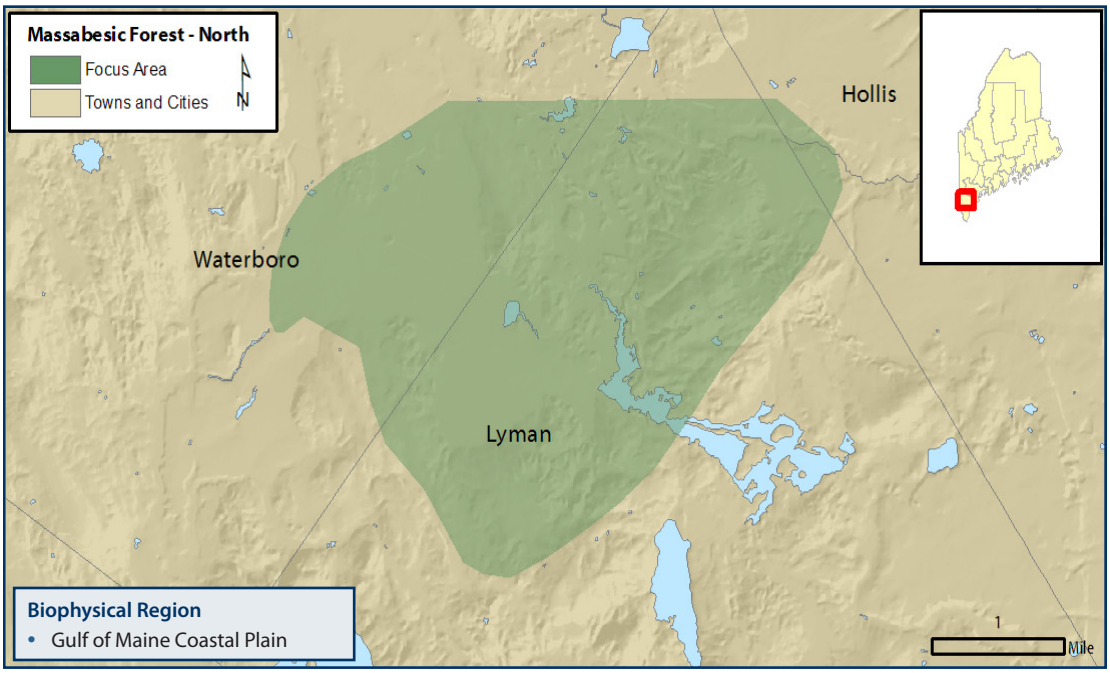
Beginning with HABITAT

Focus Areas of Statewide Ecological Significance

Massabesic Forest North



WHY IS THIS AREA SIGNIFICANT?

Wetlands in the Massabesic Forest – North Focus Area are of statewide significance because of their extent and diversity of types. Tarwater Pond supports an intact peatland system rare in this part of the state and the extraordinary unfragmented wetlands and surrounding uplands make this area one of only a few regions in Maine with the potential for maintaining long-term, viable populations of rare and endangered turtle species.

OPPORTUNITIES FOR CONSERVATION

» Work with willing landowners to permanently protect remaining undeveloped areas and significant features.
» Encourage town planners to improve approaches to development that may impact Focus Area functions.
» Encourage landowners to maintain enhanced riparian buffers and the sites natural hydrology.
» Encourage best management practices for forestry, vegetation removal and soil disturbance near wetlands, water bodies and other significant features.
» Limit habitat fragmentation.

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

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Rare Animals
Spotted turtle
Blanding's turtle
New England cottontail
Ribbon snake
Spot-winged Glider

Rare Plants
Upright bindweed
Small whorled pogonia

Rare and Exemplary Natural Communities
Dwarf Shrub Bog
Leatherleaf Bog
Raised Level Bog Ecosystem
Red Maple Fen
Red Maple Swamp
Sedge Meadow
Streamshore Ecosystem

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

Public Access Opportunities
» USFS Massabesic Experimental Forest

Dwarf Shrub Bog Habitat, Maine Natural Areas Program

FOCUS AREA OVERVIEW

The size and diversity of wetlands in the Massabesic Forest – North Focus Area are outstanding. Of particular significance are the 1,000 plus acre level bog ecosystem adjacent to Tarwater Pond and a 120 acre streamshore ecosystem along the inlet to Roberts Pond. All together this Focus Area covers approximately 5,700 acres. 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 large intact peatland systems in this portion of the state. This largely unfragmented wetland 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 potentially three regions in the state that may support long-term, viable populations of State Threatened spotted and State Endangered Blanding's turtles.

The Focus 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, including gray birch and black cherry that are being replaced by more shade-tolerant hardwoods.

NATURAL COMMUNITIES

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 (receiving water and nutrients from rain only). 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 moss dominates the ground surface and is the main peat constituent. The surface of the bog is flat and featureless. These bogs often support widely scattered, stunted black spruce and larch. Level bog ecosystems typically include a number of natural communities.

Streamshore Ecosystem: This is the group of communities bordering and directly influenced by the open-water por-

tion 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.

Tussock Sedge Meadow: This community is a marsh dominated by well-defined hummocks of tussock sedge mixed with bluejoint grass and other grass-like plants. Other wetland herbs vary among sites, and include royal fern, cinnamon fern, sensitive fern, St. Johnswort, flat-topped goldenrod, and woolgrass. 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.

Leatherleaf Boggy Fen: This type is characterized by peatland vegetation dominated by leatherleaf 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, sundews, and small cranberry 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 dominates, or is co-dominant with larch or black spruce. The shrub layer is locally dense, with small trees and thickets of winterberry, mountain holly, high bush blueberry, or maleberry. 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 prominent, and dominates this open peatland vegetation. Stunted and scattered black spruce and larch 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. 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.

Ecological Services of the Focus Area

- Provides habitat for wading birds and waterfowl
- Supports regional biodiversity by providing habitat for rare species and communities
- Retains sediments and nutrients protecting water quality
- Stores floodwaters

Economic Contributions of the Focus Area

- Recharges groundwater
- Provides forest products
- Provides opportunities for recreation including hunting, hiking and wildlife watching.
- Experimental Forest offers education and research opportunities

CHARACTERISTIC SPECIES

The Massabesic area is one of only a few regions in the state with potential for maintaining long-term, viable populations of **Blanding's turtles** (State Endangered) and **spotted turtles** (State Threatened). Both turtle 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, and wet meadows which are plentiful on the Massabesic-North Focus Area. 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 critical for basking, aestivating (a period of late summer inactivity), nesting, and as travel corridors between wetlands.

Blanding's and spotted turtles have evolved relatively long adult life spans to offset the long time it takes to reach reproductive maturity (15 or more years) and to offset high levels of nest mortality. Because of this unusual life history, these turtle populations are at low densities, and thus populations are extremely vulnerable to any human sources of adult mortality. Road mortality and collecting for pets, for example, can be 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, pollution, filling of small wetlands, and blocking upland travel corridors – also limit populations.

The wetlands and waterbodies of the Massabesic-North Focus Area also support habitat for the **ribbon snake,** a species of special concern. Ribbon snakes are semi-aquatic snakes. Habitat types frequented by ribbon snakes include bogs, shrub swamps, forested wetlands, wet meadows, streams, and pond/lake edges. They prefer the periphery of these areas where vegetation and supplies of amphibians are abundant. Most of Maine's ribbon snake population occurs in southern and south-central Maine. Due to the high rates of development in these areas, this species is also vulnerable to habitat loss, fragmentation, and degradation of their habitats. The wetland-upland ecology of this snake puts it at further risk due to inadequate regulations protecting riparian and upland habitat around smaller wetlands

In addition the Focus Area includes several large and interconnected mapped **Inland Wadingbird and Waterfowl Habitats** as well. These Significant Wildlife Habitats include non-forested portions of The Heath, emergent wetlands bordering Tarwater Pond, emergent wetlands associated with Cooks Brook, and the marshes at the north end of Roberts Pond. These areas provide undisturbed nesting habitat and feeding areas and are essential for maintaining viable waterfowl and wading bird populations.

Small populations of two rare plant species, **small whorled pogonia** and **upright bindweed** have been documented in the Focus Area. Small whorled pogonia is an orchid species of mixed mesic forests and is rare through its range. Upright bindweed typically grows in open habitats with dry soils such as pine barrens.

Top- Blanding's Turtle, Jonathan Mays
Bottom- Small Whorled Pogonia, Maine Natural Areas Program

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.

» Invasive Species: 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.

» 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. Improperly sized crossing structures such as culverts can impede movement of fish and aquatic invertebrates effectively fragmenting local aquatic ecosystems and ultimately leading to local extirpation of some species. Future management activity should avoid additional impacts to the site's hydrology.

- 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 (available from Maine Audubon Society at 207-781-6180 ext. 222 or bwilson@maineaudubon.org) will ensure the protection of wetlands and the amphibian food source they supply. Significant vernal pools are protected as Significant Wildlife Habitat under the Natural Resources Protection Act.

- 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.

- Habitat Connections: 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.

- Significant Wildlife Habitat: This area includes Significant Wildlife Habitat. Land managers should follow best management practices in and around wetlands, shoreland areas, and Significant Wildlife Habitat. Vegetation removal, soil disturbance and construction activities may require a permit under the Natural Resources Protection Act. Contact MDIFW for more information.

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Spotted turtle	*Clemmys guttata*	T	S3	G5
	Blanding's turtle	*Emys blandingii*	E	S2	G4
	New England cottontail	*Sylvilagus transitionalis*	E	S2	G3
	Ribbon snake	*Thamnophis sauritus*	SC	S3	G5
	Spot-winged Glider	*Pantala hymenaea*	SC	S2	G5
Plants	Upright bindweed	*Calystegia spithamaea*	T	S1	G4G5
	Small whorled pogonia	*Isotria medeoloides*	E	S2	G2
Natural Communities	Dwarf Shrub Bog	Sheep Laurel Dwarf Shrub Bog		S4	G5
	Leatherleaf Bog	Leatherleaf Boggy Fen		S4	G5
	Raised Level Bog Ecosystem	Raised Level Bog Ecosystem		S4	not ranked
	Red Maple Fen	Red Maple Wooded Fen		S4	not ranked
	Red Maple Swamp	Red Maple – Sensitive Fern Swamp		S4	G3G5
	Sedge Meadow	Tussock Sedge Meadow		S3	not ranked
	Streamshore Ecosystem	Streamshore Ecosystem		S4	not ranked

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.