rank:</b>	S3	Rare in Maine.
<b>New England Rank:</b>	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
<b>Global Rank:</b>	G5	Demonstrably widespread, abundant, and secure globally.

**Status of *Carex tenuiflora***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1983)  
● Recent (1983 - present)

### Known Distribution in Maine:

This rare plant has been documented from a total of 18 town(s) in the following county(ies): Aroostook, Oxford, Penobscot, Piscataquis, Somerset, Washington.

**Dates of documented observations are:** 1902, 1905, 1940 (2), 1941, 1981, 1982, 1984 (2), 1985, 1987, 1989 (2), 1993, 1996, 1997, 1998 (2), 2003

### Reason(s) for rarity:

At southern limit of range.

### Conservation considerations:

Maintain the hydrologic integrity of the circumneutral fen habitat. This sedge is most often found in openings, not under dense cedar, and it is likely that canopy openings could favor this species. Complete removal of the canopy over a large area, however, could produce drastic habitat changes that would be detrimental to the plant.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 12 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Maine Department of Conservation  
Natural Areas Program

*Cypripedium reginae* Walt.

Showy Lady's-slipper

- Habitat:** Circumneutral peatlands (often at edges) or sunlit openings of mossy woods. [Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** Newfoundland to North Dakota and Manitoba, south in Appalachians to Georgia.
- Phenology:** In Maine flowers late June to July.
- Family:** Orchidaceae

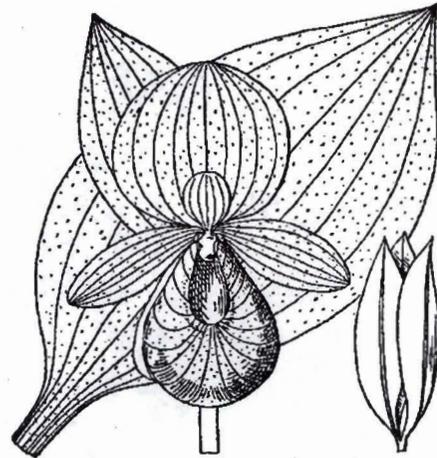


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** The largest and showiest of our lady's-slippers. Foliage of non-flowering plants emerging in early spring may be mistaken for false hellebore. Flowering plants are unique with their tall leafy stems bearing one or two large flowers with white petals and sepals contrasting with magenta pink pouch. Densely pubescent throughout, the hairs may cause a rash similar to poison ivy.

**Ecological characteristics:** Showy lady's-slippers apparently require constant moisture, some sunlight and circumneutral soil conditions. In acid bogs their roots go under the acid *Sphagnum* to more neutral groundwater below. In clearings or woods edges colonies may be very large and flowering abundant, but plants in deep shade often lack flowers. *C. reginae* seeds seem to germinate best at depths of at least 5 cm. It has been suggested that this may account for the presence of dense colonies in deer yards where the deer hooves may help to push seeds to the appropriate depth. *C. reginae* takes about 15 years to reach flowering age, which explains why they are slow to reappear after colonies have been dug up.

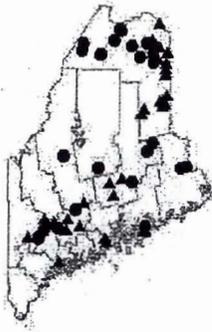
**Synonyms:** Formerly known as *Cypripedium spectabile* Salisb.

**Rarity of *Cypripedium reginae***

<b>State Rank:</b>	S3	Rare in Maine.
<b>New England Rank:</b>	None	
<b>Global Rank:</b>	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

**Status of *Cypripedium reginae***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Threatened	Rare and, with further decline, could become endangered; or federally listed as Threatened. Listing criteria met: Declining populations, Vulnerable to human activity



○ Historical (before 1983)  
● Recent (1983- present)

### Known Distribution in Maine:

This rare plant has been documented from a total of 52 town(s) in the following county(ies): Androscoggin, Aroostook, Cumberland, Hancock, Kennebec, Knox, Oxford, Penobscot, Piscataquis, Somerset, Washington.

**Dates of documented observations are:** 1874, 1880, 1889 (2), 1891, 1896, 1903, 1904, 1906, 1907 (2), 1908, 1910 (3), 1914, 1924, 1925, 1935, 1940 (2), 1943, 1950, 1978, 1981 (6), 1982, 1983 (3), 1984, 1985, 1989 (3), 1990 (4), 1991, 1992, 1993, 1995, 1997, 1998 (3), 19XX (2), 2000 (2), 2001 (2), 2002 (6)

### Reason(s) for rarity:

Habitat destruction and collecting, also scarcity of suitable habitat.

### Conservation considerations:

Orchids are popular among some speciality gardeners, and populations of this species are vulnerable to unscrupulous or uneducated collectors. Plants dug from the wild usually do not survive; more importantly, removing these plants harms the natural population and may cause its eventual disappearance. Tissue-culture propagation of this species has been tried in limited instances, but any plants offered for sale have almost certainly been dug from the wild. This orchid grows and flowers best in moderate sunlight, and partial removal of the canopy can benefit the populations, if done correctly.

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Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 29 APR 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Maine Department of Conservation  
Natural Areas Program

*Drosera anglica* Huds.

English Sundew

**Habitat:** Circumneutral fens and peaty areas. [Open wetland, not coastal nor rivershore (non-forested, wetland)]

**Range:** Circumpolar; Alaska to Northwest Territories, British Columbia to Quebec, Newfoundland to Labrador & Maine; Washington, California, Wyoming, Montana; Wisconsin to Michigan.

**Phenology:** A perennial or biennial; flowers in late July or August in Maine; seeds mature late summer.

**Family:** Droseraceae

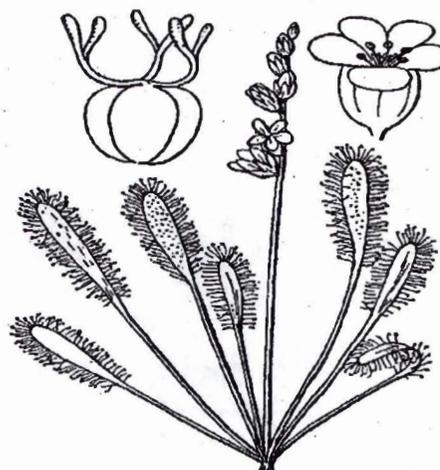


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** *Drosera anglica* resembles our common spatulate-leaf sundew (*D. intermedia*), and is closely related both to that and to the common round-leaf sundew (*D. rotundifolia*) as well as to the rare *D. linearis*. Like the spatulate-leaf sundew, the leaves are elongate oval and grow in a basal rosette, and have rows of sticky hairs on their surface, adapted for the insectivorous habit. *D. anglica* is best told from *D. intermedia* by the larger leaves (up to 5 cm long), the stiffer nature of the plant on the whole, the glandular hairs on the petioles, and the spindle-shaped rather than rounded-oval seeds.

**Ecological characteristics:** *Drosera anglica* is more widely distributed than *D. linearis*, and within its range is not as local. In Maine, however, the two are equally rare, occurring in the same location, and often together. Like *D. linearis*, *D. anglica* requires a very wet habitat with abundant calcium (lime). See also Fact Sheet for *Drosera linearis* (PDDRO02060). Like other sundew species, *Drosera anglica* is insectivorous; it receives part of its nutrients by capturing and digesting insects.

**Synonyms:** Former names include *Drosera longifolia* L.

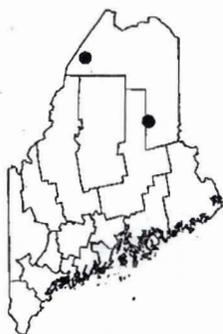
**Rarity of *Drosera anglica***

<b>State Rank:</b>	S1	Critically imperiled in Maine because of extreme rarity or vulnerability to extirpation.
<b>New England Rank:</b>	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
<b>Global Rank:</b>	G5	Demonstrably widespread, abundant, and secure globally.

### Status of *Drosera anglica*

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Endangered	Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered. Listing criteria met: Few individuals, Special habitat, At edge of range, Vulnerable to human activity

#### Known Distribution in Maine:



▲ Historical (before 1982)  
● Recent (1982 - present)

This rare plant has been documented from a total of 2 town(s) in the following county(ies): Aroostook.

**Dates of documented observations are:** 1979, 1983, 1989, 1993

#### Reason(s) for rarity:

Scarcity of suitable habitat, and disjunct from (south of) major portion of range.

#### Conservation considerations:

Known populations are small, and subject to the vagaries of small populations like random fluctuations or localized disturbance events.

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The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 12 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Maine Department of Conservation  
Natural Areas Program

*Lonicera oblongifolia* (Goldie) Hook.

**Swamp Fly-honeysuckle**

**Habitat:** Bogs, swampy thickets and wet woods.  
[Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]

**Range:** New Brunswick and Quebec to Manitoba, New York, Pennsylvania, Michigan and Minnesota.

**Phenology:** Flowers May - June.

**Family:** Caprifoliaceae

**Aids to Identification:** Swamp fly-honeysuckle is a shrub that grows up to 1.5 m high with upward pointing branches covered with small hairs, and opposite oval leaves 2-5 cm in length. The flowers, borne in pairs, are yellow, two-lipped, and narrow. The fleshy red berries also occur in pairs. The only other honeysuckle that is found in similar communities is *Lonicera villosa*, the mountain fly honeysuckle. It is distinguished by its blue berries and winter buds covered by 2 valvate scales (vs. several imbricate scales).



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Ecological characteristics:** Because of the specific habitat requirements of swamp fly-honeysuckle -- open areas of cool cedar swamps underlain by limestone -- it is not widespread, but populations may be plentiful where it does occur.

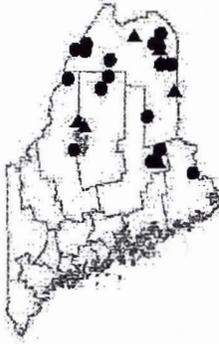
**Synonyms:**

**Rarity of *Lonicera oblongifolia***

<b>State Rank:</b>	S3	Rare in Maine.
<b>New England Rank:</b>	None	
<b>Global Rank:</b>	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

**Status of *Lonicera oblongifolia***

<b>Federal Status:</b>	None	No Federal Status.
<b>State Status:</b>	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1983)  
● Recent (1983 - present)

### Known Distribution in Maine:

This rare plant has been documented from a total of 25 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis, Somerset, Washington.

**Dates of documented observations are:** 1883 (2), 1937, 1938 (2), 1941, 1945, 1983, 1984, 1985, 1986, 1987, 1988, 1989 (2), 1993 (4), 1994, 1997, 2001 (2), 2002 (5), 2003 (2)

### Reason(s) for rarity:

Specific habitat requirements.

### Conservation considerations:

Appears reasonably secure; known populations are persistent.

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The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 13 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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Maine Department of Conservation  
Natural Areas Program

*Platanthera leucophaea* (L.) Lindl.

**Prairie White-fringed Orchid**

**Habitat:** Wet prairie or open swamps, or bogs and shores. [Open wetland, not coastal nor rivershore (non-forested, wetland)]

**Range:** North Dakota to western New York, south to Ohio and west to Kansas; one disjunct Maine population.

**Phenology:** Flowers June - July.

**Family:** Orchidaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

**Aids to Identification:** Members of the genus *Platanthera* are known by their uniformly colored, spurred flowers. The lowermost petal, called the labellum, is highly modified in these orchids and does not resemble the other sepals and petals. *Platanthera leucophaea*, and its close relative, *P. lacera*, are recognized by their white, three-parted, and conspicuously fringed labellum. These two species can be separated by examination of the spur and lateral petals. *P. leucophaea* has a 2-4 cm spur and toothed lateral petals. *P. lacera* has a 1.4-2.1 cm long spur and entire lateral petals.

**Ecological characteristics:** The only population in Maine occurs in a calcareous fen with herbaceous and shrubby vegetation. The herb layer is dominated by sedges and mosses, and the periphery of the fen is dominated by white cedar and larch.

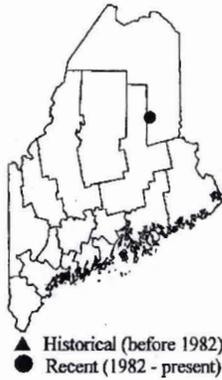
**Synonyms:** Formerly known as *Habenaria leucophaea* (Nutt.) Gray, or in some very old treatments as *Blephariglottis leucophaea* (Nutt.) Farw.

**Rarity of *Platanthera leucophaea***

<b>State Rank:</b>	S1	Critically imperiled in Maine because of extreme rarity or vulnerability to extirpation.
<b>New England Rank:</b>	Division 1	Globally rare plant occurring in New England. Only a few occurrences exist within the region.
<b>Global Rank:</b>	G2	Imperiled globally.

**Status of *Platanthera leucophaea***

<b>Federal Status:</b>	Threatened	Listed as Threatened at the national level.
<b>State Status:</b>	Endangered	Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered. Listing criteria met: Few individuals, Special habitat, At edge of range, Declining populations, Vulnerable to human activity

**Known Distribution in Maine:**

This rare plant has been documented from a total of 1 town(s) in the following county(ies): Aroostook.

**Dates of documented observations are:** 1900, 1972, 1976, 1984, 1997, 2000

**Reason(s) for rarity:**

Disjunct from principal range.

**Conservation considerations:**

Orchids are popular among some speciality gardeners, and populations are vulnerable to unscrupulous or uneducated collectors. Plants dug from the wild usually do not survive; more importantly, removing these plants harms the natural population and may cause its eventual disappearance. This orchid is not known to have been successfully propagated; any plants offered for sale have almost certainly been dug from the wild. Water level appears to be important in preventing encroachment by shrubs which can result in this species's decline.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 14 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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