

Crystal Bog Focus Area Crystal & Sherman



Description:

The Crystal Bog Focus Area encompasses an extensive suite of wetlands that are located roughly south of Fish Stream in Crystal and north of the East Branch of Molunkus Stream in Sherman. Much of this low-lying landscape is described as an Appalachian-Acadian Basin Swamp Ecosystem. This type of ecosystem is characterized by a broad wetland basin dominated by forested swamp that is drained by mid-sized streams. At the core of the site is 1400 acre Crystal Bog, one of Maine's best examples of a Domed Bog Ecosystem. In addition to these large wetland features, the site supports one of Maine's most diverse fens and a large number of rare plants and animals.

Natural Communities and Rare Plants

The focus area includes two large ecosystems, an **Appalachian-Acadian Basin Swamp Ecosystem** and a **Domed Bog Ecosystem**. The Basin Swamp Ecosystem is comprised of a number of natural community types with cedar swamp and spruce flats

being the most common. This example is the largest



Open pools near the center of a Domed Bog Ecosystem (photograph by the Maine Natural Areas Program).

documented in the state. The Domed Bog Ecosystem is pristine and includes numerous pools interspersed among patches of stunted spruce and heath shrubs. Ecologists have identified at least eight different natural communities within the two ecosystems, representing incredible plant and animal habitat diversity. The Domed Bog is morphologically very diverse. It has two large lobes joined by a narrower corridor. The larger of the two lobes is well developed with a concentrically patterned convex dome that has numerous secondary pools. The vegetation patterns within this ecosystem show excellent zonation along a nutrient-gradient that is more minerotrophic along the margins and more nutrient-poor at the center. The zonation and patterning has been able to develop in the absence of any significant human disturbance, another feature that adds to the uniqueness of this wetland complex.

The site includes one of the state's richest **Shrubby Cinquefoil Sedge Circumneutral Fen** communities. Open areas of the fen are dominated by shrubby cinquefoil (*Pentaphylloides floribunda*) and lightly forested areas have young or stunted northern white cedar (*Thuja occidentalis*). Numerous rare plants that require high pH soils to survive are found in the fen. This site probably has the state's largest population of the rare **Swamp birch** (*Betula pumila*). Other rare species include **marsh valerian** (*Valeriana uliginosa*), **swamp-fly honeysuckle** (*Lonicera oblongifolia*), **moor rush** (*Juncus stygius*), and several species of sedges.

Wildlife

The state endangered **Clayton's copper butterfly** (*Lycaena dorcas claytoni*) is also found in the **Shrubby Cinquefoil Sedge Circumneutral Fen**. Clayton's copper is found only in association with its sole larval host plant, shrubby cinquefoil. This uncommon shrub requires circumneutral or alkaline soils and has a scattered distribution throughout Maine. Although not considered rare, there are relatively few cinquefoil stands large enough to support viable Clayton's copper populations. Clayton's copper is currently known from only eleven sites worldwide - nine in Maine centered in and around northeastern Penobscot county and two sites just over the border in New Brunswick. With the majority of the population located in Maine, the state has an important role in conserving this rare species.



Flowering shrubby cinquefoil (Potentilla fruticosa) (photograph by the Maine Natural Areas Program).

The Appalachian-Acadian Basin Swamp Ecosystem includes two drainage systems: the East Branch of Molunkus Stream drains to the south and Fish Stream drains to the north. The **creeper** (*Strophitus undulatus*), a rare mussel species, inhabits Fish Stream. Although widely distributed across the state and throughout its range, the creeper is rarely abundant. Usually fewer than ten individuals are found at a single location, and there is considerable question about the long-term viability of such small populations. Consequently, this species has been listed as special concern in Maine. The creeper prefers clean, flowing water, and thus habitat degradation and pollution have probably affected this species.

Rare Features Table for the Crystal Bog Focus Area:

Common Name	Scientific Name	Status	S-Rank	G-Rank
Natural Communities				
Appalachian-Acadian basin swamp ecosystem	Appalachian-Acadian Basin Swamp Ecosystem	N/A	S4	GNR
Domed bog ecosystem	Domed Bog Ecosystem	N/A	S3	GNR
Circumneutral fen	Shrubby Cinquefoil - Sedge Circumneutral Fen	N/A	S2	G2G3
Rare Plants				
Swamp birch	<i>Betula pumila</i>	SC	S2S3	G5
New England Northern reed grass	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	E	S1	G5T5
Northern bog sedge	<i>Carex gynocrates</i>	SC	S2	G5
Livid sedge	<i>Carex livida</i> var. <i>radicaulis</i>	SC	S2	G5T5
Sparse-flowered sedge	<i>Carex tenuiflora</i>	SC	S2	G5
English sundew	<i>Drosera anglica</i>	E	S1	G5
Slender-leaved sundew	<i>Drosera linearis</i>	E	S1	G4
Moor rush	<i>Juncus stygius</i> ssp. <i>americanus</i>	SC	S2	G5T5
Swamp-fly honeysuckle	<i>Lonicera oblongifolia</i>	SC	S3	G4
Marsh valerian	<i>Valeriana uliginosa</i>	SC	S2	G4Q
Rare Animals				
Creeper	<i>Strophitus undulatus</i>	SC	S?	G5
Clayton's copper	<i>Lycaena dorcas claytoni</i>	E	S1	G5T1
Mystery vertigo	<i>Vertigo paradoxa</i>	SC	SNR	G3G4Q
Quebec emerald	<i>Somatochlora brevicincta</i>	SC	S2	G4

Other Features Mapped by MDIFW:

Inland waterfowl and wading bird habitat

Protection Status:

Much of the focus area, including all of the rare plant stations and almost the entire Domed Bog Ecosystem is owned and managed for conservation purposes by The Nature Conservancy.

Conservation Considerations:

- The ecological integrity of wetlands including peatland ecosystems and the processes and life forms they support including rare plants and animals are dependent on the maintenance of the

current hydrology and water quality of the site. 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 that can degrade the high quality natural systems that occur here.

- Preserving the natural communities and other sensitive features within the focus area will be best achieved by working to conserve the integrity of the larger natural systems in which these features occur. Conserving the larger systems will help ensure that both common and rare natural features will persist on the landscape in this part of the state.
- Peatland systems benefit from establishing and/or maintaining vegetative buffers around their perimeter wherever possible. A buffer of 250 feet or more will serve to limit impacts from adjacent development, help prevent erosion, limit colonization of invasive species, and prevent unnecessary impacts from off road vehicle use.
- Towns should strive to protect inland waterfowl and wading bird habitat (IWWH) areas identified by MDIFW in low density, rural settings by identifying IWWH areas in comprehensive plans and zoning accordingly.

Visit our web site for more information on rare, threatened and endangered species!
<http://www.mainenaturalareas.org>

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 (on the order of 20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.

Note: **State 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 extirpation from the State of Maine.
- 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.

Note: **Global Ranks** are determined by The Nature Conservancy.

STATE LEGAL STATUS FOR PLANTS

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.
- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.