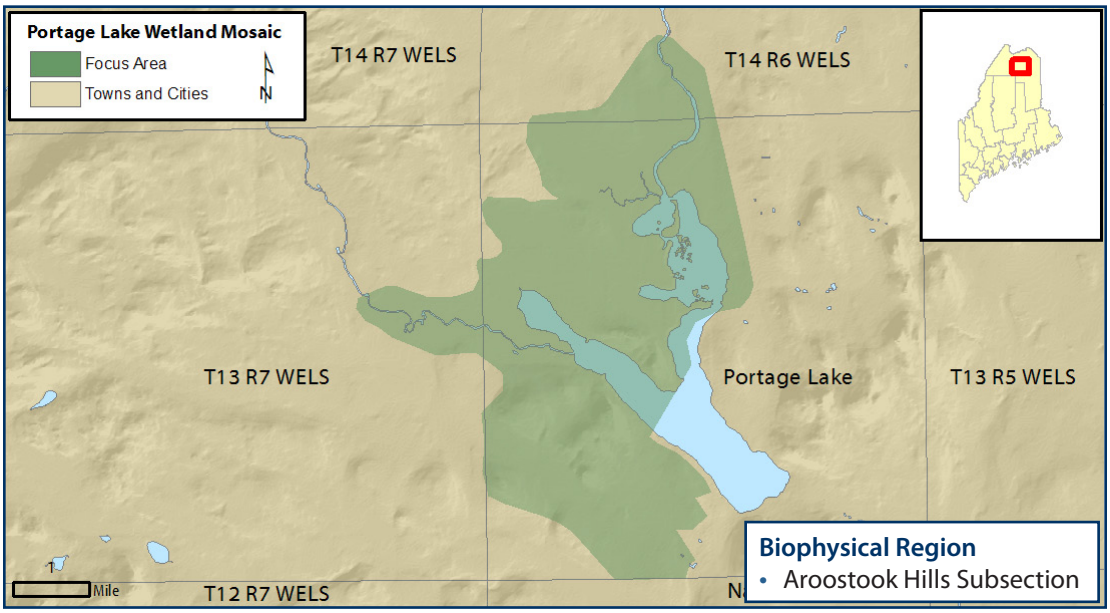
Beginning with HABITAT

Focus Areas of Statewide Ecological Significance

Portage Lake Wetland Mosaic



WHY IS THIS AREA SIGNIFICANT?

The northeastern lobe of Portage Lake is bordered by an extensive mosaic of wetlands including rich fens, shrub bogs, forested swamps, and emergent marsh that constitute an Unpatterned Fen Ecosystem. Its large size, diversity of wetland types, rare bird habitat, and relatively intact condition make this system one of the most significant wetland ecosystems in the northern half of the state. Additionally, over 1600 acres of wetlands and shoreline around the northern and western lobes of Portage Lake have been mapped as significant Inland Waterfowl and Wading Bird Habitat.

OPPORTUNITIES FOR CONSERVATION

» Educate recreational users about the ecological and economic benefits provided by the Focus Area.
» Maintain natural hydrologic regime by avoiding drainage or impoundment of the wetlands, streams or adjacent water bodies.
» Maintain intact forested buffers along water bodies and wetlands to protect water quality and provide valuable riparian habitat for wildlife.
» 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.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: www.beginningwithhabitat.org/toolbox/about_toolbox.html.

Rare Animals
Black Tern

Rare Plants
Lapland Buttercup
Livid Sedge
Pygmy Water-lily
Swamp Birch
Swamp Fly-honeysuckle
Water Stargrass

Rare and Exemplary Natural Communities
Bulrush Marsh
Circumneutral Fen
Northern White Cedar Swamp
Unpatterned Fen Ecosystem

Significant Wildlife Habitats
Inland Waterfowl and Wading Bird Habitat
Deer Wintering Area

Public Access Opportunities
• Nashville Plantation, MEBPL

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Portage Lake, Maine Natural Areas Program

FOCUS AREA OVERVIEW

The Portage Lake Wetland Mosaic Focus Area consists of an array of wetlands that border Portage Lake to the north and west. These wetlands extend westward from Portage Lake upstream along the Fish River and northward to include the Mosquito Brook drainage and the Fish River where it exits Portage Lake. The western and northern arms of this focus area include two large, Unpatterned Fen Ecosystems that are among the largest in Maine. These wetland complexes provide extensive Inland Waterfowl and Wading Bird Habitat and large Deer Wintering Areas.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Portage Lake North

Specific natural community types found in the northeastern lobe of the wetland mosaic include Shrubby Cinquefoil - Sedge Circumneutral Fen, Northern White Cedar Swamp, Spruce - Larch Wooded Bog, Sweet Gale - Mixed Shrub Fen, Sheep Laurel - Dwarf Shrub Bog, Alder Swamp, Bulrush Beds, Submerged Aquatic Beds, and others.

The **Shrubby Cinquefoil - Sedge Circumneutral Fen** occurs on the north margin of the lake in the area south of Mosquito Brook. It is of particular note as a large, high quality example of this rare community type for the state. Four rare plant species occur in the fen including **swamp birch** *(Betula pumila)*, **swamp-fly honeysuckle (***Lonicera oblongifolia)*, **lapland buttercup (***Ranunculus lapponicus)*, and **livid sedge** *(Carex livida var. radicaulis)*. The fen is dominated by a mix of shrubs and sedges including, sweet gale, leatherleaf, bog rosemary, bristly rose, and tussock sedge.

A **Bulrush Bed** is located in the large sheltered area of open water south and west of the Fish River outlet. The Bulrush Bed has scattered but widespread cover of emergent plants including hard-stemmed bulrush, bayonet rush, and pickerel weed. Common floating leaved species are sweet scented water-lily, spadderdock, watershield, and floating pondweed. Submerged species include common bladderwort, and common water-milfoil, a native milfoil species. Adjacent to the lake, rare plants such as **pygmy water-lily** (*Nymphaea leibergii)* and **water stargrass** *(Zosterella dubia)* have been documented.

The northeastern lobe of Portage Lake also includes a number of well developed peatland drainage basins. These areas are mostly classified as Sheep Laurel - Dwarf Shrub Bog commu-

nities, though all of them have some areas of Spruce - Larch Wooded Bog. The Sheep Laurel - Dwarf Shrub Bogs are dominated by low growing shrubs including sheep laurel, rhodora, leatherleaf, and labrador tea, with widely scattered stunted black spruce. Wetter sections are dominated by sedge and sphagnum moss cover. Spruce - Larch Wooded Bog forms a border around the more open shrub areas, and is more extensive in several of the bogs.

Northern White Cedar Swamps occur on the upper margins of many of the lakeside fens. The cedar swamps vary from closed canopy to partially open and have significant amounts of red maple and spruce. Cinnamon and sensitive ferns are common as are numerous sedges and some taller shrubs such as mountain holly and speckled alder. Some of these areas have been selectively cut or thinned in the past.

Portage Lake West

The northwest cove of Portage Lake and the in-flowing Fish River are also bordered by an exemplary **Unpatterned Fen Ecosystem** that consists of an extensive mosaic of wetlands including shrub fens, forested swamps, and emergent marsh. Specific natural community types at the site include Northern White Cedar Swamp, Spruce - Larch Wooded Bog, Sweet Gale - Mixed Shrub Fen, Alder Swamp, Bulrush Beds, Submerged Aquatic Beds, and others.

Northern White Cedar Swamp is the most common community type in the northwest cove of Portage Lake. It occupies the broad, low lying, floodplain corridor through which the Fish River flows and also borders the lakeside shrub fens along most of the upper half of the northwest cove of the lake. The exceptional example of a cedar swamp community varies from closed canopy to partially open and has significant amounts of red maple and black spruce. Tree species dominance varies with some areas on the north side of the Fish River having relatively more spruce than cedar. Cinnamon and sensitive ferns are common as are numerous sedges and some taller shrubs such as mountain holly and speckled alder. Some of these areas have been selectively cut or thinned in the distant past. A 12-inch cedar was found to be 170 years old and an 11-inch spruce was aged at 65 years old. In the Fish River, near the upstream end of the cedar swamp, another population of the rare **pygmy water-lily** (*Nymphaea leibergii)* occurs.

Near the outlet of the Fish River the cedar grades into red maple and alder swamp, with alder being more prevalent closer to the open lake. The upper half of the west cove is bordered by a Sweet Gale - Shrub Fen. The fen is dominated by Sweet gale with scattered Meadowsweet, Black chokeberry, Speckled alder, Leatherleaf, and sedges (Carex spp.).

The upper half of the cove is shallow with depths generally less than one half meter and supports an extensive **Bulrush Bed**. The Bulrush Bed has cover of emergent plants that is very similar to the bulrush bed found on the northeastern lobe of Portage Lake. The rare **water stargrass** *(Zosterella dubia)* occurs here as well, growing in water about one meter deep in the area off of the mouth of the Fish River. This observation coupled with its incidence in open water of similar depths in the north cove of the lake suggests that it likely occurs elsewhere in the lake where appropriate habitat is found.

Ecological Services of the Focus Area

- Serves as an important large block of undeveloped habitat for a wide range of species including rare plants, waterfowl, wading birds, deer, and other wildlife.
- Supports regional biodiversity by providing habitat for rare plants, animals, and natural communities.

Economic Contributions of the Focus Area

- Attracts tourism for wildlife observation, paddling, hunting , and angling.
- Contributes to water supply.
- Provides a scenic viewshed.
- Provides valuable open space for local residents.

CHARACTERISTIC SPECIES

The northern portion of the focus area provides nesting habitat for rare birds such as the bald eagle and the black tern. **Bald eagles** (*Haliaeetus leucocephalus)* nest along sea coasts, inland lakes and major rivers. Breeding habitat includes large trees, primarily old white pines, in close proximity (less than one mile) to water where food is abundant and human disturbance is minimal. Bald eagles, once abundant in Maine, were nearly extirpated throughout their range because of widespread use of environmental contaminants. Due to a wide variety of efforts, bald eagles have now made a dramatic recovery. Problems for eagles still persist, however. Habitat loss, human disturbance at nest sites, environmental contamination, diminished water quality, and human-caused deaths and injuries are still primary conservation problems. Management will continue to ensure that declines of the past are not repeated, and that habitat and a clean environment persist to promote population growth and expansion. Eagles have been documented nesting around Portage Lake; the next closest documented nests are 13 miles away.

Unlike the tern species commonly spotted along the coast, in Maine, **black terns** *(Chlidonias niger)* nest in large (over 40 acres), shallow emergent freshwater marshes associated with lakes, impoundments, and slow-moving streams. About 11 nesting areas have been identified across the state, including around Portage Lake. Black terns have slowly declined throughout much of their range, and populations are about a

third of that measured in the 1960s. Until recently, little was known of factors limiting black tern populations. Research at the University of Maine suggests that fluctuating water levels and nest and chick predation limit population growth. In 1997 the black tern was listed as Endangered in Maine. Maintaining stable water levels in impoundments, using floating nest platforms, and employing measures to deter predators may be future recovery options.

The extensive wetlands throughout this focus area provide significant **Inland Waterfowl and Wading Bird Habitat**. Over 1600 acres of wetlands and shoreline around the northern and western lobes of Portage Lake have been mapped as habitat. The softwood forests around the edges of the wetlands and throughout Portage provide important shelter for deer and have been identified and mapped as significant **Deer Wintering Areas**.

CONSERVATION CONSIDERATIONS

» The integrity of wetlands 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.

» Towns should strive to protect Inland Waterfowl and Wading Bird Habitat (IWWH) and Deer Wintering Areas (DWA's) identified by MDIFW by identifying IWWH and DWA's in comprehensive plans and zoning accordingly.

» Eagles are extremely sensitive to disturbance during their nesting season. In interior Maine the period from March 1 through August 31 is the most critical. Any activities near their nests or within their nesting territory during this period may cause nest failure or may even cause adults to abandon the nest. In general it is recommended that a 330-foot radius be left undisturbed around an eagle nest during any kind of land-clearing or timber harvest activity and reduced management stratifies be curtailed out to the ¼ mile radius from nest site. Consult with a MDIFW biologist prior to planning any activity that may disturb the forest around an eagle nest. Bald eagles are protected by the USFWS under the Bald and Golden Eagle Protection Act.

» Improperly sized culverts and other stream crossing structures can impede movement of fish and aquatic invertebrates effectively fragmenting local aquatic ecosystems and ultimately leading to local extirpation of some species. Future management should maintain or restore the sites natural hydrology.

» 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.

» 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.

Portage Lake Fen, Maine Natural Areas Program

For more information about Focus Areas of Statewide Ecological Significance, including a list of Focus Areas and an explanation of selection criteria, visit **www.beginningwithhabitat.org**

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Bald Eagle	*Haliaeetus leucocephalus*	SC	S4B,S4N	G5
	Black Tern	*Chlidonias niger*	E	S2B	G4
Plants	Lapland Buttercup	*Ranunculus lapponicus*	T	S2	G5
	Livid Sedge	*Carex livida var. radicaulis*	SC	S2	G5T5
	Pygmy Water-lily	*Nymphaea leibergii*	T	S1	G5
	Swamp Birch	*Betula pumila*	SC	S2S3	G5
	Swamp Fly-honeysuckle	*Lonicera oblongifolia*	SC	S3	G4
	Water Stargrass	*Zosterella dubia*	SC	S3	G5
Natural Communities	Bulrush Marsh	Bulrush bed		S4	GNR
	Circumneutral Fen	Shrubby cinquefoil - sedge circumneutral fen		S2	G2G3
	Northern White Cedar Swamp	Northern white cedar swamp		S4	GNR
	Unpatterned Fen Ecosystem	Unpatterned fen ecosystem		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.