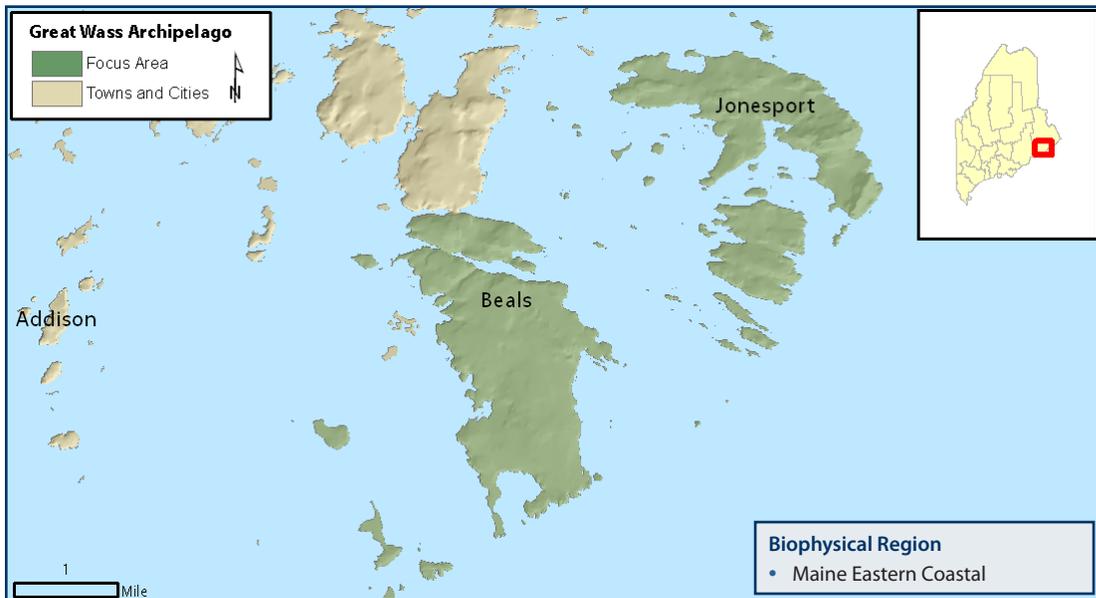


# Great Wass Archipelago



## WHY IS THIS AREA SIGNIFICANT?

Buffeted by heavy fog and precipitation and relatively low seasonal variations in temperature, the Great Wass Archipelago has one of the state's finest assemblages of coastal plateau bogs, coastal Maine's two largest jack pine woodlands, as well as pristine open headlands, black spruce rocky woodlands, and maritime spruce-fir-larch forests. The archipelago's unique habitats support a high concentration of rare sub-arctic plant and animal species and an outstanding diversity of mosses and lichens and the area has been identified as one of the richest intertidal marine systems in the state

## OPPORTUNITIES FOR CONSERVATION

- » Educate recreational users about the ecological and economic benefits provided by the focus area.
- » If recreational use is impacting natural features work to enforce legal restrictions on motorized use in fragile areas.
- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: [www.beginningwithhabitat.org/toolbox/about\\_toolbox.html](http://www.beginningwithhabitat.org/toolbox/about_toolbox.html).

*Photo credits, top to bottom: Maine Natural Areas Program, B. Nikula, Ron Logan, Brad Allen, Maine Natural Areas Program*

## Rare Animals

- Crowberry Blue
- Harlequin Duck
- Purple Sandpiper
- Rambur's Forktail
- Razorbill
- Spot-winged Glider

## Rare Plants

- Bird's-eye Primrose
- Blinks
- Marsh Felwort
- Nova Scotia False-foxglove

## Rare and Exemplary

### Natural Communities

- Black Spruce Woodland
- Coastal Plateau Bog Ecosystem
- Downeast Maritime Shrubland
- Jack Pine Woodland
- Maritime Slope Bog
- Maritime Spruce - Fir Forest
- Open Headland

### Significant Wildlife Habitats

- Tidal Waterfowl and Wading Bird Habitat
- Seabird Nesting Island

## Public Access Opportunities

- » Great Wass Island Preserve, Black Island Preserve, Knight Island Preserve, Mistake Island, TNC



Great Wass Island, Don Cameron

## FOCUS AREA OVERVIEW

The Great Wass Archipelago contains over 43 islands extending off the coast from Jonesport. This chain of islands contains the quintessential ecological characteristics of Downeast Maine. The largest island, Great Wass (over 1700 acres), is the approximate geographic center of the archipelago. It is connected to the mainland by a bridge from Beals to Jonesport through Beals Island. Head Harbor Island (roughly 1100 acres) and Steele Harbor Island (roughly 450 acres) are east of Great Wass. Geologically, Great Wass Island, Head Harbor Island, and Steele Harbor Island represent much of the visible portion of the Great Wass Pluton, a mass of igneous rock thrust through the earth's surface. Smaller islands ranging from one to 60 acres are scattered throughout the archipelago.

The interior of Great Wass Island supports coastal Maine's largest stand of jack pine. Based on morphological features and characteristic vegetation, the bogs on Great Wass are exceptional examples of coastal plateau bog ecosystems.

The central peatlands on Great Wass Island are a series of three major and other smaller raised peatlands hydrologically connected to one another. Characteristic plants include abundant baked appleberry (*Rubus chamaemorus*), deer-hair sedge

(*Trichophorum cespitosum*), and dragon's mouth orchid (*Arethusa bulbosa*). The State rare crowberry blue butterfly occurs in some of these peatland areas. A portion of Great Wass Island and its significant ecological features have been conserved by The Nature Conservancy as Great Wass Island Preserve.

On Steele Harbor Island (also known as Steeles Harbor Island) a band of maritime spruce-fir-larch forest dominated by wind-stressed white spruce (*Picea glauca*) circumscribes the island. Further into the interior of the island, bedrock spines or ridges, running east and west, are dominated by black spruce woodlands. Black spruce occurs as scattered shrubs, small trees and larger trees where soil has accumulated. There are scattered jack pines as well. Human influence on the island has been minimal. In describing it, McLean (1989) notes that, "The soil is too thin to support a decent stand of timber -- though the island was intermittently cut for pulpwood -- and the terrain is too rocky and rugged to farm; sheep have been pastured there, but not in large numbers."

The Great Wass Archipelago has been identified as one of the richest intertidal marine systems in Maine. Eelgrass beds are present in several areas, with the largest at The Pond on Great

Wass Island and between Knight and Water Islands. These ecologically important areas serve as nursery, habitat, and feeding areas for many fish, waterfowl, wading birds, invertebrates, and other wildlife, including commercially valuable fish and shellfish. The State Threatened harlequin duck winters at Freeman and Channel Rocks and at Mistake Island. Freeman Rock, Browney Island and Green Rock are also Seabird Nesting Islands.

#### **RARE AND EXEMPLARY NATURAL COMMUNITIES**

**Coastal Plateau Bog Ecosystems** include peatlands in east coastal Maine in which the surface is raised above the surrounding terrain, with the bog perimeter sloping sharply to mineral soil. The raised surface is flat or undulating, generally with few to no trees, and usually features extensive lawns of deer-hair sedge. Black crowberry and baked apple-berry are also characteristic. Some coastal plateau bogs support the rare crowberry blue butterfly.

**Jack Pine Woodlands** 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. 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. At Great Wass there is extensive exposed bedrock in many of the stands and very poorly developed and shallow soil. The herbaceous layer is only well developed in areas where the soil has accumulated in depressions in the bedrock or at the margins of the stand.

**Black Spruce Woodlands** are floristically and structurally similar to Jack Pine Woodland, with the exception of the dominant canopy species. Both types tend to occur in extremely nutrient poor and often coastal environments. Jack Pine Forests have a closed canopy and much lower cover of heath shrubs.

#### **CHARACTERISTIC SPECIES**

**Eelgrass** forms extensive underwater meadows in portions of shallow bays, coves and tidal creeks of this focus area. Eelgrass is a flowering plant that reproduces by seed and by vegetative growth. 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 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, mudflats, and emergent wetlands throughout much of the focus area are **Tidal Waterfowl and Wading Bird**

#### **Ecological Services of the Focus Area**

- Serves as nursery, habitat, and feeding areas for many fish, shellfish, waterfowl, and wading birds.
- Supports regional biodiversity by providing habitat for rare plants, animals, and natural communities.
- Supports eelgrass and associated eelgrass values

#### **Economic Contributions of the Focus Area**

- Supports commercial shellfish and local marine resource industries.
- Contributes to recreational value of the area, including nearby coastal areas, by protecting water quality, fisheries, and wildlife habitat.
- Serves as a valuable open space and recreational resource for local residents.
- Provides a scenic viewshed.



Razorbill, Jonathan Mays

**Habitats** and Freeman Rock and Browney Island are **Seabird Nesting Islands**. Both Tidal Wading Bird and Waterfowl Habitat and Seabird Nesting Islands are Significant Wildlife Habitats and protected under the Natural Resources Protection Act.

**Razorbills** (*Alca torda*), a State Threatened species, nest on Freeman Rock. Razorbills, like other seabirds make landfall only to nest and raise their young. After breeding, razorbills stay out to sea along pack ice areas of the north Atlantic. The Gulf of Maine is the extreme southern edge of the razorbill's range.

The State Threatened **harlequin duck** (*Histrionicus histrionicus*) winters in the waters off of Freeman Rock, Steele Harbor Island and Mistake Island. Harlequin ducks are small diving sea ducks. They are found in the northern hemisphere and winter



Rumbur's Forktail, . B. Nikula (top); Bird's-eye Primrose, Marlee Lovit (bottom)

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 **bald eagle** nests are located along the island shores. Bald eagles (*Haliaeetus leucocephalus*) were recently removed from the State and Federal endangered species list. They are a tremendous success story for endangered species recovery. They remain listed as a Species of Special Concern, however.

Although not listed as rare species in Maine, **purple sand-piper** (*Calidris maritima*) is a species of greatest conservation need and can be found in the intertidal areas of the Great Wass Archipelago. Purple sandpipers are stout shorebirds that breed in the tundra and winter along rocky shores of the Atlantic Coast.

The coastal bogs are habitat to several invertebrate species of Special Concern, including **crowberry blue butterfly** (*Plebejus idas empetri*), the dragonflies **Rumbur's forktail** (*Ischnura ramburii*) and **spotwinged glider** (*Pantala hymenaea*).

The focus area provides habitat to several rare plant species

as well. Primroses are low-growing perennial herbs. They have flowers that are borne singly to several on a leafless stalk called a scape. **Bird's-eye primrose** (*Primula laurentiana*) has flowers with 5 petals with a deep notch. Where the petals meet, they form an obvious yellow eye. The color of Bird's-eye primrose varies from lavender to purplish-blue. The basal leaves and scape are covered with whitish fuzz, known as farinose. **Blinks** (*Montia fontana*) is a low, weak, densely tufted herb that grows in diffuse clumps. It has small opposite leaves and tiny, inconspicuous flowers that have 5 petals but only 2 sepals. The fruit is a shiny, black achene (single-seeded, dry, indehiscent fruit). Blinks occurs in small pools and seepy areas on coastal ledgy or peaty shores and islands.

### CONSERVATION CONSIDERATIONS

- » In general, threats to coastal peatlands include peat mining, cranberry harvesting, timber harvest around the forested perimeters, public use (e.g., ATVs), and development. Most of these threats have been abated by Nature Conservancy protection of this area. One small coastal peatland remains on private land.
- » Within the preserve, some public use exists, but it is largely confined to marked trails. Access to the open peatland by foot traffic, ATVs, or snowmobiles could potentially alter peatland hydrology by reducing the permeability of peat to water, and depressions may act as a barrier to lateral water flow (The Nature Conservancy 1997). Excessive or uncontrolled trail use may also cause irreparable damage to plant communities.
- » 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>.
- » Jack pine woodlands are typically fire-adapted systems that may, in the absence of fire, eventually revert to more mesic forests of black and red spruce. Research completed on Great Wass, however, suggests that jack pine is self-perpetuating here despite the relative absence of fire in the most recent past.
- » 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.

- » Rockweed harvesting has increased in this area and could have a detrimental impact if done incorrectly.
- » Harlequin ducks have extremely low reproductive potential compared to other waterfowl, and the North American population is especially susceptible to sources of adult mortality.
- » 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.

- » Improperly sized culverts and other stream crossing structures can impede movement of fish and aquatic invertebrates effectively fragmenting local aquatic ecosystems and ultimately leading to local extirpation of some species. Future management should maintain or restore the sites natural hydrology.
- » 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.



*Great Wass Island Jack Pine Woodland, Maine Natural Areas Program*

**RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA**

	Common Name	Scientific Name	State Status*	State Rar-ity Rank	Global Rarity Rank
Animals	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SC	S4B,S4N	G5
	Crowberry Blue	<i>Plebejus idas empetri</i>	SC		
	Harlequin Duck	<i>Histrionicus histrionicus</i>	T	S2S3N	G4
	Purple Sandpiper	<i>Calidris maritima</i>			
	Rambur's Forktail	<i>Ischnura ramburii</i>	SC	S1S2	G5
	Razorbill	<i>Alca torda</i>	T	S2B	G5
	Spot-winged Glider	<i>Pantala hymenaea</i>	SC	S2	G5
Plants	Bird's-eye Primrose	<i>Primula laurentiana</i>	SC	S2	G5
	Blinks	<i>Montia fontana</i>	SC	S2	G5
	Marsh Felwort	<i>Lomatogonium rotatum</i>	T	S1	G5
	Nova Scotia False-foxtail	<i>Agalinis neoscotica</i>	T	S1	G4
Natural Communities	Black Spruce Woodland	Black spruce woodland		S3	G4?
	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
	Open Headland	Seaside goldenrod - goosetongue open headland		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.