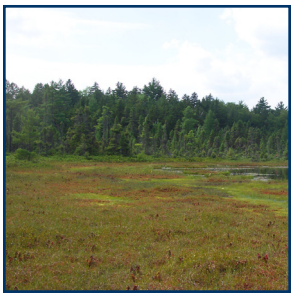
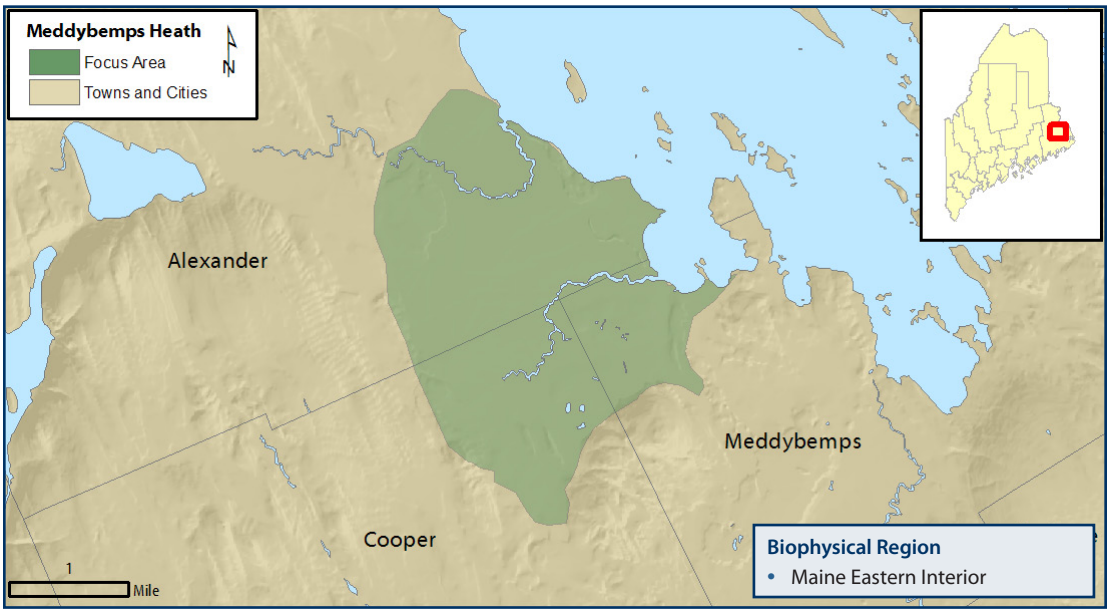
Beginning with HABITAT

Focus Areas of Statewide Ecological Significance

Meddybemps Heath





WHY IS THIS AREA SIGNIFICANT?

At just over 2,500 acres, Meddybemps Heath is the second largest domed bog ecosystem in the Eastern Coastal and Eastern Interior regions; Great Heath is the largest. Meddybemps Heath lies at the southwest side of Meddybemps Lake, where Sixteenth Stream and Fifteenth Stream converge at the lake shore.

OPPORTUNITIES FOR CONSERVATION

- Work with willing landowners to permanently protect undeveloped areas and significant features.
- Encourage town planners to improve approaches to development that may impact Focus Area functions.
- Encourage landowners to maintain enhanced forested riparian buffers to protect natural communities, rare species, and wetland integrity.
- Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- Maintain natural hydrologic regime by avoiding drainage or impoundment of the bog or adjacent water bodies.
- Monitor for invasive species.

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

Rare and Exemplary Natural Communities
Domed Bog
Dwarf Shrub Bog
Mossy Bog Mat

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

Photo credits, top to bottom: Paul Cyr, Maine Natural Areas Program (photos 2-4), Paul Cyr

Dwarf Shrub Bog, Maine Natural Areas Program

FOCUS AREA OVERVIEW

The large peatland that makes up Meddybemps Heath is embedded within remnant geologic features including an elongate esker that separates much of Meddybemps Lake from the interior of the bog. The peatland has distinct morphological characteristics: two prominently raised areas are each coalesced into a pair of peat domes on either side of Fifteenth Stream, creating a complex of four raised domes. Various portions of the peatland exhibit different types of patterning: some domed areas exhibit concentric patterns, and some of the waterways draining the raised areas have parallel patterns. Secondary pools occur atop each of the four raised domes. Slumping and erosion of peat banks has been occurring along water tracks and tributaries entering Fifteenth Stream, and an abnormal string of secondary pools is present along the slope of one of the domes south of Fifteenth Stream. These features suggest subtle impacts of fluctuating lake water levels (Davis and Anderson 1999). Transitional streamshore ecosystems without patterns or secondary pools occur in valleys and open basins between the domed portions.

In terms of specific natural community types, nearly half of this peatland is dwarf shrub bog, according to Davis and Anderson (1999). Other natural community types include, in descending order, crowberry-lichen bog, sweetgale mixed shrub fen, peatland lagg, black spruce bog woodland, leatherleaf bog lawn, and mixed cedar woodland fen. The crowberry-lichen association is characteristic of coastal peatlands and reaches its inland extent in this area.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Domed Bog Ecosystem: A type of raised bog, these are large inland peatlands, usually more than 500 meters in diameter, with convex surfaces that rise several meters above the surrounding terrain and that display concentric patterning. At least in the center, peat accumulation is sufficient to maintain a perched water table. Consequently, most water available for plant growth comes from precipitation and is nutrient poor. Most domed bogs show a vegetation zonation reflecting the nutrient gradient, where more nutrient-demanding (minerotrophic) vegetation occurs around the perimeter of the peatland (where water from surrounding uplands or draining from the center of the peatland flows) and low-nutrient vegetation occupies the raised portions of the bog. The peatland surface is characterized by hummocks and hollows. Patterned domed bogs have small, usually crescent-shaped pools near the highest point; unpatterned domed bogs lack pools.

Mossy Bog Mat: The bryophyte layer is the most obvious component of this peatland type. A dense and usually very wet layer of peat mosses contributes most of the cover. Low herbs and stunted shrubs are often scattered across the moss lawn, but usually form <25% cover overall. Characteristic vascular plant species include leatherleaf, bog rosemary (very dwarfed), horned bladderwort, small cranberry, and white beak-rush. The most typical bryophytes are Sphagnum cuspidatum and bog-mat liverwort.

Several rare dragonflies may be found in this community. Very wet locations with abundant inundated peat moss may host a number of uncommon damselflies and dragonflies including the Quebec emerald, zigzag darner, subarctic darner, incurvate emerald, and delicate emerald. Sites in northwestern Maine may include the bog fritillary butterfly, which uses small cranberry as its larval host plant.

Dwarf Shrub Bog: A dense layer of dwarf heath shrubs dominates this prototypical open peatland community. Stunted and scattered black spruce and larch trees form <25% cover. Heath shrubs carpet the hummocks and hollows of the peat substrate; sheep laurel or rhodora are typically dominant. Sedges contribute little cover (usually <15%, occasionally 20-25%); the most common is tufted cotton-grass, whose bright white tufts decorate the bog vegetation early in the summer. Insectivorous plants such as pitcher plant and sundew can be quite numerous. The ground surface is covered by a spongy carpet of peat mosses. The floristic composition varies depending upon bog morphology and nutrient availability.

Ecological Services of the Focus Area

- Provides high quality habitat for waterfowl, wading birds, deer and other wildlife.
- Purifies and regulates the flow of water entering the Meddybemps Lake.
- Supports regional biodiversity.

Economic Contributions of the Focus Area

- Serves as a valuable recreational resource for local residents.
- Contributes to recreational value of Meddybemps Lake by protecting water quality, fisheries, and wildlife habitat.
- Provides wildlife habitat for a number of game species that are seasonally important to Maine's rural economy.

CHARACTERISTIC SPECIES

The entire heath has been mapped as high value **Inland Waterfowl and Wading Bird Habitat** and provides undisturbed nesting habitat and undisturbed, uncontaminated feeding areas essential for maintaining viable waterfowl and wading bird populations. A **Deer Wintering Area** has also been identified along the wetlands and uplands in the southern tip of the focus area. Deer congregate in wintering areas which provide reduced snow depths, ample food and protection from wind. High value **brook trout fisheries** are present in Fifthteenth Stream, Sixteenth Stream and Alexander Tributary to Sixteenth Stream as well.

CONSERVATION CONSIDERATIONS

» Gradual alteration of the lake level may be contributing to erosion of the bog perimeter. Davis and Anderson (1999) observed peat surface beneath the lake level, and Dorian (2001) used a corer to determine that the lake level was formerly several meters below the current level.

» In general, threats to peatlands include invasive species (e.g., purple loosestrife), peat mining, cranberry harvesting, timber harvest around the forested perimeters, development, and hydrologic alteration including draining.

» The ecological integrity of peatlands, including all the processes and life forms they support, is dependent on the maintenance of the current hydrology and water quality of these systems. 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. In addition, improperly sized and installed crossing structures such as culverts can block fish and invertebrate passage through stream channels often resulting in aquatic habitat fragmentation. Future management activity should avoid additional impacts to the site's hydrology.

» The wetland system will benefit from establishing and/or maintaining vegetative buffers around its perimeter wherever possible. 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 wetlands, limit colonization of invasive species, and prevent impacts from ORV use.

» 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. Con-

serving the larger systems helps ensure both common and rare natural features will persist in this part of the state.

» 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.

» This area includes Significant Wildlife Habitat. Land managers should follow best management practices with respect to forestry activities in and around wetlands, shoreland areas, and Significant Wildlife Habitat.

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Natural Communities	Domed Bog	Domed bog ecosystem		S3	GNR
	Dwarf Shrub Bog	Sheep laurel dwarf shrub bog		S4	G5
	Mossy Bog Mat	Bog moss lawn		S4	GNR

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.