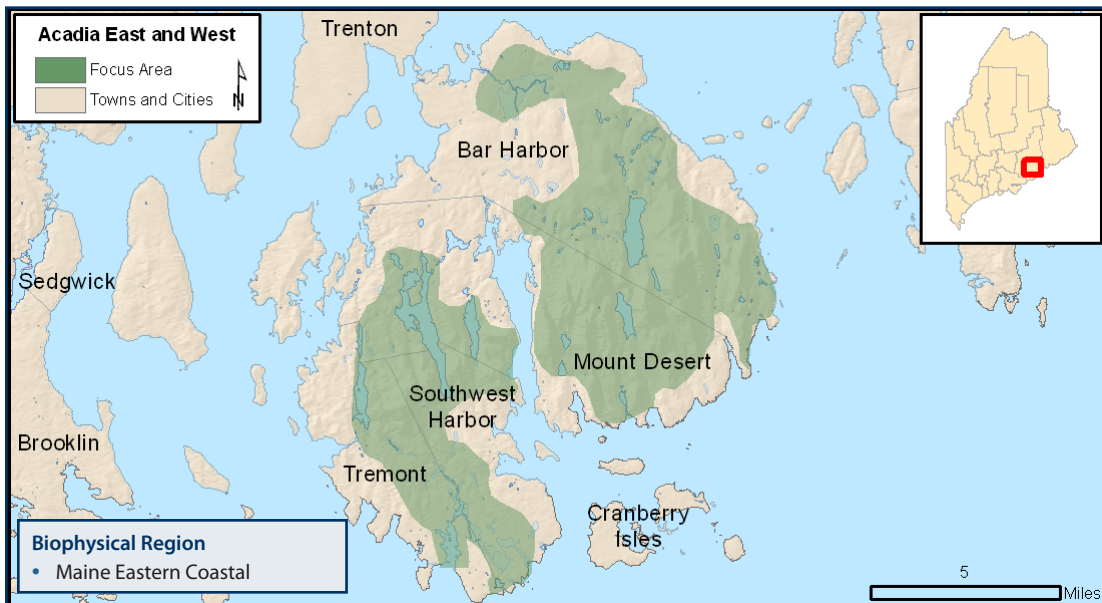
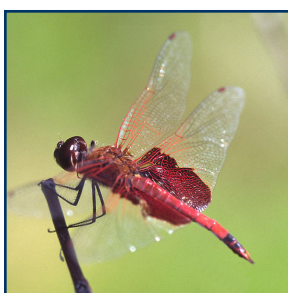


# Acadia East and West



## WHY IS THIS AREA SIGNIFICANT?

Lying just east of Penobscot Bay, Mount Desert Island is an ecologically prominent feature of the Maine coast. It encompasses roughly 60,000 acres, about half of which is within Acadia National Park. The rocky coastline of Downeast Maine attracts many visitors who come for the views, sounds, and salt air. The shores of Mount Desert Island also feature unusual natural communities and several rare plants, and are important as habitat for birds and other animals.

## OPPORTUNITIES FOR CONSERVATION

- » Educate recreational users about the ecological and economic benefits provided by the focus area.
- » Encourage best management practices for forestry, vegetation clearing, and soil disturbance activities near significant features.
- » Minimize recreational impacts on sensitive areas through careful siting of trails, combined with education and monitoring for overuse.
- » Monitor and remove invasive plant populations.
- » Protect sensitive natural features through careful management planning on conserved lands.
- » Work with willing landowners to permanently protect undeveloped areas and 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).

## Rare Animals

- |                     |                  |
|---------------------|------------------|
| Carolina Saddlebags | Harlequin Duck   |
| Peregrine Falcon    | Least Bittern    |
| Big Bluet           | Peregrine Falcon |

## Rare Plants

- |                                 |                     |
|---------------------------------|---------------------|
| Alpine Blueberry                | Nantucket Shadbush  |
| Appalachian Fir-clubmoss        | Northern Bog Sedge  |
| Bog Bedstraw                    | Prototype Quillwort |
| Secund Rush                     | Smooth Sandwort     |
| Dwarf Rattlesnake Root          | Swarthy Sedge       |
| Horned Pondweed                 | Mountain Sandwort   |
| New England Northern Reed Grass |                     |
| Comb-leaved Mermaid-weed        |                     |

## Rare and Exemplary

- ### Natural Communities
- Birch - Oak Rocky Woodland
  - Brackish Tidal Marsh
  - Coastal Plateau Bog Ecosystem
  - Dune Grassland
  - Jack Pine Woodland
  - Low-elevation Bald
  - Maritime Spruce - Fir Forest
  - Pitch Pine Woodland
  - Raised Level Bog Ecosystem
  - Red and White Pine Forest
  - Red Pine Woodland
  - Spruce - Northern Hardwoods Forest
  - Spruce - Pine Woodland
  - Streamshore Ecosystem
  - White Cedar Woodland

## Significant Wildlife Habitats

- Inland Waterfowl and Wading Bird Habitat
- Tidal Inland Waterfowl and Wading Bird Habitat
- Deer Wintering Area



Jordon Pond, Acadia National Park, Sally Colt

## FOCUS AREA OVERVIEW

Mount Desert Island has an almost 300-year history of settlement, including extensive land-clearing and the peninsulas and other islands in Penobscot Bay have been likewise settled or at least used for pasture and/or timber for centuries.

Ecologically, Mount Desert Island is at the transition from the southwestern portions of our coastline, which share many characteristics with the Atlantic coast south of Maine, to the Down East coast, which shares more characteristics with the Canadian Maritimes. The overlap of features from both ecological regions is unique along Maine's coast. "Southern" features include pitch pine woodlands reminiscent of areas in the Mid-Coast region. The more boreal features include headlands with roseroot (*Rhodalia rosea*) and beach-head iris (*Iris setosa*), or rocky woodlands with patchy black spruce and heaths. Much of the region is characterized by spruce-fir forests in various stages of post-disturbance succession.

Mount Desert Island's prominence derives not only from its biogeographic placement, but also from the exceptional combination of physical features that make up the island. The landforms of Acadia are among its best-known features, and gave origin to the name Mount Desert Island (roughly,

### Public Access Opportunities

» Acadia National Park

"Isle of the Barren Hills"). Glacial and post-glacial activity has left a series of north-south trending ridges separated by deep U-shaped valleys. The ridges are rounded along their crests, and extensive windswept areas are treeless, standing out sharply above the predominant forest cover of the lower slopes. Cadillac Mountain is the best known; other prominent hilltops are Pemetic, Parkman, and Penobscot Mountains on the eastern half of the island; and Western, Acadia, and St. Sauveur Mountains on the western side. These dramatic ridges are juxtaposed against the rocky coastline, with a diversity of wetlands in the low-lying areas in between. Somes Sound, which bisects the island, is the only true fjord on the east coast of the U.S. The upland soils are mostly thin and granitic, with many areas of bedrock or talus where soil development is minimal at best. Wetlands are underlain by marine deposits or poorly drained tills, and include both mineral soil and organic



soil wetlands.

Fire is an important factor in Acadia's natural history. The famed 1947 fire that burned most of the eastern side of Mount Desert Island is the most recent extensive fire, but evidence of past burns is present in trees and soils throughout the Park. Post-fire aspen-birch communities are still abundant. The spruce-fir forests, the dominant closed-canopy forest type on the island, include a large component of earlier-successional birch and red maple within the area that burned, along with the maturing spruce and fir. Vegetation on the western half of the island, which escaped the 1947 fire, reflects more clearly the underlying edaphic characteristics rather than the effects of recent fire.

### **Eastern Mountains**

The ridges on the eastern half of the island include the most prominent of Acadia's mountains. These feature expansive open ridges where harsh conditions limit tree growth, and trees are either very sparse or occur as stunted woodlands. Cadillac Mountain has the most varied vegetation as well as the greatest concentration of rare plants.

The open areas running from the summit of Cadillac south along its ridge include areas of low-elevation summit bald, subalpine heath – krummholz, pitch pine woodland, and jack pine woodland. The slopes of Cadillac display the full altitudinal range of post-fire aspen-birch woodland/forest complex vegetation, ranging from forests to woodlands to scrubby shrublands on the upper slopes. Rare plants on Cadillac include Appalachian fir-clubmoss (*Huperzia selago*), alpine blueberry (*Vaccinium boreale*) at its only low-elevation site in Maine, and smooth sandwort (*Minuartia glabra*).

Nearby mountain ridges—Champlain, Dorr, Pemetic, Penobscot, Sargent, and Norumbega—have similar pitch pine woodland and subalpine heath – krummholz vegetation, with some smaller areas of low-elevation summit balds. The side slopes of The Bubbles have good examples of birch – oak talus woodlands, which are different in both tree and herb flora from the more common spruce talus woodlands. Together, Cadillac and the other eastern mountains form an extensive network of these uncommon community types.

### **Western Mountains**

The mountains on the western side of Mount Desert Island tend to be more fully vegetated, in part because they escaped the 1947 fire, but also because most are somewhat lower than the eastern mountains. Western Mountain and Bernard Mountain have good examples of spruce – fir – broom-moss forests, including some areas of old-growth. The pitch pine woodlands that are so characteristic of Acadia and Mount Desert Island occur on the western mountains as well—e.g. Acadia Mountain and St. Sauveur, including an interesting variation with pitch pine and scrub oak (*Quercus ilicifolia*) on Acadia Mountain. Along the St. Sauveur trail one can also find a good

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

- Supports regional biodiversity by providing habitat for rare plants, animals, and natural communities
- Major migratory stopover, feeding, breeding and roosting area for myriad bird species
- Nursery for juvenile fish and shellfish
- Provides habitat for rapidly declining horseshoe crabs and marine worms

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

- Attracts hikers and campers to Acadia National Park
- Attracts tourism for wildlife viewing, leaf-peeping, paddling, hiking, and biking
- Contributes to recreational value of the area, including nearby coastal areas, by protecting water quality, fisheries, and wildlife habitat
- Provides scenic vistas that contribute to Maine's natural character, including views from the top of Cadillac Mountain
- Supports local marine resource industries.
- Valuable recreational resource for local residents and visitors from around the world

example of a red pine – white pine forest.

### **Near-Coastal Low Hills**

The lower hills near the coast show the conifer woodlands in a slightly different expression. On Mount Desert Island, good examples of pitch pine woodlands are seen on many of the low hills near the coast, including Kebo Mountain, the area northwest of Thunder Hole, and along the Beachcroft Trail. Rocky woodlands dominated by northern white cedar (*Thuja occidentalis*) can also be found on some of the lower hills (rarely on the mid-to-upper slopes) on Mount Desert Island. These white cedar woodlands have not been documented anywhere else in the state; if they occur elsewhere, it would almost certainly be along the coast. Two variants have been seen on Mount Desert Island: a fairly dry and acidic expression with cedar and heath shrubs, and a more mesic setting with white cedar and ash over thin seepy soils.

## **RARE AND EXEMPLARY NATURAL COMMUNITIES**

### **Wetlands**

The forested and open wetlands of Mount Desert Island encompass a wide variety of habitat types. Big Heath, in Southwest Harbor, is an example of a **coastal plateau bog ecosystem**.



*The Bubbles, Acadia National Park, Sally Colt*

**tem** at the extreme southwestern limit for the type. This kind of peatland is typical of further Down East Maine and the Canadian Maritimes, featuring large amounts of black crowberry (*Empetrum nigrum*) along with lawn-like patches of deer-hair sedge (*Trichophorum cespitosum*) and occasional baked-apple berry (*Rubus chamaemorus*). Bass Harbor Marsh is an exemplary **streamshore ecosystem** that shows an interesting gradation from mixed graminoid-forb saltmarsh to brackish tidal marsh, all the way to freshwater conditions (mixed graminoid - shrub marsh) as one moves upstream. Fresh Meadow, near the north end of Mount Desert Island, is an interesting tidally influenced level bog ecosystem, with both raised bog portions and tidal creeks. Great Meadow in Bar Harbor contains good examples of **red maple alluvial swamp** (red maple – sensitive fern swamp), and **mixed graminoid – shrub marsh**. Unusual forested wetlands on Mount Desert Island include two small areas of **hardwood seepage forests**, dominated by ash and/or yellow birch rather than by the more typical red maple and spruce.

### **Shores**

Open headland vegetation can be found in small pockets wherever bedrock forms headlands along the shore. Sand Beach, while not a particularly large sandy beach, is noteworthy as a beach with a dune grassland because sandy beaches rarely occur this far downeast. The shoreline from Sand Beach

to Otter Cove provides winter habitat for purple sandpipers.

### **CHARACTERISTIC SPECIES**

**Eelgrass beds** can be found at Bass Harbor, Ship Harbor, Bennett Cove, Seal Harbor, and Northeast Harbor. 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. **Horseshoe crab habitat** is present at Bass Harbor, Ship Harbor, Somes Sound, Newport Cove, Otter Cove, and other offshore areas. **Marine worm habitat** is present in some of these same areas.

Mt. Desert Island fosters some excellent habitat for a variety of rare and uncommon bird species. **Peregrine falcons** (*Falco peregrinus*) nest at several locations on Mt. Desert Island. **Bald eagles** (*Haliaeetus leucocephalus*) nest in several locations on and around Mt. Desert Island, and they utilize habitat within the focus area. **Least bitterns** (*Ixobrychus exilis*) have been observed nesting in Two Moose Pond adjacent to Bass Harbor Marsh. **Sedge wrens** (breed at Northeast Creek. **Nelson's sharp-tailed sparrows**—an uncommon species in Maine—also are regular breeders at Bass Harbor Marsh and other smaller salt marshes around the periphery of the island. The focus area also includes extensive areas of both **Tidal and Inland Wading Bird and Waterfowl Habitat**. These areas



provide important feeding, breeding and resting habitat for diverse bird species.

### CONSERVATION CONSIDERATIONS

- » The greatest threat to most rare or exemplary natural features on Mount Desert Island is recreational over-use from the extremely heavy tourist and recreational pressure. While the Park does its best to manage the recreational impacts, degradation of some habitats is inevitable. Tourist use of non-park holdings focuses on the developed towns on the island; almost all of the tourist and recreational effects on natural features falls within the Park. With three million visitors per year, Acadia is one of the most heavily visited national parks. Managing recreational impacts to important natural features is a continuing and high-priority endeavor for park staff.
- » Some wetlands have become susceptible to invasion by purple loosestrife (*Lythrum salicaria*), and some upland habitats are being invaded by other exotic plant species. Control of invasive exotic plants will be important to conservation efforts.
- » Residential development pressure, already fairly intensive, will probably continue and may affect some features on private lands.
- » Over the long term, global warming may further endanger the boreal/maritime habitats and plant species associated with coastal bogs, saltmarshes, and headlands. 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.

- » 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.
- » Shoreline development and subsequent habitat degradation are potential threats to Maine's 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.

» 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.

» This area includes Significant Wildlife Habitat for waterfowl and wading birds and wintering deer. Land managers should follow best management practices with respect to forestry activities in and around wetlands, shoreland areas, and Significant Wildlife Habitat. Vegetation removal, soil disturbance and construction activities may require a permit under the Natural Resources Protection Act. Contact MDIFW for more information.



The Bubbles, Acadia National Park, Sally Colt

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

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Carolina Saddlebags	<i>Tramea carolina</i>	SC	SNA	G5
	Peregrine Falcon	<i>Falco peregrinus</i>	E	S1S2N,S2B	G4
	Big Bluet	<i>Enallagma durum</i>	SC	S1	G5
	Harlequin Duck	<i>Histrionicus histrionicus</i>	T	S2S3N	G4
	Least Bittern	<i>Ixobrychus exilis</i>	E	S2B	G5
	Peregrine Falcon	<i>Falco peregrinus</i>	E	S1S2N,S2B	G4
Plants	Horned Pondweed	<i>Zannichellia palustris</i>	SC	S2	G5
	Mountain Sandwort	<i>Minuartia groenlandica</i>	SC	S3	G5
	Alpine Blueberry	<i>Vaccinium boreale</i>	SC	S2	G4
	Appalachian Fir-clubmoss	<i>Huperzia appalachiana</i>	SC	S2	G4G5
	Bog Bedstraw	<i>Galium labradoricum</i>	SC	S2	G5
	Comb-leaved Mermaid-weed	<i>Proserpinaca pectinata</i>	E	S1	G5
	Dwarf Rattlesnake Root	<i>Prenanthes nana</i>	E	S1	G5
	Nantucket Shadbush	<i>Amelanchier nantucketensis</i>	T	S2	G3Q
	New England Northern Reed Grass	<i>Calamagrostis stricta ssp. inexpansa</i>	E	S1	G5T5
	Northern Bog Sedge	<i>Carex gynocrates</i>	SC	S2	G5
	Prototype Quillwort	<i>Isoetes prototypus</i>	T	S1	G2G3
	Secund Rush	<i>Juncus secundus</i>	T	S1	G5?
	Smooth Sandwort	<i>Minuartia glabra</i>	SC	S3	G4
	Swarthy Sedge	<i>Carex adusta</i>	E	S2	G5
	Natural Communities	Brackish Tidal Marsh	Brackish tidal marsh		S3
Dune Grassland		Dune grassland		S2	G4?
Jack Pine Woodland		Jack pine woodland		S3	G3G5
Low-elevation Bald		Three-toothed cinquefoil - blueberry low summit bald		S3	GNR
Pitch Pine Woodland		Pitch pine woodland		S3	G2
Raised Level Bog Ecosystem		Raised level bog ecosystem		S4	GNR
Red and White Pine Forest		Red pine - white pine forest		S3	G3G4
Red Pine Woodland		Red pine woodland		S3	G3G5
White Cedar Woodland		White cedar woodland		S2	GNR
Birch - Oak Rocky Woodland		Birch - oak talus woodland		S3	G3G5
Coastal Plateau Bog Ecosystem		Coastal plateau bog ecosystem		S3	GNR

Spruce - Northern Hardwoods Forest	Spruce - northern hardwoods forest	S4	GNR
Spruce - Pine Woodland	Red spruce - mixed conifer woodland	S4	G3G5
Streamshore Ecosystem	Streamshore ecosystem	S4	GNR
Maritime Spruce - Fir Forest	Maritime spruce - fir forest	S4	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.