

Biddeford / Kennebunkport Vernal Pool Complex Focus Area

Biddeford and Kennebunkport, Maine

Description:

The focus area includes thousands of acres of undeveloped forest and wetlands located in eastern Biddeford and northern Kennebunkport. The biological significance of this area is due to the high concentration of pocket swamps and vernal pools. Concentrations of pocket swamps and vernal pools in undeveloped landscapes are becoming increasingly rare in Maine. The area is underlain by glacial till including moraine formations and by glacio-marine deposits including clay, both of which impede drainage and help create this unusual high density of swamps, vernal pools, and small streams. Although the area is bisected by a number of roads, it is likely that the interior of each of the remaining unfragmented forested blocks has never been cleared for farming do 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. Timber harvesting has probably been the primary historical use of these lands.



Vernal Pool (from MNAP files)

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 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 by several rare species including Blandings turtle



Majority of focus area on Infrared Air photo: mottled areas in undeveloped forests are wetlands

(endangered), spotted turtles (threatened), and ringed bog haunter 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 on 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 the state threatened spotted turtle and the state endangered Blandings turtle. Spotted and Blandings turtles are generally found only in the southern most part of the state where increasing development contributes to loss of habitat, habitat fragmentation, and loss of individuals at road crossings. Spotted and Blandings turtles 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. 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.

Spotted and Blandings 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 Blandings 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. Spotted and Blandings turtles are strictly protected from take (collecting, killing or in possession) by the Maine Endangered Species Act.

Vernal pools and pocket swamps are sometimes habitat for rare plant species in the southern most part of the state, however there has only been limited rare plant inventory within the focus area. Two rare plants, pale green orchis and small reed grass, have been documented from specific locations within the focus area.

Rare Species Table for Biddeford / Kennebunkport Vernal Pool Complex:

Common Name	Latin Name	Status	S-Rank	G-Rank
Rare Animals				
Spotted turtle	<i>Clemmys guttata</i>	T	S3	G5
Blandings turtle	<i>Emydoidea blandingii</i>	E	S2	G4
Rare Plants				
Pale green orchis	<i>Platanthera flava</i>	SC	S2	G4
Small reed grass	<i>Calamagrostis cinnoides</i>	SC	S2	G5

*see last page for explanation of ranks

Other Resources Mapped by MDIFW:

Conservation Considerations :

- Further fragmentation of the large forested blocks that make up this site will gradually lead to a decline in habitat suitability for certain area-sensitive species, and will increase the likelihood of migrating species such as the spotted and Blandings turtles being killed by cars.
- Coastal towns in southern Maine have experienced rapid growth in the last decade, and many upland areas near the coast are under increasing threat. Unmanaged growth and sprawl can contribute to habitat fragmentation, introduction of invasive plant populations, and water quality degradation through pollution from storm water runoff and private sewage systems.
- Off Road Vehicle (ORV) use: 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 particular recreation and access needs in mind, and trails closed if they run counter to protection needs. Fragmenting features should be minimized where possible.
- Avoid road improvement projects (e.g. paving, widening) that may lead to increased traffic volume and speed within ¼ mile of known turtle wetlands.
- No activities should be permitted that could lead to the loss or degradation of wetlands, regardless of size, including filling, dredging, sedimentation, or changing hydrology unless the activity is approved by MDIFW.
- A minimum 250-foot forested buffer zone should be maintained around target wetlands with known spotted turtle locations. All wetlands, regardless of size, within ¼ mile of mapped spotted turtle locations should be considered potential habitat, protected from direct impacts, and buffered by forested upland.
- Impervious surfaces, yards, buildings and roads should comprise no more than 20% of the landscape within ¼ mile of turtle wetlands. Natural forest habitat should dominate the landscape around these wetlands. Intensive developments, including subdivisions and service centers, that concentrate human populations within ¼ mile of turtle wetlands should be avoided.
- Towns should strive to maintain important habitat areas identified by MDIFW in low density, rural settings by identifying these habitat areas in comprehensive plans and zoning accordingly.
- Low-intensity cutting (single tree or small group selection, firewood harvest) is compatible as long as operators avoid wetlands. Winter harvests are recommended to minimize impacts to turtles, amphibian prey, and wetland condition. Close adherence to Best Management Practices for forestry activities near vernal pools will ensure the protection of wetland habitats and the amphibian food source (contact MDIFW for vernal pool forestry BMP's).

Protection Status:

The majority of the focus area (>90%) is in non-conservation private 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>