Greater Brave Boat Harbor / Gerrish Island Focus Area

Kittery and York, Maine

Description:

The focus area includes a rich association of natural community types that provide the habitat needed to support most of the native plants and animals we would expect to find along the south coast of Maine. Natural communities found here include dune grasslands, spartina saltmarshes, oak forests, freshwater swamps, and vernal pools. The south end of the focus area on Gerrish Island is a complex mosaic of upland forests, pocket swamps and vernal pools. This large undeveloped assemblage of habitats is potential habitat for a number of rare plants and animals. Further north, both Sea Point and Brave Boat harbor have good quality spartina salt marshes, again areas that are important to both common and rare species. Numerous other intact forests, marshes, and coastal features are spread across the focus area. This diverse system of high quality natural habitats is a high priority for additional conservation action because of the rapid pace of development in its immediate vicinity.

Spartina saltmarsh (picture from MNAP files)

The Greater Gerrish Island / Brave Boat Harbor focus area has three documented rare natural community types, red oak - white oak forest, dune grassland, and spartina saltmarsh. The dune grassland, and spartina saltmarsh along with several other plant associations form a coastal dune - marsh ecosystem. Descriptions of the natural communties are listed below.

Spartina saltmarsh or salt hay saltmarsh is a community dominated by expanses of saltmeadow cordgrass, smooth cordgrass, and black-grass. Shrubs are virtually absent. Saltmeadow cordgrass gives a meadow-like appearance over much of the marsh. At slightly higher elevations within the marsh black-grass is dominant, and along creeks or at slightly lower elevations smooth cordgrass is dominant. Salt pannes are abundant and often support widgeon grass. Seaside goldenrod and sea-lavender are found at the upper tidal fringe. The peat substrate of the marsh is likely several meters thick. Sea side gerardia, dwarf glasswort, and American sea-blite are rare plants found in this habitat type at this site.

Dune Grassland is dominated almost exclusively by dune grass with very few other thinly scattered species. Dune grass is the anchor that helps keep the highly exposed sand dune formations in place. Dune grass needs actively accreting sand to survive and will die off if not stimulated to grow by shifting sand. Generally, the very front and back areas of the dunes are transition areas that support a small number of other characteristic plant species. Much of the original dune grassland occurring along this section of the coast is now heavily developed. Dunes and fore dune areas are essential habitat for the Federally Threatened piping plover and the State Endangered least tern although neither of these species has been documented at this site. All the remaining viable areas of dune grassland should be preserved and managed as a sensitive natural area. All areas of sand dunes should be posted with signs indicating their fragile nature and regular crossing areas should be well defined and managed to prevent erosion of the dunes.

Red Oak - White Oak Forest is a closed-canopy forest community dominated by red oak and with white oak as a common associate. White pine is occasionally present. Shrubs are distributed in well-spaced patches and include striped maple and maple-leaved viburnum. The forest floor is characterized by low heath shrubs; common herbs include woodland sedge and bracken fern. This rare forest type is usually found on gentle slopes with well drained acidic stony soils and is restricted to southern Maine.

One aspect of the biological significance of this area is due to its high concentration of pocket swamps and vernal pools. Concentrations of vernal pools and pocket swamps on undeveloped landscapes are becoming increasingly rare in Maine.

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 turtles (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 are those with plant cover.

Vernal Pool (from MNAP files)

The wetlands and uplands in this focus area support the state threatened spotted turtle. Spotted 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 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 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 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. Secondary effects of human development – increased predator populations, pollution, filling of small wetlands, and blocking upland travel corridors – also limit populations. Spotted turtles are strictly protected from take (collecting, killing or in possession) by the Maine Endangered Species Act.

Freshwater wetlands and uplands at this site also support populations of five additional rare plant species including spicebush, scarlet oak, sassafras, white wood aster, and wild coffee. These rare plants tend to occur in small numbers where they are found and are vulnerable to loss of habitat due to development. **Note that large portions of this focus area have not been surveyed and it is likely that there are populations of other rare plants and animals here.**

Rare Species/Natural Community Table for Brave Boat Harbor / Gerrish Island:

Common Name	Latin Name	Status	S-Rank	G-Rank
Exemplary Natural Communities				
Dune grassland		n/a	S2	G4?
Spartina saltmarsh		n/a	S3	G5
White oak-red oak forest		n/a	S3	G5
Rare Plants				
Saltmarsh false-foxglove	*Agalinis maritima*	SC	S3	G5
White wood aster	*Aster divaricatus*	SC	S3	G5
Sea-beach sedge	*Carex silicea*	SC	S3	G5
Spicebush	*Lindera benzoin*	SC	S3	G5
Scarlet oak	*Quercus coccinea*	E	S1	G5
Dwarf glasswort	*Salicornia bigelovii*	SC	S1	G5Q
Sassafras	*Sassafras albidum*	SC	S2	G5
American sea-blite	*Suaeda calceoliformis*	T	S1	G5
Wild coffee	*Triosteum aurantiacum*	E	S1	G5
Rare Animals				
Spotted turtle	*Clemmys guttata*	T	S3	G5

*see last page for explanation of ranks

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

Conservation Considerations:

- Nearly all areas mapped as exemplary natural communities and all known populations of rare plants are contained within existing conservation lands, but the site also includes large areas which have yet to be surveyed for these features.
- Natural Communities still occurring on the uplands adjacent to the marsh including upland forests, pine barrens, shrub swamps, forested swamps, and sand dunes should be conserved as part of the greater ecosystem of the marsh. Long term preservation of the biodiversity of

this high value natural area will be best achieved by retaining as much of the surrounding natural landscape as possible.

- The marsh system will benefit from establishing and/or maintaining vegetative buffer around its perimeter wherever possible. The marsh and the life it supports are not independent of the landscape in which they occur. A buffer of 250 feet or more will serve to limit impacts from adjacent development, help prevent erosion, provide habitat needed by numerous species that depend on the marsh, limit opportunities for colonization of invasive species, and prevent reckless impacts from off road vehicle use.
- The integrity of the marsh and the processes and life forms it supports are dependent on the maintenance of the tidal hydrology in a natural condition. Marsh hydrology, and subsequently its sedimentation patterns, can be affected by dredging of channels, marsh ditching, and culverts that restrict tidal flow. Channel dredging may cause erosion of adjacent marsh banks and disrupt natural sedimentation patterns in the lower marsh. Partial tidal restriction from culverts causes increased fresh water influence (reduced salinity) in the upper marsh and a subsequent increase of oxygen. Increased oxygen leads to deterioration of the upper marsh through decreases in peat elevation and shifts in plant species. Future management should prohibit impacts to the hydrology of the marsh.
- Past disturbances to the marsh include a rail line crossing, a pipeline crossing, and several road crossings. Disturbances to soils and natural vegetation in or adjacent to the marsh can create opportunities for colonization by invasive plant species. Local groups with an interest in the marsh should be made aware of the potential threat of invasive plants and keep an eye out for them before they become well established.
- Care should be taken to insure that boating in the channels and mouth of the marsh doesn't cause erosion to the exposed soils along the marsh edge, and that excessive noise from boats and people do not disrupt normal patterns of wildlife behavior.
- No dredge spoils or other fill materials should be placed in the marsh.
- 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 and expansion of invasive plant species populations, and water quality degradation through pollution from storm water runoff and private sewage systems.
- 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. 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, 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 forests 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 areas in comprehensive plans and zoning accordingly.
- For areas with known rare turtle populations 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 Brave Boat Harbor / Gerrish Island focus area includes substantial conservation ownership by the Rachel Carson National Wildlife Refuge and MDIFW. However, most of the conservation ownership is of the saltmarshes, the majority of the uplands buffering the marshes as well as the upland mosaics of forests and freshwater wetlands are 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