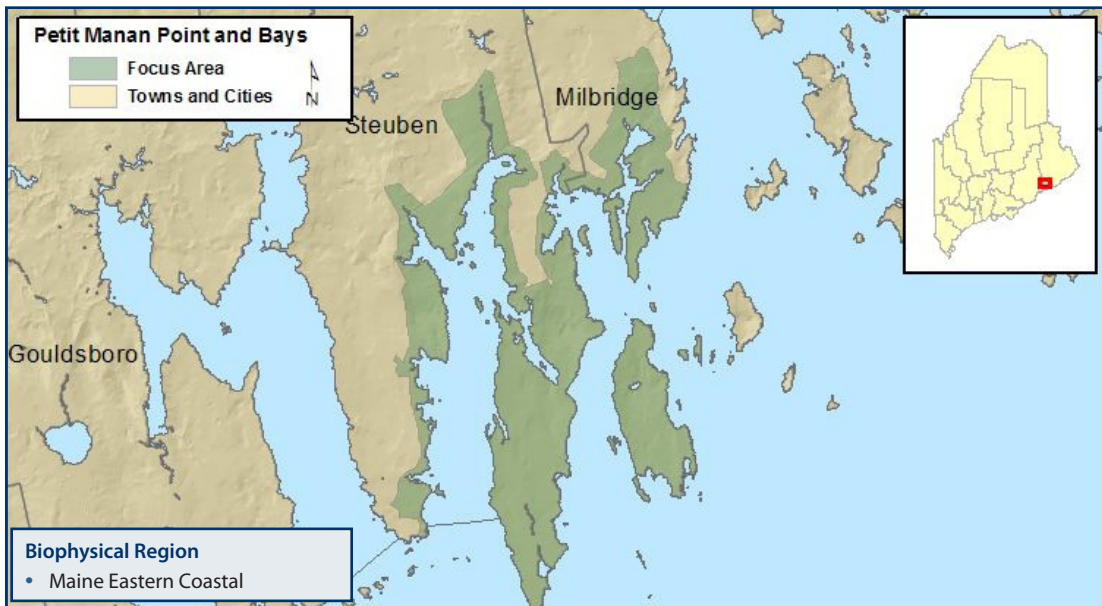
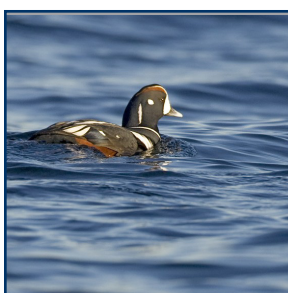


Petit Manan Point and Bays



WHY IS THIS AREA SIGNIFICANT?

Petit Manan Point and Bois Bubert Island, long recognized as important areas for breeding birds, maintain a geographic isolation that has helped preserve a distinct assemblage of uncommon natural community types in outstanding condition.

OPPORTUNITIES FOR CONSERVATION

- » Educate recreational users about the ecological and economic benefits provided by the focus area.
- » Maintain enhanced riparian buffers.
- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- » Monitor and remove invasive plant populations.
- » Work with willing landowners to permanently protect undeveloped areas and significant features.
- » Protect sensitive features through careful management planning on conserved lands.

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

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Rare Animals

- Harlequin Duck
- Spot-winged Glider

Rare Plants

- Bird's-eye Primrose
- Moonwort
- Nova Scotia False-foxtail
- Pale Moonwort
- Pickering's Reed Bent-grass
- Slender Spikerush
- Swarthy Sedge

Rare and Exemplary Natural Communities

- Black Spruce Barren
- Brackish Tidal Marsh
- Coastal Plateau Bog Ecosystem
- Downeast Maritime Shrubland
- Jack Pine Woodland
- Maritime Slope Bog
- Maritime Spruce - Fir Forest
- Northern White Cedar Swamp
- Open Headland
- Spruce - Pine Woodland
- Tall Grass Meadow

Significant Wildlife Habitats

- Inland Wading Bird and Waterfowl Habitat
- Tidal Wading Bird and Waterfowl Habitat
- Shorebird Areas
- Seabird Nesting Islands



Petit Manan Point , Craig Snapp

FOCUS AREA OVERVIEW

On Petit Manan Point, harsh climatic conditions and thin soils limit forest development to scattered patches of jack pine woodlands, maritime spruce-fir forests, spruce – pine woodlands, and spruce - heath barrens. Despite their small size, some of these woodland groves are approaching old growth stature -- two northern white cedars were aged at over 140 years old and one over 230 years old. Understory plants within these forest stands are sparse and include boreal species such as mountain cranberry (*Vaccinium vitis-idaea*) typically restricted to the Downeast coast and interior sub-alpine areas in Maine.

Toward the southern end of the point, low shrubs and herbs growing on a peaty substrate form one of only four maritime slope bogs known in Maine. On the eastern side of the point, coastal plateau bogs are juxtaposed next to two fresh to brackish ponds (Big Pond and Chair Pond) that are separated from the ocean by only a narrow cobble barrier beach. Small areas of tall grass meadow, dominated by bluejoint (*Calamagrostis canadensis*) that are characteristic of areas further Downeast, occur on the east side of the peninsula.

On Bois Bubert Island, several Downeast maritime shrub

lands protrude seaward from the southern end of the island and host sparse assemblages of black crowberry (*Empetrum nigrum*) and bayberry (*Myrica pensylvanica*). Bedrock depressions enable the formation of small peatlands in the interior of the island and of small salt marshes around the perimeter. Big Head Pond on Bois Bubert is a good example of a bermed brackish pond. Uplands on the island are sparsely forested with jack pine woodlands and black spruce barrens.

In addition to harsh climatic conditions, the vegetation assemblages of Petit Manan Point and Bois Bubert have been influenced by a number of other natural and anthropogenic factors, including past sheep grazing, fire (charcoal is frequent in the soils), and a large deer herd. Almost all of Petit Manan Point has been used for grazing purposes, which continue in some privately owned areas. The abundance of deer has cre-

Public Access Opportunities

- USFWS Petit Manan National Wildlife Refuge

ated heavy browse lines in stands where cedar is frequent.

The former pastures and blueberry fields on Petit Manan Point provide nesting habitat for grassland birds such as bobolinks and savannah sparrows. In the spring, American woodcock use the clearings for their unique courtship displays. Whimbrels stop off here during their fall migration from the Arctic tundra to the southern United States.

The saltmarshes, mudflats and eelgrass beds attract waterfowl, wading birds and shorebirds for feeding and resting while both Eastern Island and Egg Rock support seabird nesting colonies. Nearshore coastal waters also provide wintering habitat for harlequin ducks, a Threatened species.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Jack Pine Woodland: These are open canopy woodlands (<60% closure) in which the dominant tree is always jack pine. Red spruce, black spruce, or white pine are common associates. The canopy trees are generally stunted and have poor growth form. Below the canopy, smaller jack pines are common, with scattered shrubs. The extensive herb layer is mostly heath shrubs that may form a thick tangle in canopy openings. At some maritime sites, black crowberry or mountain cranberry reflect the coastal influence. Herbs are very sparse. The bryoid layer varies from extensive to quite sparse, and is dominated by reindeer lichens. These are open canopy woodlands (<60% closure) in which the dominant tree is always jack pine. Red spruce, black spruce, or white pine are common associates. The canopy trees are generally stunted and have poor growth form. Below the canopy, smaller jack pines are common, with scattered shrubs. The extensive herb layer is mostly heath shrubs that may form a thick tangle in canopy openings. At some maritime sites, black crowberry or mountain cranberry reflect the coastal influence. Herbs are very sparse. The bryoid layer varies from extensive to quite sparse, and is dominated by reindeer lichens.

Maritime Spruce-Fir Forest: Red spruce, white spruce, balsam fir, and/or larch are dominant in this Downeast coastal type. Composition is variable from the mid-coast to the Downeast coast. Red and white spruce are the most typical dominants; northern white cedar or hemlock are rarely co-dominant. The canopy may contain gaps with regenerating red maple, paper birch, mountain-ash, heart-leaved paper birch, and fir. Herbs and dwarf shrubs are typically <10% cover each, though in the canopy openings species such as raspberries, rough-stemmed goldenrod, whorled aster, and hay-scented fern may be locally abundant. The bryoid layer is >15% cover, dominated by mosses and liverworts rather than lichens. After centuries of intensive use, almost no original coastal forest remains. Many now mature forests are on old pastureland. Many good (albeit secondary-growth) sites are in conservation ownership. Acadia National Park contains a variety of successional stages of this type, including stands that burned in 1947 and stands that did not. Maritime forests are subject to higher wind and weather stress than inland sites, and as a result the disturbances tend

Ecological Services of the Focus Area

- Serves as a major migratory stopover, feeding, breeding and roosting area for myriad bird species.
- Provides nursery habitat for juvenile fish and shellfish.
- Nutrient export for marine food webs.

Economic Contributions of the Focus Area

- Attracts tourism to the area for wildlife watching, fishing and boating.
- Provides valuable open space for local residents.
- Provides scenic vistas that raise property values.
- Supports local marine resource industries.



Lily Pond, Bois Bubert Island, Craig Snapp

to be higher intensity and more frequent, and the trees do not grow as old.

This community type may be utilized as nesting habitat by a number of coniferous forest specialist bird species such as the sharp-shinned hawk, yellow-bellied flycatcher, Cape May warbler, blackpoll warbler, bay-breasted warbler, northern parula, boreal chickadee, Swainson's thrush, red crossbill, and white-winged crossbill.

Open Headland: In this community patchy herbaceous vegetation of seaside goldenrod, goosetongue, bluebell, and yarrow covers coastline bedrock. Overall vegetation cover is usually 10-35% but may be locally more extensive. Crowberry or creeping juniper may be present, but they do not cover extensive areas. Downeast of Acadia National Park, species of the Canadian Maritimes may be present, such as roseroot, beach-

head iris, marsh-felwort, and glabrous knotted pearlwort. The primary bryoids are crustose lichens on the rock, including the lime-green map lichen and bright orange Xanthoria lichen. Where the forest edge abuts, cover is more dense, and often includes shrubs such as meadowsweet, currants, or small white spruce.

CHARACTERISTIC SPECIES

Eelgrass forms extensive underwater meadows in shallow bays and coves, tidal creeks, and estuaries. Eelgrass beds are among the most productive plant communities in the world. They serve as a nursery, habitat, and feeding area for many fish, waterfowl, wading birds, invertebrates, and other wildlife, including commercially valuable fish and shellfish. Eelgrass also reduces water pollution by absorbing nutrients, and it dampens wave energy and slows currents, which helps stabilize sediments and buffer shorelines. Because of its important ecological functions, loss of eelgrass beds can result in reduced fish and wildlife populations, degraded water quality and increased shoreline erosion. Eelgrass beds are present in Carrying Place Cove, Dyer Bay, and Pigeon Hill Bay. **Horseshoe crab** and **marine worm habitats** are found primarily in the same areas as eelgrass beds.

The saltmarshes, mudflats and eelgrass beds along extensive portions of the coastline along Petit Manan Point provide **Tidal Wading Bird and Waterfowl Habitat**. These areas provide undisturbed nesting habitat and undisturbed, uncontaminated feeding areas and are essential for maintaining viable waterfowl and wading bird populations. Pinkham Bay, Pigeon Hill Cove, Stanley Point, Dyer Point, Over Point and Carrying Place are important **Shorebird Areas**- stopover sites for feeding and resting for diverse shorebird species on their long migrations. Black ducks, great blue herons, and American bitterns use the saltmarshes, while semipalmated sandpipers, dowitchers, greater and lesser yellowlegs, and dunlins probe the mudflats for invertebrates. During fall migration, 80-acre Cranberry Flowage on Petit Manan Point is filled with over 4,000 ducks. Black ducks, green-winged teal, and mallards rest and feed on wild rice in preparation for the long flight south.

Long-tailed ducks, surf and white-winged scoters, common goldeneyes, and common eiders winter in coastal waters as well as the State Threatened **harlequin duck**. Harlequin ducks (*Histrionicus histrionicus*) are small diving sea ducks. They are found in the northern hemisphere and winter on both the Atlantic and Pacific Oceans. About 1000 birds winter in Maine, mostly in small flocks on rough coastal waters and exposed rocky shores. They forage by diving into foaming surf to glean marine invertebrates.

Several rare plant species have been documented in the focus area, including **Nova Scotia false-foxglove** (*Agalinis neoscotica*), a small annual that is found growing in Maine along shores or edges of tidal pools, and **slender spikerush** (*Eleocharis nitida*), found in damp peaty, sandy or rocky places.

CONSERVATION CONSIDERATIONS

- » In general, threats to peatlands include peat mining, cranberry harvesting, timber harvest around the forested perimeters, and development. These threats have been removed by federal protection of this area.
- » Fresh and brackish ponds should be monitored for purple loosestrife (*Lythrum salicaria*) and common reed (*Phragmites australis*).
- » The U.S. Fish and Wildlife Service owns and manages most of this focus area, including nearly all of the exemplary natural communities. The Service's primary focus at Petit Manan is restoring and managing colonies of nesting seabirds – many on offshore islands not included in this focus area. Refuge islands provide habitat for common, Arctic, and roseate terns; Atlantic puffins; razorbills; black guillemots; Leach's storm-petrels; laughing gulls; and common eiders. On Petit Manan Point, the Refuge has recently completed a natural community mapping project used to inform management decisions. For details on the Refuge and management, see <http://petitmanan.fws.gov>.



Bois Bubert Island from Pigeon Hill on Petit Manan Point, Craig Snapp

- » Eelgrass is sensitive to losses due to disease, storms, pollution, nutrient enrichment, dredging, shellfishing, ice damage, propeller damage, sediments, runoff, jet skis, and inboard and outboard motors. Because of its important ecological functions, loss of eelgrass beds can result in reduced fish and wildlife populations, degraded water quality, and increased shoreline erosion.
- » Harlequin ducks have extremely low reproductive potential compared to other waterfowl, and the North American population is especially susceptible to sources of adult mortality.
- » Shoreline development and subsequent habitat degradation are potential threats to Maine small populations of horseshoe crab. Though generally been overlooked as a resource, horseshoe crabs in Maine are very vulnerable to depletion from any harvesting activities. In 2003, taking and possession of Horseshoe Crabs became prohibited in Maine.
- » Marine worm landings have declined dramatically. In 1950, an average tide would yield 4,000 worms, but today that average is about 550 worms, often forcing diggers to take smaller worms that have not yet reproduced. Marine worms are sensitive to losses from pollution and dredging. Licensing is required for digging marine worms.
- » Boaters and recreationists should not land on Seabird Nesting Islands during the nesting season. If you are near a nesting colony of seabirds, watch them with binoculars and keep your distance (at least 100-yards). Repeated human disturbance can cause nest abandonment.
- » This area includes Significant Wildlife Habitat for waterfowl and wading birds. Both land managers and private landowners should follow best management practices with respect to forestry activities in and around wetlands, shoreland areas, and Significant Wildlife Habitat. Maintaining wide forested buffers along all streams and wetlands will provide valuable riparian habitat for many wildlife species.
- » If you are planning to build or conduct other regulated activities on Seabird Nesting Islands, Shorebird Areas, Tidal Wading Bird and Waterfowl Habitats or other Significant Wildlife Habitat, contact your local DEP office for more information about the permit process so you can efficiently plan your activities and get advice about steps you can take to avoid impacts.
- » 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>.
- » Current projections suggest sea level will rise at least 2 feet in the next century due to changing climate and warming temperatures. As sea levels rise, coastal habitats will begin to migrate inland. In areas where this inland migration is blocked by development these habitats will be lost. Conservation of low-lying, undeveloped uplands where coastal marshes, beaches, and other intertidal natural communities can migrate inland with sea level rise should be promoted.



Tidal Sand Cove, Petit Manan, Craig Snapp

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Harlequin Duck	<i>Histrionicus histrionicus</i>	T	S2S3N	G4
	Spot-winged Glider	<i>Pantala hymenaea</i>	SC	S2	G5
Plants	Bird's-eye Primrose	<i>Primula laurentiana</i>	SC	S2	G5
	Moonwort	<i>Botrychium lunaria</i>	E	S1	G5
	Nova Scotia False-foxglove	<i>Agalinis neoscotica</i>	T	S1	G4
	Pale Moonwort	<i>Botrychium pallidum</i>	SC	S1	G3
	Pickering's Reed Bent-grass	<i>Calamagrostis pickeringii</i>	T	S1	G4
	Slender Spikerush	<i>Eleocharis nitida</i>	SC	SU	G4
	Swarthy Sedge	<i>Carex adusta</i>	E	S2	G5
Natural Communities	Black Spruce Barren	Spruce - heath barren		S2	G5
	Brackish Tidal Marsh	Brackish tidal marsh		S3	GNR
	Coastal Plateau Bog Ecosystem	Coastal plateau bog ecosystem		S3	GNR
	Downeast Maritime Shrubland	Crowberry - bayberry headland		S3	GNR
	Jack Pine Woodland	Jack pine woodland		S3	G3G5
	Maritime Slope Bog	Heath - crowberry maritime slope bog		S2	G3G5
	Maritime Spruce - Fir Forest	Maritime spruce - fir forest		S4	G4G5
	Northern White Cedar Swamp	Northern white cedar swamp		S4	GNR
	Open Headland	Seaside goldenrod - goosetongue open headland		S4	GNR
	Spruce - Pine Woodland	Red spruce - mixed conifer woodland		S4	G3G5
	Tall Grass Meadow	Bluejoint meadow		S3	G4G5

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.