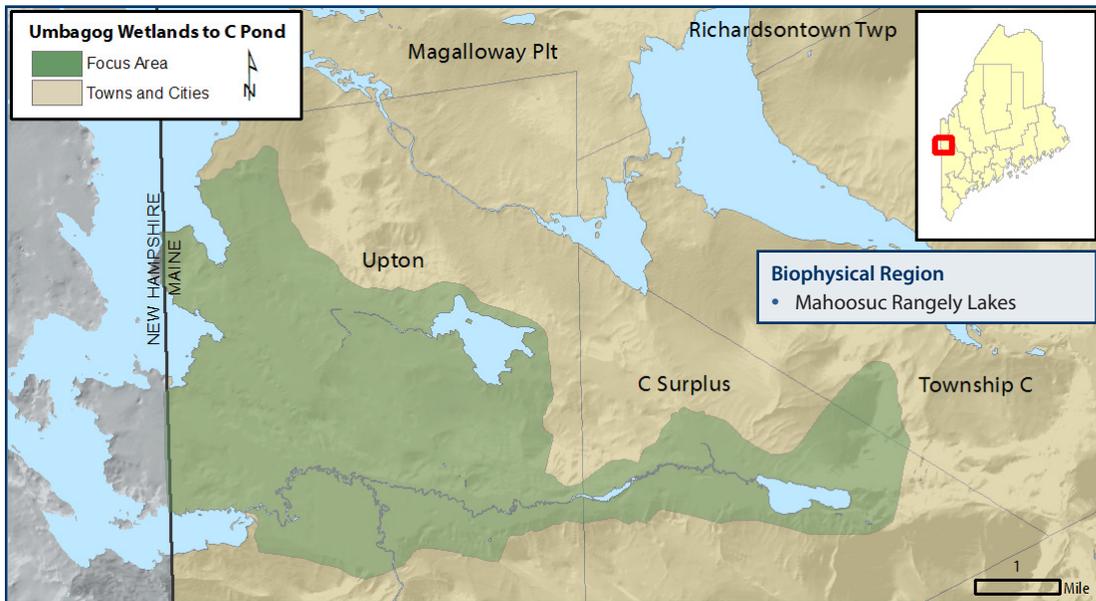
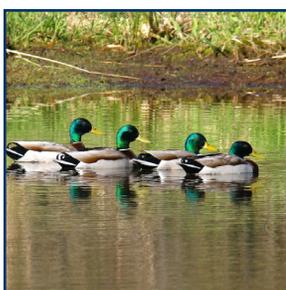


Umbagog Wetlands to C Pond



WHY IS THIS AREA SIGNIFICANT?

This focus area contains a remarkable collection of rare plants and animals, rare and exemplary wetlands, and over 5,000 acres of Significant Wildlife Habitat. Its western edge borders Lake Umbagog, which is one of the largest lakes along the Maine/New Hampshire border and part of Umbagog National Wildlife Refuge. The Dead Cambridge River flows through the heart of this focus area, providing important habitat for fish, diverse wildlife and a wide variety of wading birds and waterfowl. Two rare and exemplary natural communities, two rare plants, and nesting habitat for three rare birds round out the highlights here.

OPPORTUNITIES FOR CONSERVATION

- » Educate recreational users about the ecological and economic benefits provided by the Focus Area.
- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- » Encourage landowners to maintain enhanced riparian buffers and intact forested buffers along water bodies and wetlands.
- » Work with landowners to encourage sustainable forest management practices on remaining privately owned lands.
- » Work with willing landowners to permanently protect undeveloped areas and significant features.
- » Encourage landowners to maintain quality winter shelter for deer.

Rare Animals

- Bald Eagle
- Golden Eagle
- Peregrine Falcon

Rare Plants

- Livid Sedge
- Sparse-flowered Sedge

Rare and Exemplary Natural Communities

- Circumneutral Fen
- Open Cedar Fen

Significant Wildlife Habitats

- Inland Waterfowl and Wading Bird Habitat
- Deer Wintering Area

Public Access Opportunities

- » Umbagog National Wildlife Refuge, USFWS

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

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Umbagog National Wildlife Refuge, Andy Cutko

FOCUS AREA OVERVIEW

The extensive marshes, swamps, and wetlands along the Dead Cambridge River include both exemplary and rare natural community types that are especially uncommon in this part of the state. A large Circumneutral Fen near the southern end of Umbagog Lake includes two rare plants, livid sedge (*Carex livida*) and sparse-flowered sedge (*Carex tenuiflora*). This natural community type is rare in Maine and only occurs in areas with relatively high pH groundwater. Surrounding the Circumneutral Fen is an Open Cedar Fen, a community type that often occurs in association with the open fens and is also associated with higher pH groundwater, a condition that is uncommon in Maine. Although not a rare community in Maine, the Open Cedar Fen at Umbagog Wetlands was found to be in pristine condition.

The upland, wetland, and aquatic habitats of this focus area also provide wildlife habitat that contributes significantly to regional biodiversity. The extensive peatlands and forested wetlands that line the Dead Cambridge River provide excellent Inland Waterfowl and Wading Bird Habitat that stretches for nearly six miles between Lake Umbagog and C Pond. Brook trout have been documented in the both C Pond and B Pond, although trout in C Pond are threatened by a recent illegal

introduction of non-native smallmouth bass, a strong competitor and predator on native fish. Over 3,400 acres of Deer Wintering Area have been identified in the forested valleys, and the steep cliffs on C Bluff have historically supported nesting golden eagles (*Aquila chrysaetos*) and peregrine falcons (*Falco peregrinus*). The area also provides habitat for the bald eagle, which has returned to nest in the area after an absence of more than 50 years.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Open Cedar Fens are open canopy woodlands that occur in a peatland setting with northern white cedar dominant. Black spruce, red maple, balsam fir, black ash, or larch may be mixed with the cedar. The shrub layer may be locally dense with patches of trees and scattered shrubs of winterberry, alder, or mountain holly. The herb layer, usually with >50% cover, is variable in composition and may be predominantly heath shrubs or herbs with a prominent component of graminoids. Shrubby cinquefoil, alpine cotton-grass, sticky false-asphodel, and grass-of-parnassus may be at higher pH sites. These fens usually occur as part of larger peatlands, and maintaining the hydrologic integrity of the entire wetland is key. The cedars generally remain small, therefore this type is typically not a



*Circumneutral Fen Natural Community,
Maine Natural Areas Program*

target for forest management. In some areas these fens have been altered by beaver activity. Conifer-preferring birds that may use this partly open type include black-backed woodpecker, palm warbler, common yellowthroat, Lincoln's sparrow, and Swainson's thrush. Cedar fens that have a large number of dead trees provide habitat for the three-toed woodpecker.

Circumneutral Fens are open peatlands dominated by sedges, often grading into areas thicker with dwarf shrubs. Sparse cedar or larch may dot the fen. Dominant sedges include deer-hair sedge and slender sedge; white beak-rush is locally common. Alpine cotton-grass, with its white wispy fruiting heads, is often obvious but not abundant. Shrubby cinquefoil and bog rosemary are characteristic. Northern bog aster and marsh muhly are good indicators, as are species typically found in areas with higher pH, including livid sedge, yellow sedge, sparse-flowered sedge, and northern bog sedge. Both livid sedge and sparse-flowered sedge have been found within the streamside fen of this focus area.

Maintaining appropriate wetland buffers is important in minimizing the effects of adjacent land use to circumneutral fens. This community is inhabited by the rare Clayton's copper butterfly, which uses shrubby cinquefoil as its sole larval host plant and primary adult nectar plant. This butterfly is found at only 14 sites worldwide, nine in Maine and five in New Brunswick. All known occurrences are in circumneutral fens with shrubby cinquefoil stands large enough to support a persistent population of the butterfly. Future surveys of the cinquefoil fen in the Umbagog Wetlands to C Pond Focus Area may find additional populations of this rare butterfly.

CHARACTERISTIC SPECIES

The **golden eagle** (*Aquila chrysaetos*) is Maine's rarest breeding bird. For many years, only a single pair nested in the state. Golden eagles are traditionally associated with rugged topography and open country. They often nest on cliffs in mountains, but tree-nesting prevails in forested regions. Historically, shooting, trapping, and poisoning reduced golden eagle numbers. Environmental contaminants, especially DDT, caused reproductive impairment during the post-World War II era. Marginal habitat conditions (lack of food, open space for

hunting prey) now limit golden eagles in the East. Counts of migrating golden eagles in the East, however, indicate that the Eastern population is slowly increasing.

Peregrine falcons (*Falco peregrinus*) also nest on cliffs, ledges or overhangs. Like golden eagles, increased use of pesticides after World War II caused drastic declines in peregrine populations. Although once broadly distributed in North America, they were extirpated throughout much of their historic range including the eastern United States. Maine has joined other states in a large-scale peregrine falcon reintroduction program. Young, captive-reared peregrines were slowly released at former nest sites in a process called "hacking." Reintroduced peregrines have been successful in Maine as well as in New Hampshire, Vermont, and New York. With recovery of the species nationwide, the peregrine falcon was taken off the federal Endangered species list in 1999, but its breeding population remains listed as Endangered on the Maine list, as its numbers here are still low. A pair of peregrine falcons nests on C Bluff.

Bald eagles (*Haliaeetus leucocephalus*) have been known to nest near the Maine-New Hampshire border in tall white pines near Lake Umbagog. 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 made a dramatic recovery, and are no longer listed as a state Threatened species. 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. The next closest known eagle nest is six miles northeast on Pond in the River, south of Lower Richardson Lake.

Livid sedge (*Carex livida* var. *radicaulis*) is found in calcareous meadows and bogs, typically in circumneutral fen communities. It is scarce in Maine due to a lack of suitable calcareous habitat. This species can be protected by maintaining the hydrology of the circumneutral fen habitats in which it occurs.

Sparse-flowered sedge (*Carex tenuiflora*) is typically found within bogs and mossy woods or pond margins, usually where there is a higher pH. This plant is at the southern limit of its range. The best protection for this species is to 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.

CONSERVATION CONSIDERATIONS

- » Eagles are extremely sensitive to disturbance during their nesting season. 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 buffer around an eagle nest during any kind of land-clearing or timber harvest activity. Habitat protection within ¼ mile radius of a nesting site is another significant measure that can help support nesting eagles. Consult with a MDIFW biologist prior to planning any activity that may disturb the forest around an eagle nest.
- » Human disturbance near peregrine falcon nest sites during the breeding season can cause nest failure. Peregrines are especially sensitive to human activity on the nest cliff or on trails that are within line-of-sight from the nest or perches. Hiking on these trails and climbing on the cliff should be prohibited within ¼ mile of nest sites during the breeding season (March to August). Forestry activities in areas used by falcons should maintain some large trees and snags as perches for roosting and hunting.
- » Intact forest buffers of 250 feet or more should be maintained around known concentrations of rare plants.
- » A large portion of the focus area is classified as wetland or open water. The integrity of wetlands and the processes and life forms they support are dependent on the maintenance of the current hydrology 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. Because different species can have different buffering requirements, better protection will be afforded to the collective wetland plants and animals when larger buffers are used. Any timber harvesting within and adjacent to wetlands should be implemented with strict adherence to state or local Shoreland Zoning guidelines, the Maine Natural Resources Protection Act, and Maine Forest Service Best Management Practices.
- » If there is heavy use of the area by Off Road Vehicles (ORV's) care needs to be taken that ORV's stay on existing trails and remain out of all wetlands. Existing roads and trails should be reviewed with specific recreation and access needs in mind, and trails closed if they run counter to protection needs.
- » Preserving the natural communities and other sensitive features within the focus area will be best achieved by

Ecological Services of the Focus Area

- Contributes to the water quality and ecological integrity of the area.
- Provides high quality, undeveloped block of habitat for wildlife, including rare species.
- Provides important component of regional biodiversity.
- Provides ecological connectivity and habitat for area-sensitive and wide-ranging wildlife species.

Economic Contributions of the Focus Area

- Attracts tourism for recreation.
- Protects water quality of Lake Umbagog and resources downstream.
- Provides high value forest products.
- Provides scenic vistas that contribute to Maine's natural character.
- Provides wildlife habitat for a number of fish and game species that are seasonally important to Maine's rural economy.

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.

- » This area includes Significant Wildlife Habitat for waterfowl and wading birds. Both land managers and private landowners should follow best management practices with respect to forestry activities in and around wetlands, shoreland areas, and Significant Wildlife Habitat. Maintaining wide forested buffers along all lakes, rivers, streams, and wetlands will provide valuable riparian habitat for many wildlife species. Consult with a MDIFW biologist prior to planning any activity that may disturb the forest around wading bird and waterfowl habitats.
- » Low-intensity cutting (single tree or small group selection, firewood harvest) within riparian buffers is likely compatible as long as operators avoid wetlands. Winter harvests are recommended to minimize impacts to rare animals and wetland condition.
- » Both land managers and private landowners should follow

MDIFW Deer Wintering Area guidelines with respect to forestry within these mapped habitats. Maintaining quantity and quality winter shelter is the most important factor for survival of deer in these northern environments. Consult with a MDIFW biologist prior to planning any activity within a DWA.

- » 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>.
- » 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.
- » 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
Animals	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SC	S4B,S4N	G5
	Golden Eagle	<i>Aquila chrysaetos</i>	E	S1B,S1N	G5
	Peregrine Falcon	<i>Falco peregrinus</i>	E	S1S2N,S2B	G4
Plants	Livid Sedge	<i>Carex livida var. radicalis</i>	SC	S2	G5T5
	Sparse-flowered Sedge	<i>Carex tenuiflora</i>	SC	S3	G5
Natural Communities	Circumneutral Fen	Shrubby cinquefoil - sedge circumneutral fen		S2	G2G3
	Open Cedar Fen	Northern white cedar woodland fen		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.