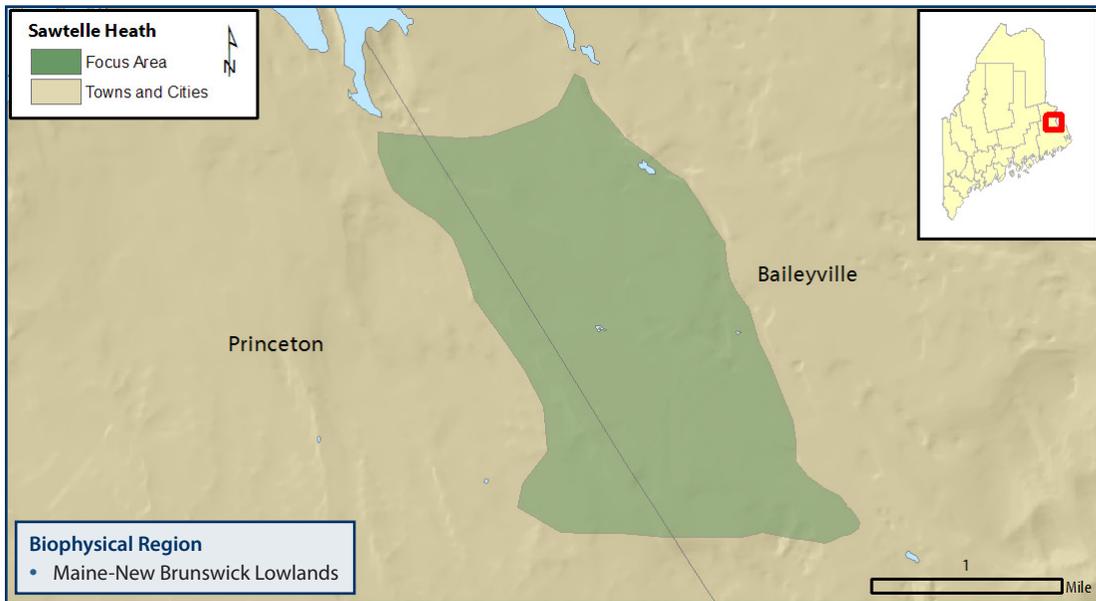


# Sawtelle Heath



## WHY IS THIS AREA SIGNIFICANT?

Sawtelle Heath is a 930-acre level bog ecosystem located between the St. Croix River and Route 1 in Baileyville and Princeton. Sawtelle Heath is noteworthy for its size, morphology (it has three noticeably raised and concentrically domed areas), diversity of vegetation types, and abundance of rare plants.

## OPPORTUNITIES FOR CONSERVATION

- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features to maintain ecological functions and values, habitat connectivity for wildlife, hydrologic processes, and watershed protection.
- » Maintain intact forested buffers along water bodies and wetlands.
- » Monitor and remove invasive plant populations.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: [www.beginningwithhabitat.org/toolbox/about\\_toolbox.html](http://www.beginningwithhabitat.org/toolbox/about_toolbox.html).

## Rare Plants

- Bog Bedstraw
- Showy Lady's-slipper
- Sparse-flowered Sedge
- Swamp Birch
- Swamp Fly-honeysuckle

## Rare and Exemplary Natural Communities

- Low Sedge Fen
- Raised Level Bog Ecosystem

## Significant Wildlife Habitats

- Inland Wading Bird and Waterfowl Habitat
- Deer Wintering Area

## Public Access Opportunities

- Typhoon and Downeast Lakes Public Access Easement

*Photo credits, top to bottom: ME Natural Areas Program (photos 1-4), ME Department of Inland Fisheries and Wildlife (bottom photo)*



Showy Lady's Slipper, Maine Natural Areas Program

## FOCUS AREA OVERVIEW

Sawtelle Heath is a 930-acre level bog ecosystem located between the St. Croix River and Route 1 in Baileyville and Princeton. The west side of the peatland drains northward through Pudding Brook and the east side drains southeastward through Sprague Meadow Brook. Most of the ecological information on Sawtelle Heath was derived from prior studies, most notably Davis and Anderson (1984).

Sawtelle Heath is noteworthy for its size, morphology (it has three noticeably raised and concentrically domed areas), diversity of vegetation types, and abundance of rare plants. A vegetation map compiled for the entire peatland by Davis and Anderson (1999) indicates the following vegetation types occur there (in descending order of coverage): 40% mixed cedar woodland fen, 21% dwarf shrub bog, 20% peatland lagg, 9% black spruce bog woodland, 5% acidic fen low sedge lawn, < 1% leatherleaf bog lawn.

Each of the three lobes of the coalesced peatland is predominantly wooded shrub heath or shrub heath. These areas contain a variety of typical dwarf shrubs, such as rhodora (*Rhododendron canadense*), leatherleaf (*Chamaedaphne calyculata*), Labrador-tea (*Rhododendron groenlandicum*), and sheep laurel

(*Kalmia angustifolia*) on Sphagnum hummocks with varying amounts of spruce and pine. Lichens (primarily *Cladonia spp.*) form hollows. The heath also has three small kettlehole ponds.

Transitional fens are located along drainage channels that link the domed sections, and a large fen lies in the northeast section of the peatland. An "L"-shaped esker in this area separates two fen areas. The fen northeast of the esker surrounds a pond that drains to the north. This kettlehole pond is surrounded by an expanse of moss bog lawn characterized by slender sedge (*Carex lasiocarpa*) with little Sphagnum ground cover and an exposed, muddy surface. Abundant amounts of spatulate-leaved sundew (*Drosera intermedia*), pitcher plant (*Sarracenia purpurea*), and northern bladderwort (*Utricularia intermedia*) occur as well, along with infrequent cattail (*Typha latifolia*).

Beyond the sedge lawn and pond community, a wooded fen occurs with tamarack (*Larix laricina*) and sedges just north of the esker. Large quantities of bog aster (*Oclemena nemoralis*) occur along with some slender sedge, buckbean (*Menyanthes trifoliata*), three-way sedge (*Dulichium arundinaceum*), marsh cinquefoil (*Comarum palustre*) and other fen species characteristic of wet conditions. West of the eskers, the larg-

est moss bog lawn expanse occurs, which also drains to the north. Dominant species are buckbean, white beak-rush (*Rhynchospora alba*), and several peat mosses including *Sphagnum purpurea*, *S. papillosum*, *S. majus*, and mud sedge (*Carex limosa*). Podgrass (*Scheuchzeria palustris*) and *S. majus* are locally abundant. Throughout this fen are scattered shallow hummocks of sweetgale (*Myrica gale*), buckbean, and bog rosemary (*Andromeda polifolia*). A mixed area of sedge lawns interspersed among ombrotrophic shrub hummocks occurs southeast of a pond at the northwest end of the transitional areas. In contrast to the other two ponds within this complex, the periphery of this pond is wooded to within two meters of the pond edge. Most of the border of this peatland is a forested bog community.

An extensive northern white cedar swamp occurs along the southwestern periphery of the wetland complex. In addition to northern white cedar (*Thuja occidentalis*), balsam fir (*Abies balsamea*), speckled alder (*Alnus incana*), royal fern (*Osmunda regalis*), three-seeded sedge (*Carex trisperma*), bunchberry (*Cornus canadensis*) and winterberry (*Ilex verticillata*) characterize this area.

Many of the rare plants associated with the heath are characteristic of northern Maine and are near the southern end of their range in Washington County. Others, such as sparse-flowered sedge (*Carex tenuiflora*) and showy lady's slipper (*Cypripedium reginae*) are typically associated with cedar swamps and lowlands that are slightly more alkaline.

The forested areas along the Princeton-Baileysville boundary have been mapped as **Deer Wintering Area**. Deer congregate in wintering areas which provide reduced snow depths, ample food and protection from wind. High value **brook trout fisheries** are present in Sprague's Meadow Brook, Anderson Brook, Wapsaconhagan Stream and Stony Brook as well.

### RARE AND EXEMPLARY NATURAL COMMUNITIES

**Low Sedge Fen:** This natural community type is characterized by peatland vegetation dominated by low mats of sedges (typically 40-60% cover), sometimes with sparse low heaths, over a continuous and very wet peat moss substrate. White beak-rush, mud sedge, and few-seeded sedge are usually dominant. Podgrass and buckbean are particularly characteristic, and sundews and horned bladderwort are typical in openings among the sedges. Heath shrubs are sparse; the most frequent are leatherleaf or bog rosemary, with other heaths on scattered hummocks. Bog-mat liverwort is an indicator species, although it is not present in all examples of this community type.

Low sedge fen is not a particularly common natural community type, but it has been subject to few threats to date. Some examples occur on public lands and private conservation lands. Impoundment or draining would have negative impacts on hydrology and on vegetation. Slow vegetation

#### Ecological Services of the Focus Area

- Provides high quality habitat for deer and other wildlife.
- Purifies and regulates water flow.
- Supports regional biodiversity by providing habitat for rare species.

#### Economic Contributions of the Focus Area

- Serves as a valuable recreational resource for local residents.
- Provides wildlife habitat for a number of game species that are seasonally important to Maine's rural economy.
- Provides high value forest products that support the regional economy.



Low Sedge Fen, Maine Natural Areas Program

growth rates, due to the nutrient poor environment, result in slow recovery from physical disturbances. Degradation from recreational use is unlikely, because of the unstable substrate; but if disturbance, such as foot traffic, is a necessity, traversing during frozen conditions or using boardwalks can minimize impacts.

Several uncommon dragonfly species may be found where bog pools and seasonally inundated depressions occur, including the zigzag darner, subarctic darner, and incurvate emerald. Occurrences in northern Maine may be inhabited by the subarctic bluet, an uncommon damselfly that inhabits open marshes and fens and reaches the southern edge of its range in northern Maine. The delicate emerald, a dragonfly that inhabits bogs and fens covered with a carpet of low sedges, is also a likely associate, as is the rare Quebec emerald.

**Raised Level Bog Ecosystem:** Raised level bog ecosystems include flat peatlands in basins with mostly closed drainage, receiving water from precipitation and runoff from the immediate surroundings. Most parts of level bogs are somewhat raised (though not domed), in which case vegetation is almost entirely ombrotrophic (dwarf shrub heath or forested bog). Other parts of the bog are not raised; in this case, vegetation is transitional (in nutrient status) between that of ombrotrophic bogs and minerotrophic fens. In all cases, Sphagnum dominates the ground surface and is the main peat constituent. The surface of the bog is flat and featureless. These bogs are often at least partly treed with black spruce and larch.

### CHARACTERISTIC SPECIES

**Showy lady's-slipper** (*Cypripedium reginae*) is 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.

**Swamp birch** (*Betula pumila*), 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. It is a perennial woody shrub; deciduous leaves. Flowers in May and June.



Swamp Birch, Maine Natural Areas Program

**Swamp fly-honeysuckle** (*Lonicera oblongifolia*) 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). 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. Flowers May-June.

### CONSERVATION CONSIDERATIONS

- » In general, threats to peatlands include invasive species, peat mining, cranberry harvesting, timber harvest around the forested perimeters, development, and hydrologic alteration including draining.
- » Invasive plants and aquatic organisms have become an increasing problem in Maine and a threat to the state's natural communities. Disturbances to soils and natural vegetation and introductions of non-native species to terrestrial and aquatic habitats can create opportunities for colonization. Landowners and local conservation groups should be made aware of the potential threat of invasive species, of methods to limit establishment, and/or of appropriate techniques for removal. For more information on invasive plants visit: <http://www.maine.gov/doc/nrimc/mnap/features/invasives.htm>.
- » Over half of this peatland is forested or wooded. Consequently, although much of this forested area is low volume and wet, timber harvesting is a possibility. Cedar swamps in particular seem to have a comparatively low threshold for disturbance, and depending on the harvesting regime, recovery of the herbaceous flora may be limited.
- » Along the esker ridge just east of the peatland, sand has been mined and road building has filled part of the edge of the bog. Otherwise the peatland is relatively undisturbed, but it is surrounded by industrial forestlands.
- » The ecological integrity of peatlands, including all the processes and life forms they support, is dependent on the maintenance of the current hydrology and water quality of these systems. Intensive timber harvesting, vegetation clearing, soil disturbance, new roads, and development on buffering uplands can result in greater runoff, sedimentation, and other non-point sources of pollution. In addition, improperly sized and installed crossing structures such as

culverts can block fish and invertebrate passage through stream channels often resulting in aquatic habitat fragmentation. Future management activity should avoid additional impacts to the site's hydrology.

- » The wetland system will benefit from establishing and/or maintaining vegetative buffers around its perimeter wherever possible. A buffer of 250 feet or more will serve to limit impacts from adjacent development, help prevent erosion, provide habitat needed by numerous species that depend on the wetlands, limit colonization of invasive species, and prevent impacts from ORV use.
- » With expected changes in climate over the next century, plant and wildlife species will shift their ranges. Maintaining landscape connections between undeveloped habitats will provide an important safety net for biodiversity as species adjust their ranges to future climate conditions.

**RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA**

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Plants	Bog Bedstraw	<i>Galium labradoricum</i>	SC	S2	G5
	Showy Lady's-slipper	<i>Cypripedium reginae</i>	T	S3	G4
	Sparse-flowered Sedge	<i>Carex tenuiflora</i>	SC	S3	G5
	Swamp Birch	<i>Betula pumila</i>	SC	S2S3	G5
	Swamp Fly-honeysuckle	<i>Lonicera oblongifolia</i>	SC	S3	G4
Natural Communities					
	Low Sedge Fen	<i>Low sedge - buckbean fen lawn</i>		S3	GNR
	Raised Level Bog Ecosystem	<i>Raised level bog ecosystem</i>		S4	GNR

**State Status\***

- 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.
- SC** Special Concern: Rare in Maine, based on available information, but not sufficiently rare to be Threatened or Endangered.

\*State status rankings are not assigned to natural communities.

**State Rarity Rank**

- S1** Critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
- 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 (on the order of 20–100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.

**Global Rarity Rank**

- G1** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation.
- 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 (on the order of 20–100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.