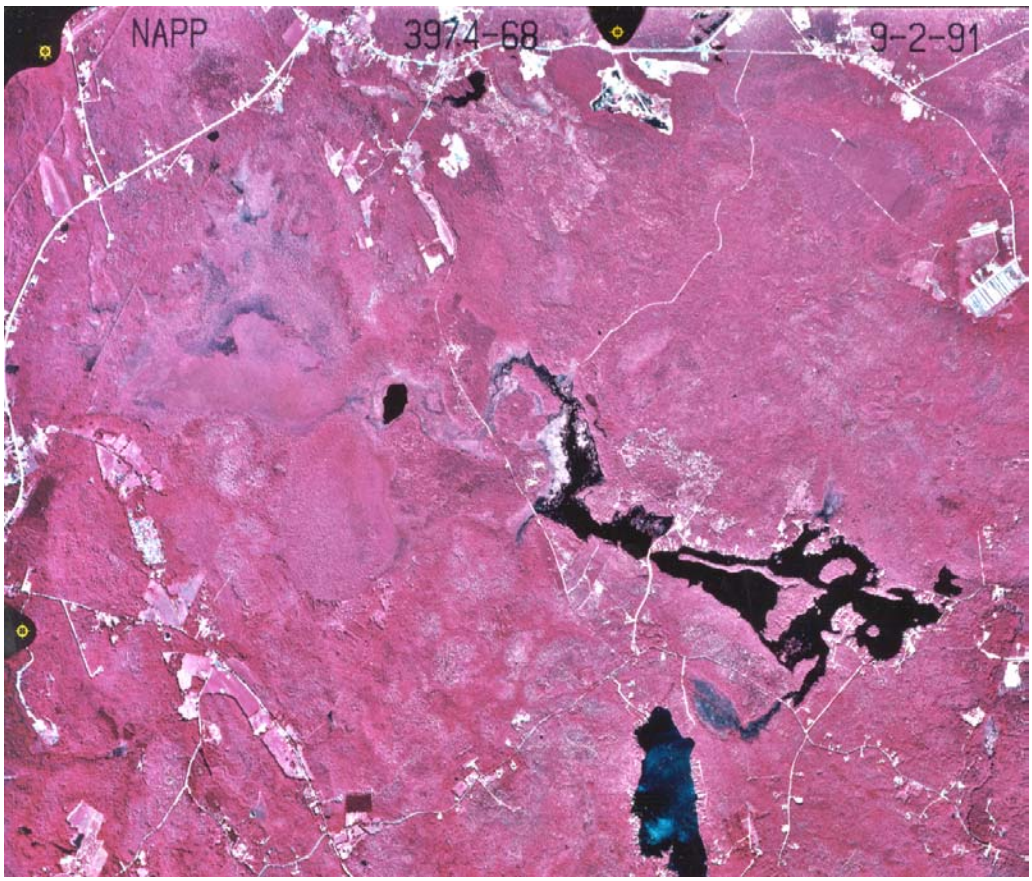
Massabesic Forest – North Focus Area

Lyman & Waterboro, Maine

Description:

The size and diversity of wetlands in the Massabesic Forest – North Area are outstanding. Of particular significance are a 500 acre level bog ecosystem adjacent to Tarwater Pond and a 100+ acre streamshore ecosystem along the inlet to Roberts Pond. While the site contains a diversity of upland and wetland habitats, it is the Tarwater Pond complex that is of highest conservation interest because of the relative rarity of intact peatland systems in this portion of the state. This largely unfragmented wetland also provides excellent habitat for a variety of wildlife species, including turtles. Maine Department of Inland Fisheries and Wildlife research has shown that the Massabesic area is one of two or three regions in the state with potential for maintaining long-term, viable populations of State-Threatened spotted and State-Endangered Blanding's turtles (*Clemmys guttata* and *Emydoidea blandingii*, respectively).



Massabesic Forest – North (Infrared Aerial Photo 1991)

The area's topography has been sculpted by the actions of a retreating Wisconsin glacier roughly 13,000 years ago. On the uplands, glaciofluvial deposits created relatively flat kame terraces and deltas consisting of sand, gravel, and silt. Numerous kettleholes and minor depressions were formed as blocks of ice were left behind by the retreating glacier. These kettleholes have since filled in with peat and muck and now form the region's wetlands. Slopes contain areas of accumulated till. North of Roberts Pond a long, narrow esker line extends toward Buxton. Much of the uplands within the study area were burned in 1947 and now contain post-

fire regeneration of pioneering species, gray birch (*Betula populifolia*), black cherry (*Prunus serotina*) that are being replaced by more shad-tolerant hardwoods.

Natural Communities & Ecosystems:

Level Bog Ecosystem: These are flat peatlands in basins with mostly closed drainages, 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 (*Picea mariana*) and larch (*Larix laricina*). These ecosystems may include more a number of natural communities.

Tussock Sedge Meadow: This community is a marsh dominated by well defined hummocks of tussock sedge mixed with bluejoint grass (*Calamagrostis canadensis*) and other grass-like plants. Other wetland herbs vary among sites, and include royal fern (*Osmunda regalis*), cinnamon fern (*O. cinnamomea*), sensitive fern (*Onoclea sensibilis*), St. Johnswort (*Hypericum* spp.), flat-topped goldenrod (*Euthamia graminifolia*), and wool-grass (*Scirpus cyperinus*). This community is generally found on saturated soils, with standing water through much of the growing season. Soils may be entirely organic, or organic over mineral soil. This community type occurs in large flat basins with drainage streams.

Streamshore Ecosystem: This is the group of communities bordering and directly influenced by the open-water portion of a stream (first-order through third or fourth-order). It includes vegetated aquatic communities as well as the emergent and bordering communities. Most communities are palustrine; streams are generally too small to exert many disturbance effects on adjacent terrestrial areas. Upland forests bordering streams are included under forested upland ecosystems.

Leatherleaf Boggy Fen: This type is characterized by peatland vegetation dominated by leatherleaf (*Chamaedaphne calyculata*) mixed with other low heath shrubs, mostly growing less than 1 m tall. Graminoid cover is usually less than 30%. Typical bog plants like pitcher plants (*Sarracenia purpurea*), sundews (*Drosera* spp.), and small cranberry (*Vaccinium oxycoccus*) are scattered on the sphagnum substrate. Trees, if present, are less than 15% total cover. This type is commonly found in bogs and nutrient-poor fens, usually in settings where groundwater contact is maintained. The substrate is sphagnum peat. Leatherleaf boggy fen is often a major constituent of "kettlehole bog" vegetation.

Red Maple Wooded Fen: This habitat type is characterized by partly forested peatlands in which red maple (*Acer rubrum*) dominates, or is co-dominant with larch or black spruce. The shrub layer is locally dense, with small trees and thickets of winterberry (*Ilex verticillata*), mountain holly (*Nemopanthus mucronata*), high bush blueberry (*Vaccinium corymbosum*), or maleberry (*Lyonia ligustrina*). The moss layer is extensive and dominated by sphagnum mosses. This habitat occurs in low basins at low elevations in areas with saturated peat soils that may be up to 50 cm deep.

Sheep Laurel Dwarf Shrub Bog: This type is made up of a dense layer of dwarf ericaceous shrubs, with sheep laurel (*Kalmia angustifolia*) prominent, and dominates this open peatland vegetation. Stunted and scattered black spruce and larch form usually occur with less than 25% cover. Heath shrubs carpet the hummocks and hollows of the peat substrate. Sedges are frequent but contribute little cover (usually less than 15%, occasionally 20-25%); the most common is tufted cotton-grass (*Eriophorum vaginatum*). The ground surface is covered by a spongy carpet of peat mosses. Sites for this type are acidic, saturated, and often include raised portions of peatlands.

***Rare Species/Natural Community Table for Massabesic Forest - North Area*:**

Common Name	Scientific Name	Status	S-Rank	G-Rank
Rare and Exemplary Natural Communities and Ecosystems				
Dwarf Shrub Bog	Sheep Laurel Dwarf Shrub Bog	n/a	S4	--
Leatherleaf Bog	Leatherleaf Boggy Fen	n/a	S4	--
Level Bog Ecosystem	Level Bog Ecosystem	n/a	S4	--
Red Maple Fen	Red Maple Wooded Fen	n/a	S4	--
Sedge Meadow	Tussock Sedge Meadow	n/a	S3	--
Streamshore Ecosystem	Streamshore Ecosystem	n/a	--	--
Rare Plants				
Upright bindweed	*Calystegia spithamaea*	T	S1	G4G5
Small whorled pogonia	*Isotria medeoloides*	E	S2	G2
Rare Animals				
Spotted turtle	*Clemmys guttata*	T	S3	G5
Blanding's turtle	*Emydoidea blandingii*	E	S2	G4
New England cottontail	*Sylvilagus transitionalis*	SC	S2	G4
Ribbon snake	*Thamnophis sauritus*	SC	S3	G5
Ebony boghaunter dragonfly	*Williamsonia fletcheri*	SC	S3?	G4G5

Other Resources Mapped by MDIFW:
Deer Wintering Area
Wading Bird / Waterfowl Habitat

Conservation considerations:
Residential Development: Poorly planned development in the area may cause irreversible impacts to the natural systems through fragmentation due to roads and land conversion. Increases in invasive plant species often accompany development.

Wetlands and Aquatic Systems: The integrity of wetlands are dependent on the maintenance of the hydrology and water quality of these systems. Intensive logging, clearing, soil disturbance, new roads, and development on buffering uplands can result in greater runoff, sedimentation, and other non-point sources of pollution.

Preserving Natural Communities: Preserving natural communities and other sensitive features will be best achieved by conserving the integrity of the larger natural systems in which these features occur. Conserving the larger systems helps ensure both common and rare natural features will persist here

Set Asides: Conservation planning for upland features should include setting some areas aside from timber harvests to allow for the development of some unmanaged forests.

Vernal Pools: Close adherence to Best Management Practices for forestry activities near vernal pools (see Forestry Endangered and Threatened Species Guide) will ensure the protection of wetlands and the amphibian food source they supply.

Off Road Vehicle (ORV) Use and Wetlands: Where there is use by ORV's care needs to be taken that ORV's stay on existing trails and remain out of all wetlands.

Protection Status:
The site includes the United States Forest Service Massebesic Experimental Forest. These lands include less than one half of the land in the 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