

Massabesic Forest – South Focus Area

Lyman & Alfred, Maine

Description:

The Massabesic Forest - South Focus Area includes several thousand acres of undeveloped forest and wetlands located in the south end of the towns of Alfred and Lyman. Contributing to the biological significance of the area is the area's high concentration of large and small swamps, and vernal pools. Concentrations of pocket swamps and vernal pools in undeveloped, forested landscapes are becoming increasingly rare in Maine. These areas provide critical habitat for rare plants and animals that are restricted to southern Maine. The area is underlain by glacial till including moraine formations and by glacio-marine deposits, both of which impede drainage and help create this unusually high density of wetlands. Although the area is bisected by a number of roads, it is likely that the interior of each of the remaining

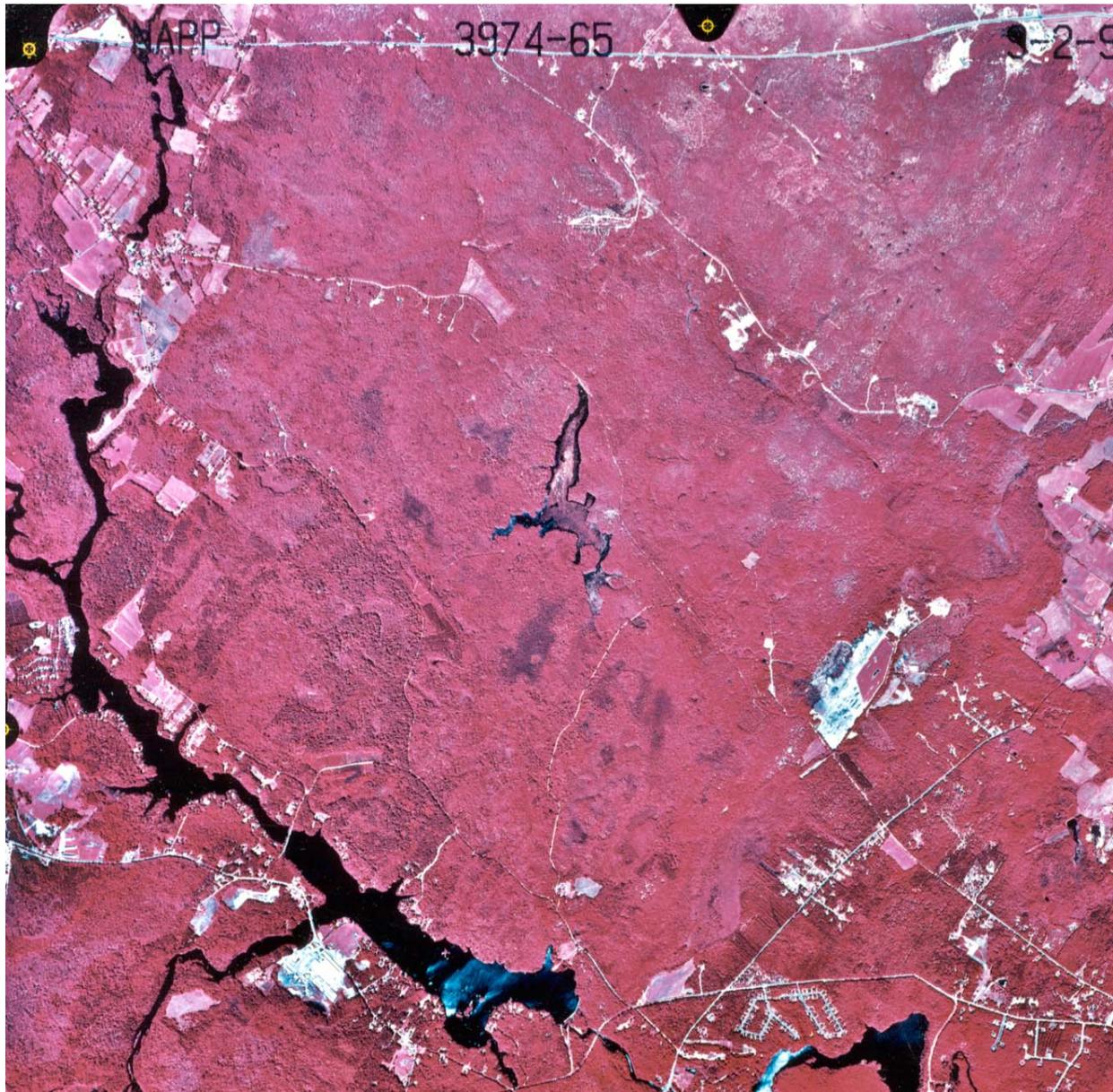


Atlantic white cedar swamp

unfragmented forested blocks has never been cleared for farming or pasture due to the poor quality of the soils. The forest through much of the area is dominated by oak and pine, and the wetlands are largely dominated by red maple, various shrubs, and in localized areas, Atlantic white cedar. Timber harvesting has probably been the primary historical use of these lands.

The focus area includes one of Maine's largest Atlantic white cedar swamps, a rare natural community type known from only a handful of locations in southern and midcoast Maine. This habitat type is characterized by a mostly closed-canopy of Atlantic white cedar that

is mixed with black spruce or red maple. Openings within the swamp typically have mixtures of highbush blueberry, mountain holly, and winterberry, with patches of ferns and sedges. Dense mosses cover the hummock-and-hollow ground surface. Often, Atlantic white cedar forms a dense canopy that allows little light penetration and limits understory growth. Since Atlantic white cedar seedlings are relatively intolerant of shade, some form of disturbance (e.g., fire, wind throw, or timber harvesting) may be required to regenerate this species.



Color infrared Photo of Massabesic Forest - South focus area

Vernal pools are ephemeral wetlands that typically fill with water from snow melt and spring run-off and often dry out over the course of the summer. They offer critical breeding habitat for some species of amphibians and invertebrates such as wood frogs, spotted and blue-spotted salamanders, and fairy shrimp. The seasonal nature of the temporary pools maintains a

fishless environment conducive to the successful breeding of these animals. Vernal pools are also used as feeding and breeding habitat by many other animals such as spring peepers, grey tree frogs, and other common amphibians, as well as several rare species including Blanding's turtle (Endangered), spotted turtles (Threatened), wood turtles (Special Concern) and ringed boghaunter dragonflies (Endangered). The amphibians and aquatic invertebrates that are dependent on these ponds for survival are an important food resource for other forest dwellers such as turtles, snakes, birds, and small mammals. The vegetated condition of vernal pools varies from completely vegetated, usually with sedges, grasses, ferns, and scattered shrubs, to non-vegetated, with only dead leaves carpeting the pool bottom. Non-vegetated pools can be just as important for amphibians as those with plant cover.

The wetlands and uplands in this focus area support three of Maine's rare turtle species: the state endangered Blanding's turtle, the state threatened spotted turtle, and the special concern wood turtle. Spotted and Blanding's turtles are generally found only in the southern most part of the state where increasing development contributes to loss of habitat, habitat fragmentation, and an on-going loss of individuals to road kill. These two species are most frequently associated with complexes of small, acidic wetlands and vernal pools in large, intact forested landscapes. They also use small streams, shrub swamps, forested swamps, wet meadows, and emergent marshes. Although these turtles spend most of their time in the water, they readily travel overland between wetlands during the spring and summer months. Upland habitats are also critical for basking, aestivating (a period of late summer inactivity), and nesting. Wood turtles are generally found near clear streams and rivers in forested areas where they make extensive use of the riparian zone adjacent to the river channel, as well as the productive vernal pools or sloughs that are often found there.



Spotted turtle



Ringed boghaunter dragonfly

Spotted and Blanding's turtles have evolved relatively long adult life spans to offset the long time it takes to reach reproductive maturity and to offset high levels of nest mortality. Because of this unusual life history, spotted and Blanding's turtle populations occur at low densities, and thus populations are highly vulnerable to any human sources of adult mortality. Road mortality and collecting for pets, for example, can be extremely deleterious, as the attrition of just a few individuals every year can lead to the long-term decline and extinction of a local population. The secondary effects of human development – increased predator populations (e.g.,

dogs, raccoon, skunks), water pollution, filling of small wetlands, and blocking upland travel corridors (roads, rail beds, yards) – also limit populations. Spotted and Blanding’s turtles are strictly protected from take (collecting, possession, or killing) by the Maine Endangered Species Act.

Three rare plants, swamp saxifrage, spotted wintergreen, and Atlantic white cedar have all been documented in this area. Swamp saxifrage occurs in southern Maine in the herbaceous layer of deciduous-forested wetlands, shrub swamps, and wet meadows. Common associates include alder, red maple, sensitive fern, and sedges. Spotted wintergreen tends to inhabit mixed woods with full to partial canopy on slight slopes. All Maine populations of spotted wintergreen are small and apparently vulnerable. Swamp saxifrage and spotted wintergreen are both at the northern edge of their range limit in southern Maine.

Three rare invertebrate species also occur within the focus area. Two of them are dragonflies, the globally rare ringed boghaunter and the state rare ebony bog haunter. These dragonflies both use small peaty wetlands to complete their life cycles. The ringed boghaunter is among the earliest flying dragonflies in the state, with adult emergence occurring in early May. Reproductive sites are typically small, acidic pocket swamps where patches of “*Sphagnum* soup” are interspersed with sedges, ferns, or shrubs. Although portions of these wetlands tend to dry up during summer months, some permanent open water generally persists. Adult dragonflies of both species typically frequent upland forested areas up to several hundred feet from their natal wetland to bask and forage before returning to breed.

The other rare invertebrate known from the Massabesic Forest – South area is the globally rare and state endangered Hessel’s Hairstreak butterfly. This butterfly is found exclusively near swamps and bogs where its host plant is abundant – Atlantic white cedar – and the Massabesic forest hosts one of only three known populations of Hessel’s Hairstreak in Maine. While probably never common on the northern end of its range, Hessel’s Hairstreak is now vulnerable to extinction due to the incremental loss and fragmentation of remaining cedar swamps from logging and development activity in rapid growth areas of York County. Both the ringed boghaunter and Hessel’s hairstreak are strictly protected from take (collecting, possession, or killing) by the Maine Endangered Species Act.

Rare Species Table for Massabesic Forest - South:

Common Name	Scientific Name	Status	S-Rank	G-Rank
Natural Communities				
Atlantic White Cedar Swamp	Atlantic White Cedar Swamp		S2	G3
Rare Plants				
Atlantic White-Cedar	<i>Chamaecyparis thyoides</i>	SC	S2	G4
Spotted Wintergreen	<i>Chimaphila maculata</i>	E	S1	G5
Swamp Saxifrage	<i>Saxifraga pennsylvanica</i>	T	S2	G5
Columbia Water-Meal	<i>Wolffia columbiana</i>	T	S2	G5
Rare Animals				
Hessel's Hairstreak Butterfly	<i>Callophrys hesseli</i>		S1	G3G4
Spotted Turtle	<i>Clemmys guttata</i>	T	S3	G5
Wood Turtle	<i>Clemmys insculpta</i>	SC	S4	G4
Blanding's Turtle	<i>Emydoidea blandingii</i>	E	S2	G4
Ebony Boghaunter Dragonfly	<i>Williamsonia fletcheri</i>	SC	S3?	G3G4
Ringed Boghaunter Dragonfly	<i>Williamsonia lintneri</i>	E	S1	G2

Other Resources Mapped by MDIFW:

Deer Wintering Area
Wading Bird / Waterfowl Habitat

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;
- No activities should be permitted that could lead to the loss or degradation of turtle wetlands including filling, dredging, sedimentation, or changing of hydrology unless the activity is approved by MDIFW.
- A minimum 250-foot forested buffer zone should be maintained around target wetlands with known Blanding's turtle locations. All wetlands, regardless of size, within 1/4 mile of

mapped spotted turtle locations should be considered potential habitat for this wide ranging species, and protected from direct impacts, and buffered by forested upland;

- Impervious surfaces such as yards, buildings, parking lots, and roads should be minimized in the upland landscape within 1/4 mile of turtle wetlands. Natural forest habitat should predominate the landscape. Intensive developments that concentrate human populations and road traffic within 1/4 mile of turtle wetlands should be avoided including subdivisions and service centers.
- Less pervasive is degradation from incidental uses related to the increasing residential development in the area. Upland buffers can also play a major role in protection here. Care needs to be taken that ORV's stay on existing trails and remain out of all wetlands when the ground is not frozen. Existing trails should be reviewed with particular recreation and access needs in mind, and trails closed if they run counter to protection needs. Fragmenting features should be minimized where possible.
- Low-intensity cutting (single tree or small group selection, firewood harvest) is likely compatible with sensitive features as long as operators avoid wetlands. Winter harvests are recommended to minimize impacts to rare plants, animals, and wetland systems. Close adherence to Best Management Practices for forestry activities near vernal pools (see Forestry Endangered and Threatened Species Guide) will ensure the protection of wetland habitats and the amphibian food source they supply.
- Conservation planning for upland features should include setting some areas aside from timber harvesting to allow for the development of some unmanaged forest ecosystems.
- No activities should be permitted that could lead to the loss or degradation of Atlantic white cedar swamps hosting Hessel's hairstreak including filling, ditching, polluting, or changes to the water level.
- A minimum 250 foot upland forested buffer zone should be maintained around Atlantic white cedar swamps hosting the Hessel's hairstreak. A buffer of 1/2 mile should be used for these sites when spraying pesticides for control of gypsy moths and other pests.

Protection Status:

The United States Forest Service owns and manages the Massebesic Experimental Forest within the focus area. Their lands include less than one half of the land in the focus area. The remaining lands are in private non-conservation ownership.

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.

Visit our web site for more information on rare, threatened and endangered species!
<http://www.state.me.us/doc/nrimc/mnap/factsheets/mnapfact.htm>