



U.S. Fish & Wildlife Service

Petit Manan National Wildlife Refuge Complex

*Draft Comprehensive Conservation Plan
and Environmental Impact Statement*

Executive Summary



Cover Photos: Cross Island, *USFWS*
Harbor seal, *USFWS*
Atlantic puffin, *USFWS*
Roseate tern, *Gil Lopez-Espina*



This goose, designed by J.N. "Ding" Darling, has become a symbol of the National Wildlife Refuge System.

The *U.S. Fish and Wildlife Service* is the principal Federal agency responsible for conserving, protecting, and enhancing fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The Service manages the 94-million acre National Wildlife Refuge system comprised of more than 535 national wildlife refuges and thousands of waterfowl production areas. It also operates 65 national fish hatcheries and 78 ecological services field stations. The agency enforces Federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid Program which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies.

Comprehensive Conservation Plans provide long term guidance for management decisions and set forth goals, objectives, and strategies needed to accomplish refuge purposes and identify the Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.



U.S. Fish & Wildlife Service

Petit Manan National Wildlife Refuge Complex

*Draft Comprehensive Conservation Plan
and Environmental Impact Statement*

Executive Summary

**U.S. Fish and Wildlife Service
Northeast Regional Office
300 Westgate Center Drive
Hadley, MA 01035**

April 2004

Petit Manan National Wildlife Refuge Complex

Draft Comprehensive Conservation Plan and Environmental Impact Statement

The Gulf of Maine

Abstract

Type of action: Administrative
Lead agency: U.S. Department of the Interior,
Fish and Wildlife Service
Responsible official: Marvin Moriarty, Regional Director, Region 5
For further information: Nancy McGarigal, Planning Team Leader
U.S. Fish and Wildlife Service, Region 5
300 Westgate Center Drive
Hadley, MA 01035
(413) 253-8562; northeastplanning@fws.gov

The Draft Comprehensive Conservation Plan and Environmental Impact Statement for Petit Manan National Wildlife Refuge Complex fully compares four management alternatives. Its eight appendixes provide additional information supporting our analysis. A brief overview of each alternative follows.

Alternative A Current Management

Refuge expansion of 1,034 acres and continued current management. This is the “no action” alternative required by regulations under the National Environmental Policy Act of 1969. Although it would expand Petit Manan Refuge by 1,034 acres beyond the current approved boundary, selecting this alternative would otherwise maintain the status quo in refuge management actions over the next 15 years. Thus, it provides a baseline for comparing or contrasting the three “action” alternatives.

Alternative B Preferred Alternative

Refuge expansion of 2,467 acres and notably expanded management and recreation. Selecting this alternative would expand the Petit Manan refuge by 2,314 acres beyond the current approved boundary on 87 nationally significant seabird, wading bird, or bald eagle coastal nesting islands and 153 acres of wetlands on the mainland. It would add six new seabird restoration projects to our present six, and intensify the focus of our biological programs on birds of high conservation priority in the Gulf of Maine. It would increase opportunities for wildlife-dependent recreation, especially in our environmental education and interpretation programs, build new trails on the Gouldsboro Bay, Sawyers Marsh, and Corea Heath divisions, and open the Petit Manan Point division for deer hunting. And, it would recommend that 13 Refuge Complex islands in 8 wilderness study areas be included in the National Wilderness Preservation System. Refuge staffing and budgets would increase commensurately. We recommend this alternative for approval.

Alternative C

Refuge expansion of 6,463 acres and greatly expanded management and recreation. Selecting this alternative would expand the Petit Manan refuge by 6,463 acres beyond the current approved boundary, adding 6,310 acres on all or parts of 151 seabird or bald eagle nesting islands and 153 acres of wetlands on the mainland. Its wilderness proposal mirrors the proposal in alternative B. It would create 12 new seabird restoration projects, and allow trapping under refuge regulations on three mainland divisions and Bois Bubert and Cross islands. New trails would be developed on refuge mainland divisions, the same as alternative B. This alternative would also require the greatest budget and staffing increases.

Alternative D

No refuge expansion beyond the current approved boundary and reduced management with minimal human intrusion. This alternative adopts a custodial or low intervention approach to management. Selecting it would neither expand a refuge nor recommend wilderness designation. It would restore only minimal seabird habitat, focus our public use, environmental education and interpretation on offsite programs, and close all refuge islands to public access. Except for our emergency intervention to avert or mitigate catastrophic events, it would leave refuge habitats and species to the effects of environmental processes.

**Executive Summary
Table of Contents**

	Page
Introduction	ES-1
Proposed Action	ES-1
Purpose and Need for Action	ES-1
Brief Histories and Purposes of the Refuges	ES-2
Refuge Complex Vision and Goals	ES-4
Alternatives	ES-5
Alternative A – Current Management	ES-5
Alternative B – Service’s Preferred Alternative	ES-6
Alternative C	ES-7
Alternative D	ES-8
Actions Common to All Alternatives	ES-20
Affected Environment	ES-21
Environmental Consequences	ES-25
Tables	
Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources	ES-33
Table 1-2 Land acquisition summary by alternative	ES-41
Maps	
Map 1-1 Gulf of Maine Watershed	ES-3
Map 1-2 Petit Manan National Wildlife Refuge Index map	ES-9
Map 1-3 Kittery	ES-10
Map 1-4 Saco Bay	ES-11
Map 1-5 Casco Bay	ES-12
Map 1-6 Muscongus Bay	ES-13
Map 1-7 Outer Penobscot Bay	ES-14
Map 1-8 Inner Penobscot Bay	ES-15
Map 1-9 Jericho Bay	ES-16
Map 1-10 Frenchmans Bay	ES-17
Map 1-11 Petit Manan	ES-18
Map 1-12 Cobscook Bay	ES-19

Introduction

As part of its congressional mandate, the U.S. Fish and Wildlife Service conserves habitat and protects fish, wildlife, and plants on the more than 540 refuges in the National Wildlife Refuge System, in cooperation with the American public, States, and our other partners in conservation. On the public lands in that System, “Wildlife Comes First.”

The Petit Manan National Wildlife Refuge Complex (Refuge Complex) comprises five refuges on the coast of Maine between the borders of New Hampshire and New Brunswick. The habitats and species of its refuges are well known for their diversity and for their importance to the quality of water, air, and life in the Gulf of Maine Rivers ecosystem and the Gulf of Maine watershed.

We have prepared a draft Comprehensive Conservation Plan and Environmental Impact Statement (draft CCP/EIS) that describes four alternatives for managing the Refuge Complex for the next 15 years. Each alternative proposes varying strategies to achieve important objectives in managing habitat, species, and public use; each, except alternative D, also proposes to expand the boundaries of the Refuge Complex beyond the current approved boundary by a number of acres that is determined in part by the environmental impacts of implementing its strategies and achieving its objectives. This document summarizes that draft CCP/EIS.

Proposed Action

We propose to implement a CCP for the Refuge Complex that best achieves its vision and goals; best addresses its significant management issues; best conforms to its conservation mandates; best applies sound science in managing fish and wildlife; and, best contributes to the mission of the System.

We examined a wide range of alternatives for managing the Refuge Complex. From among them, we fully developed four. We then selected as our preferred alternative the one that, in our professional judgment, would best accomplish all of the actions above.

Preferred Alternative

Alternative B: Refuge expansion of 2,467 acres and notably increased habitat management and opportunities for compatible, wildlife-dependent recreation.

Purpose and Need for Action

Our purpose in developing a CCP by fully involving others is vital to our future success. It allows interested individuals, organizations, and elected officials to engage in resolving management issues and public concerns. The CCP clearly explains the reasons for our management actions, and clearly links them to desired future conditions for refuge habitat, wildlife, visitor services, staffing, and facilities. It ensures that our management of each refuge conforms to the mandates of the System, and that wildlife-dependent recreational uses are compatible with the purposes for which each refuge was established. Finally, it provides long-term direction and continuity in developing the Refuge Complex and its annual budgets.

Our need to develop a CCP for the Refuge Complex is manifold. New ecosystem and species plans bear directly on management of the Refuge Complex. Its island holdings have more than tripled over the last 15 years; its mainland holdings also have increased. Outpacing those increases, the already intense pressure for more public access and wildlife-dependent recreation continues to grow. In response, we increased our staffing and opened a second office. We also want to evaluate the criteria for our proposed new Headquarters and Coastal Education Center. And finally, we need the Land Protection Plan that accompanies this CCP to guide us in protecting land that conserves nationally significant coastal habitats and Federal trust species.

Brief Histories and Purposes of the Refuges

The location of the Refuge Complex, in several of the most densely settled, coastal counties of Maine, has exposed it to numerous development threats and public use pressures over the years. From 1972 through 1980, each of its refuges was established by the methods and for the purposes shown below.¹

In recent years, our expenditures in acquiring land for the Refuge Complex have averaged \$1 million per year. We have now acquired all but 467 acres of the land within our approved acquisition boundaries. Appendix A, “Land Protection Plan,” (LPP) describes that land and the land we propose to acquire in expanding the Refuge Complex.

Seal Island National Wildlife Refuge

This refuge is 65 acres, acquired in a transfer at no cost from the U.S. Navy. It was established in 1972 for “...particular value in carrying out the national migratory bird management program...” [An Act Authorizing the Transfer of Certain Real Property for Wildlife or Other Purposes (16 U.S.C. 667b–667d)]

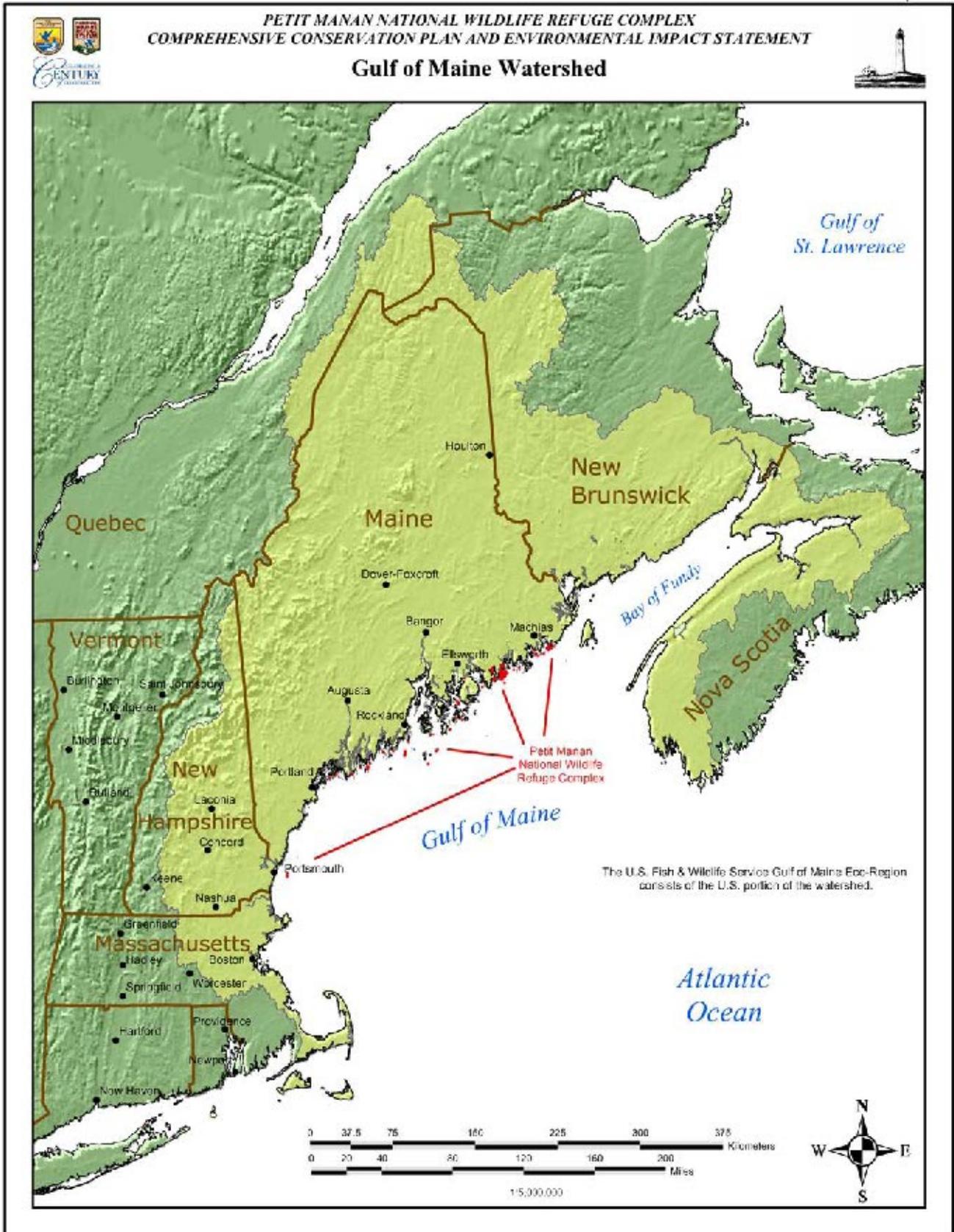
Franklin Island National Wildlife Refuge

This refuge is 12 acres, acquired in a transfer at no cost from the U.S. Coast Guard. It was established in 1973 for “...particular value in carrying out the national migratory bird management program...” [An Act Authorizing the Transfer of Certain Real Property for Wildlife or Other Purposes (16 U.S.C.667b–667b)]

Pond Island National Wildlife Refuge

This refuge is 10 acres, acquired in transfer from the U.S. Coast Guard. It was established in 1973 for “...particular value in carrying out the national migratory bird management program...” [An Act Authorizing the Transfer of Certain Real Property for Wildlife or Other Purposes (16 U.S.C.667b–667d)]

¹ The acreage shown for each refuge is the number of acres above the mean high water mark, taken from the U.S. Geological Survey (USGS), rounded to the nearest whole number.



Petit Manan National Wildlife Refuge

This refuge now comprises 5,771 acres in 33 islands and 3 mainland divisions. It was originally established in 1974 “...for use as an inviolate sanctuary, or any other management purposes, for migratory birds...” [Migratory Bird Conservation Act (16 U.S.C. 715d)], whereas the islands and mainland parcels we acquired after 1974 were also established under one or more of the following acts, as well.

“...suitable for (1) incidental fish- and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species...” [Refuge Recreation Act (16 U.S.C. 460k-1)]

“...particular value in carrying out the national migratory bird management program...” [An Act Authorizing the Transfer of Certain Real Property for Wildlife or Other Purposes (16 U.S.C. 667b-667d)]

“...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions...” [Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901(b); 100 Stat. 3583)].

Cross Island National Wildlife Refuge

This six-island refuge is 1,703 acres, and was established in 1980 “...for use as an inviolate sanctuary, or other management purposes, for migratory birds” [Migratory Bird Conservation Act (16 U.S.C. 715d)].

Refuge Complex Vision and Goals

Vision

“With the help of our conservation partners, at the Petit Manan National Wildlife Refuge Complex we will apply sound, scientific principles and adaptive management strategies to sustain the long-term health and integrity of coastal Maine habitats; expand community outreach and environmental education and interpretation programs; and, stimulate visitors to embrace stewardship of natural resources.

We envision the future Refuge Complex epitomizing the mission of the National Wildlife Refuge System; conserving in perpetuity an incredibly rich tapestry of coastal islands, intertidal estuaries, freshwater wetlands, maritime forests and open fields; and, enabling nesting and migrating seabirds, and other wildlife of conservation concern in the Gulf of Maine, to thrive here.”

Goals

These are intentionally broad statements of our purposes and the focus of our management actions. We have not ranked them in any sequence; however, the biological goals will take precedence in decisions about refuge management.

Goal 1: Perpetuate the biological diversity and integrity of upland communities on Refuge Complex mainland properties to sustain high quality habitat for migratory birds.

Goal 2: Maintain high quality wetland communities on Refuge Complex mainland properties, primarily to benefit migratory birds of high conservation priority, while also supporting other native, wetland-dependent species of concern.

Goal 3: Perpetuate the biological diversity and integrity of upland communities on Refuge Complex islands to sustain high quality habitat for nesting bald eagles and migratory songbirds and raptors and protect rare plant sites.

Goal 4: Protect the high quality wetland communities on Refuge Complex islands to benefit nesting and migrating shorebirds and waterfowl.

Goal 5: Protect and restore nesting seabird populations on Refuge Complex islands to contribute to regional and international seabird conservation goals.

Goal 6: Promote the public enjoyment and stewardship of coastal Maine wildlife and their habitats by providing priority, wildlife-dependent recreational and educational opportunities.

Goal 7: Protect the integrity of coastal Maine wildlife and habitats through an active land acquisition and protection program.

Goal 8: Communicate and collaborate with local communities, Federal, State, local and Tribal representatives and other organizations throughout coastal Maine to advance the mission of the National Wildlife Refuge System.

Alternatives

Alternative A. Current Management

This is the “no action” alternative required by the Council on Environmental Quality regulations under the National Environmental Policy Act of 1969. Although it would expand Petit Manan Refuge by 1,034 acres, it otherwise extends our current management activities over the next 15 years, and thus, it serves as the baseline for comparing or contrasting the three action alternatives. Our funding and staffing would not increase appreciably over those of fiscal years 2002–2003.

We would continue to acquire, as they become available from willing sellers, 467 acres within our current land acquisition boundaries. In addition, we would establish as a fourth mainland division the 400 acres of Corea Heath now awaiting transfer at no cost from the U.S. Navy. We would also add 881 acres of nationally significant seabird nesting habitat on 30 islands to our present 42 refuge islands, and add 153 acres of important wetland habitat on the mainland. (See Table 1-2.)

Our biological program would continue to prioritize our six intensively managed seabird conservation projects on refuge islands: managing vegetation, restoring seabird habitat, controlling seabird predators and public use and access, and collecting detailed biological information. On the Petit Manan Point mainland division, we would continue to maintain

70 acres of open field and 3 freshwater impoundments, and would continue our baseline vegetation and wildlife inventories as staffing and funding allow.

Our priority public use programs also would not change. Hunting, fishing, wildlife observation and photography, and environmental education and interpretation were established as priorities on refuges by the National Wildlife Refuge System Improvement Act of 1997. Our annual hunt program would continue to offer waterfowl hunting on 22 islands, deer hunting on Bois Bubert Island, and small game, big game, and waterfowl hunting on the Sawyers Marsh and Gouldsboro Bay mainland divisions. We would maintain the two trails on the Petit Manan Point division, but would develop no new infrastructure to support priority public uses.

**Alternative B.
Preferred Alternative**

This, our preferred alternative, proposes the actions that we believe will most successfully achieve the goals of the Refuge Complex as well as the purposes of its refuges, and will most effectively address its significant issues. Our levels of funding and staffing would increase commensurately to support its proposed expansions.

We would pursue Service land acquisition as in alternative A; but, we would increase our protection to 87 nationally significant seabird and bald eagle nesting islands, comprising 2,314 acres not permanently protected (see Table 1-2). According to our Gulf of Maine Program staff and the Maine Department of Inland Fisheries and Wildlife (MDIFW), those 87 islands are the highest priority seabird and bald eagle nesting islands in Maine that still need long-term protection. Protecting them would achieve significant gains in the regional recovery of those species. We plan to acquire those islands during the next 15 years at a rate of about six islands per year, the median rate at which we acquired refuge islands during the past decade.

Early in the planning process, we reviewed all refuge land for its suitability for designation as wilderness. We would pursue formal wilderness designation of 3,125 acres on 13 islands in 8 wilderness study areas (WSAs) in the Refuge Complex: Cross Is., 1,654 acres; Inner Double Head Shot Is., 8 acres; Mink Is., 11 acres; Old Man Is., 6 acres; Outer Double Head Shot Is., 14 acres; Scotch Is., 10 acres; Halifax Is., 75 acres; Inner Sand Is., 18 acres; Bois Bubert Is., 1,190 acres; John's Is., 43 acres; Outer White Is., 16 acres; Outer Heron Is., 66 acres; and Little Marshall Is., 14 acres. These WSAs would make a unique geographical and ecological contribution to the National Wilderness Preservation System.

Among our biological programs, protecting seabirds and restoring their habitat would continue as our highest priorities, and we would expand this effort by creating six new project areas during the 15-year planning

horizon. Our habitat management, inventory, and monitoring would intensify our focus on benefiting migratory land birds, waterfowl, and shorebirds identified as conservation priorities in national or regional plans.

Our priority public use programs also would notably expand, especially in environmental education and interpretation. We would develop new infrastructure, including interpretive kiosks, and new trails and parking areas at the Gouldsboro Bay, Sawyers Marsh, and Corea Heath divisions. We would also place interpreters on commercial wildlife viewing tour boats and modify our seasonal, protective closures of some seabird nesting islands to allow public access in August. Once we have identified prospective sites, we would further develop our proposal for a new Headquarters and Coastal Education Center in a separate environmental analysis. Hunting opportunities would expand to include hunting white-tailed deer on the Petit Manan Point division.

Alternative B would enhance our outreach to refuge communities and our partnerships with other Service programs, MDIFW, numerous conservation organizations, research and educational institutions, and the Friends of Maine Seabird Islands. We would integrate all of those relationships in successfully accomplishing our goals and objectives.

Alternative C.

This alternative builds on alternative B. It would greatly expand our biological, public use, and land protection programs, and would require commensurate increases in funding and staffing.

Alternative C proposes the greatest expansion of the Refuge Complex. We would pursue Service acquisition from willing sellers of all or parts of 151 nationally significant seabird and bald eagle nesting islands, or approximately 6,310 acres not permanently protected. This proposal would protect all of the nesting islands in Maine that have been determined nationally significant, and would greatly advance the regional recovery of seabirds and bald eagles. In addition to the mainland parcels identified in alternative B, we would pursue acquisition of mainland tracts identified within North American Waterfowl Conservation Joint Venture Focus Areas. Our priority would be to acquire tracts with high quality migratory waterfowl habitat near existing refuge lands. Also similar to alternative B, we would pursue the wilderness designation of 3,125 acres on the 13 islands in our 8 WSAs.

We would start 12 new seabird habitat restoration projects during the next 15 years. Our biological inventory and monitoring programs would greatly increase in complexity and duration, but would remain focused on seabirds, migratory land birds, waterfowl, and shorebirds identified as conservation priorities in national and regional plans.

In addition to the priority public use activities in alternative B, we would pursue a partnership with State and Federal Highways Divisions to install interpretive panels at rest stops and visitor facilities along major travel ways. On some of our seabird project areas, we would install a live-feed video camera for educational broadcasts on our website. We would allow the trapping of furbearers, under State and Refuge regulations, on the Gouldsboro Bay, Sawyers Marsh, and Petit Manan mainland divisions, on Cross and Bois Bubert Islands. On the mainland, trapping would not start before December, to protect the thousands of migrating waterfowl that congregate on refuge wetlands in the fall.

Alternative D.

This alternative proposes a custodial or low-intervention approach to administering the Refuge Complex and managing its resources. It minimizes human intrusion or intervention in ongoing ecological processes, except when necessary to protect threatened or endangered species, avoid catastrophic loss of seabird populations on refuge lands, control invasive and exotic species, or enforce regulations. Funding and staffing would remain at their present levels, with the exception of added law enforcement capabilities.

We would continue to acquire, as they become available from willing sellers, the 467 acres within our currently approved boundary. We would also continue to pursue the no-cost transfer from the U.S. Navy of the 400 acre Corea Heath, which also lies within our currently approved boundary. We would neither expand the currently approved Refuge Complex boundary, nor pursue formal wilderness designations. However, we would continue to support our conservation partners as they acquire land to protect important coastal habitat in Maine.

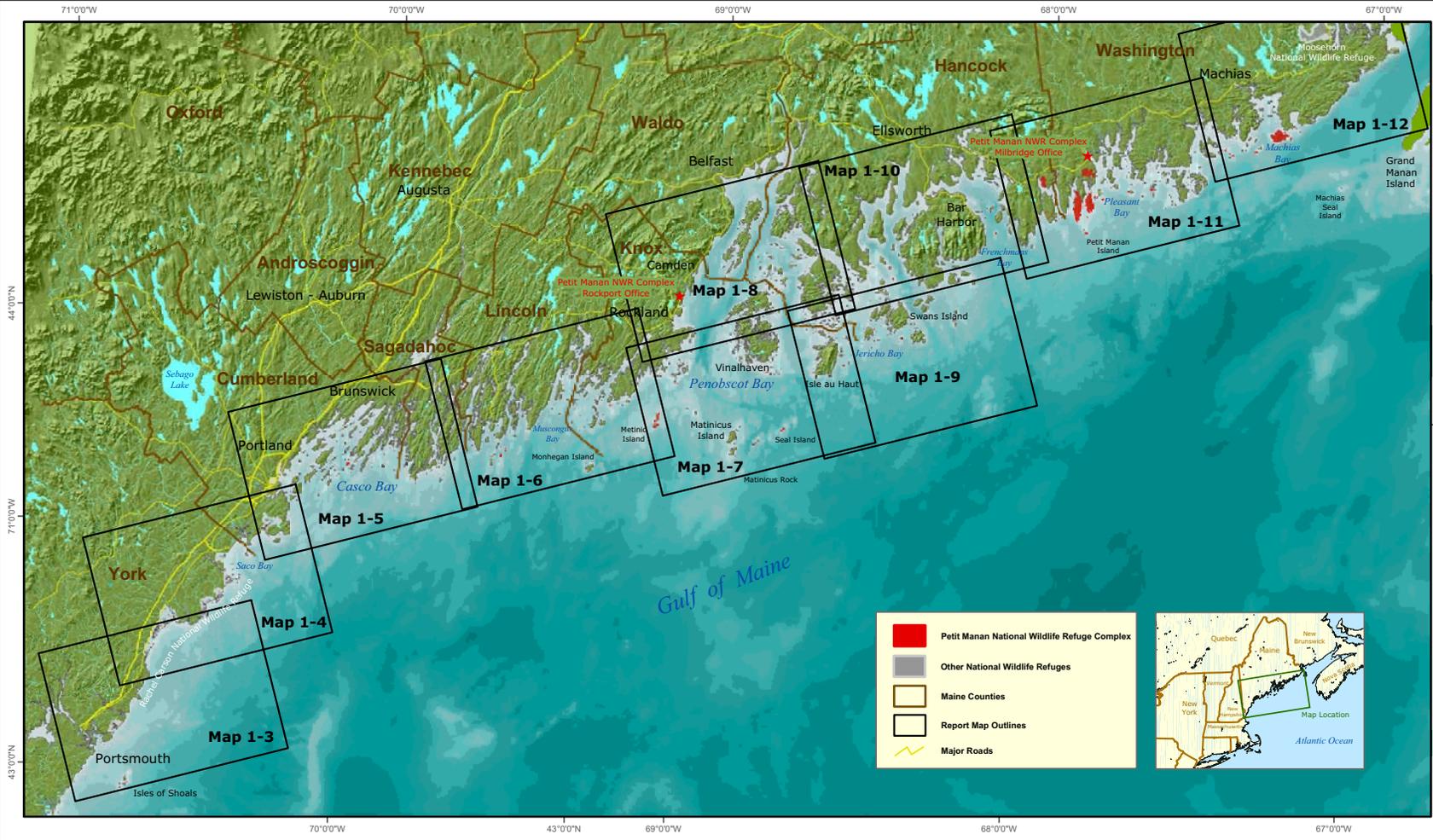
We would limit our activities at individual seabird conservation projects to a minimum maintenance level. We would no longer manage vegetation by mowing, sheep grazing, or prescribed burning, and would curtail our monitoring of seabird nesting success to an annual census of nesting pairs.

We would maintain the priority public use infrastructure now in place on the Petit Manan Point division, but would keep the other mainland divisions undeveloped to minimize the potential for human-induced impacts. Instead, we would focus our priority public use on off-site environmental education and interpretation in schools or at our proposed Coastal Education Center. Hunting would not be allowed on refuge lands, and we would close all refuge islands year-round to public use, except for tours organized by our staff or led by a partner operating under a special use permit.

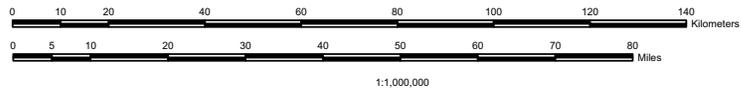


PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

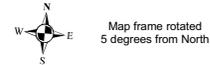
Map 1-2 Petit Manan National Wildlife Refuge Complex



	Petit Manan National Wildlife Refuge Complex
	Other National Wildlife Refuges
	Maine Counties
	Report Map Outlines
	Major Roads



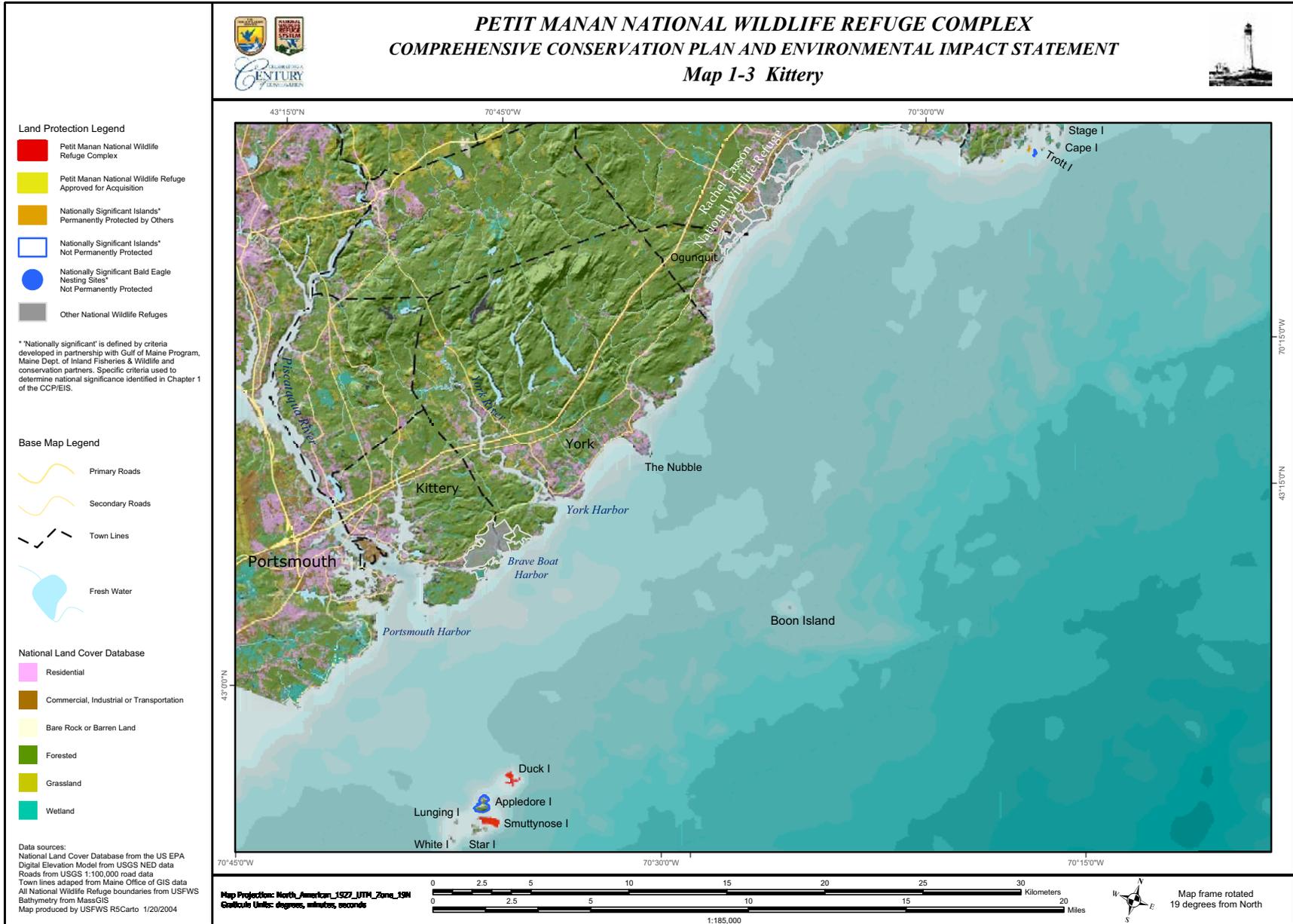
Map Projection: North_American_1927_UTM_Zone_19N
Graticule Units: degrees, minutes, seconds



Draft CCP/EIS - April, 2004

ES 9

Alternatives





PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-4 Saco Bay



- Land Protection Legend**
- Petit Manan National Wildlife Refuge Complex
 - Petit Manan National Wildlife Refuge Approved for Acquisition
 - Nationally Significant Islands* Permanently Protected by Others
 - Nationally Significant Islands* Not Permanently Protected
 - Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
 - Other National Wildlife Refuges

*Nationally significant is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

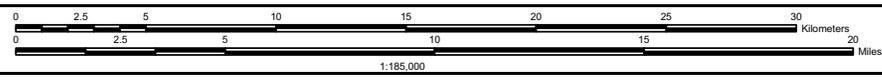
- Base Map Legend**
- Primary Roads
 - Secondary Roads
 - Town Lines
 - Fresh Water

- National Land Cover Database**
- Residential
 - Commercial, Industrial or Transportation
 - Bare Rock or Barren Land
 - Forested
 - Grassland
 - Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/20/2004



Map Projection: North_American_8327_UTM_Zone_18N
 Graphic Units: degrees, minutes, seconds





PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-5 Casco Bay



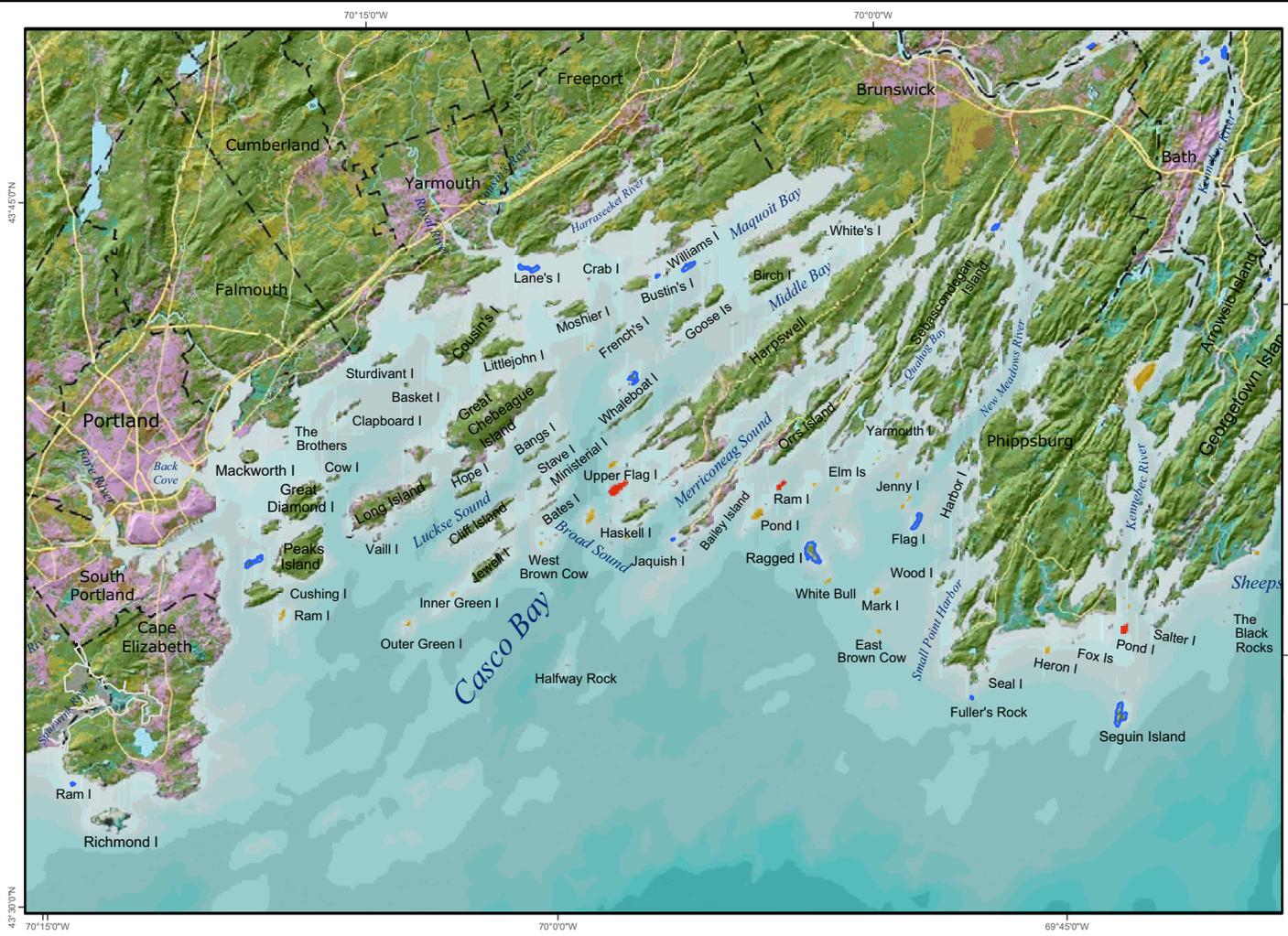
- Land Protection Legend**
- Petit Manan National Wildlife Refuge Complex
 - Petit Manan National Wildlife Refuge Approved for Acquisition
 - Nationally Significant Islands* Permanently Protected by Others
 - Nationally Significant Islands* Not Permanently Protected
 - Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
 - Other National Wildlife Refuges

*Nationally significant is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

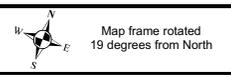
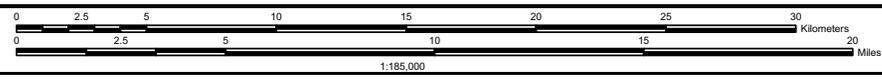
- Base Map Legend**
- Primary Roads
 - Secondary Roads
 - Town Lines
 - Fresh Water

- National Land Cover Database**
- Residential
 - Commercial, Industrial or Transportation
 - Bare Rock or Barren Land
 - Forested
 - Grassland
 - Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/20/2004



Map Projection: North American 1927 UTM Zone 18N
 Coordinate Units: degrees, minutes, seconds



43°30'0"N 70°15'0"W 70°0'0"W 69°45'0"W 43°45'0"N



PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-6 Muscongus Bay



- Land Protection Legend**
- Petit Manan National Wildlife Refuge Complex
 - Petit Manan National Wildlife Refuge Approved for Acquisition
 - Nationally Significant Islands* Permanently Protected by Others
 - Nationally Significant Islands* Not Permanently Protected
 - Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
 - Other National Wildlife Refuges

*Nationally significant is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

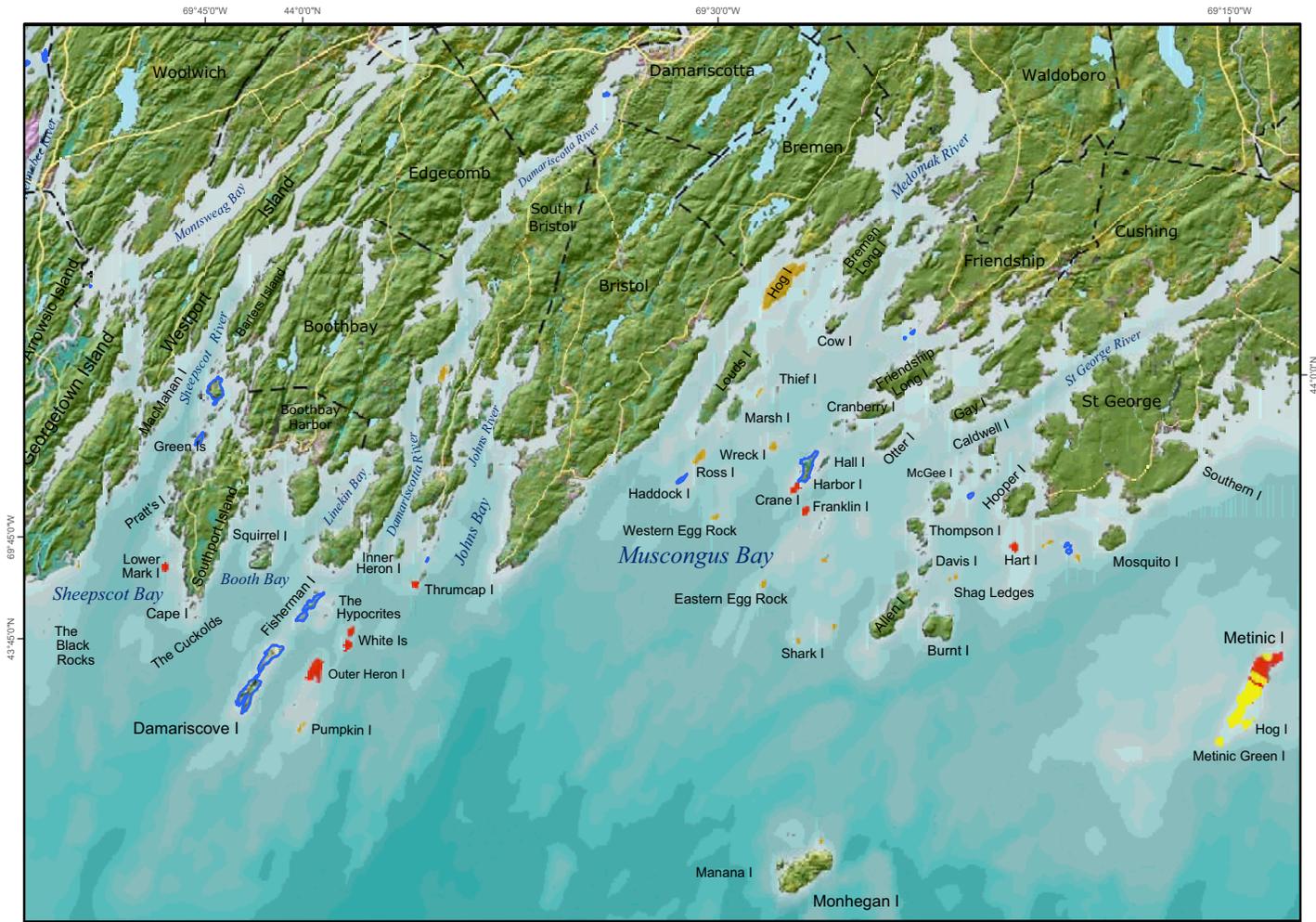
Base Map Legend

- Primary Roads
- Secondary Roads
- Town Lines
- Fresh Water

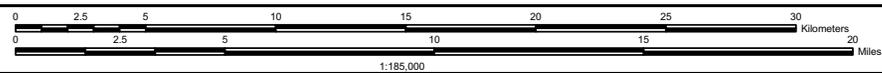
National Land Cover Database

- Residential
- Commercial, Industrial or Transportation
- Bare Rock or Barren Land
- Forested
- Grassland
- Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/21/2004



Map Projection: North_American_1927_UTM_Zone_18N
 Graphic Units: degrees, minutes, seconds



Map frame rotated 19 degrees from North



PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-8 Inner Penobscot Bay



Land Protection Legend

- Petit Manan National Wildlife Refuge Complex
- Petit Manan National Wildlife Refuge Approved for Acquisition
- Nationally Significant Islands* Permanently Protected by Others
- Nationally Significant Islands* Not Permanently Protected
- Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
- Other National Wildlife Refuges

* "Nationally significant" is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

Base Map Legend

- Primary Roads
- Secondary Roads
- Town Lines
- Fresh Water

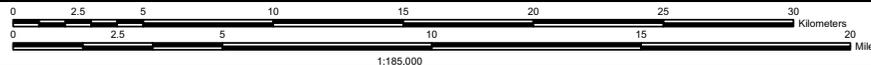
National Land Cover Database

- Residential
- Commercial, Industrial or Transportation
- Bare Rock or Barren Land
- Forested
- Grassland
- Wetland

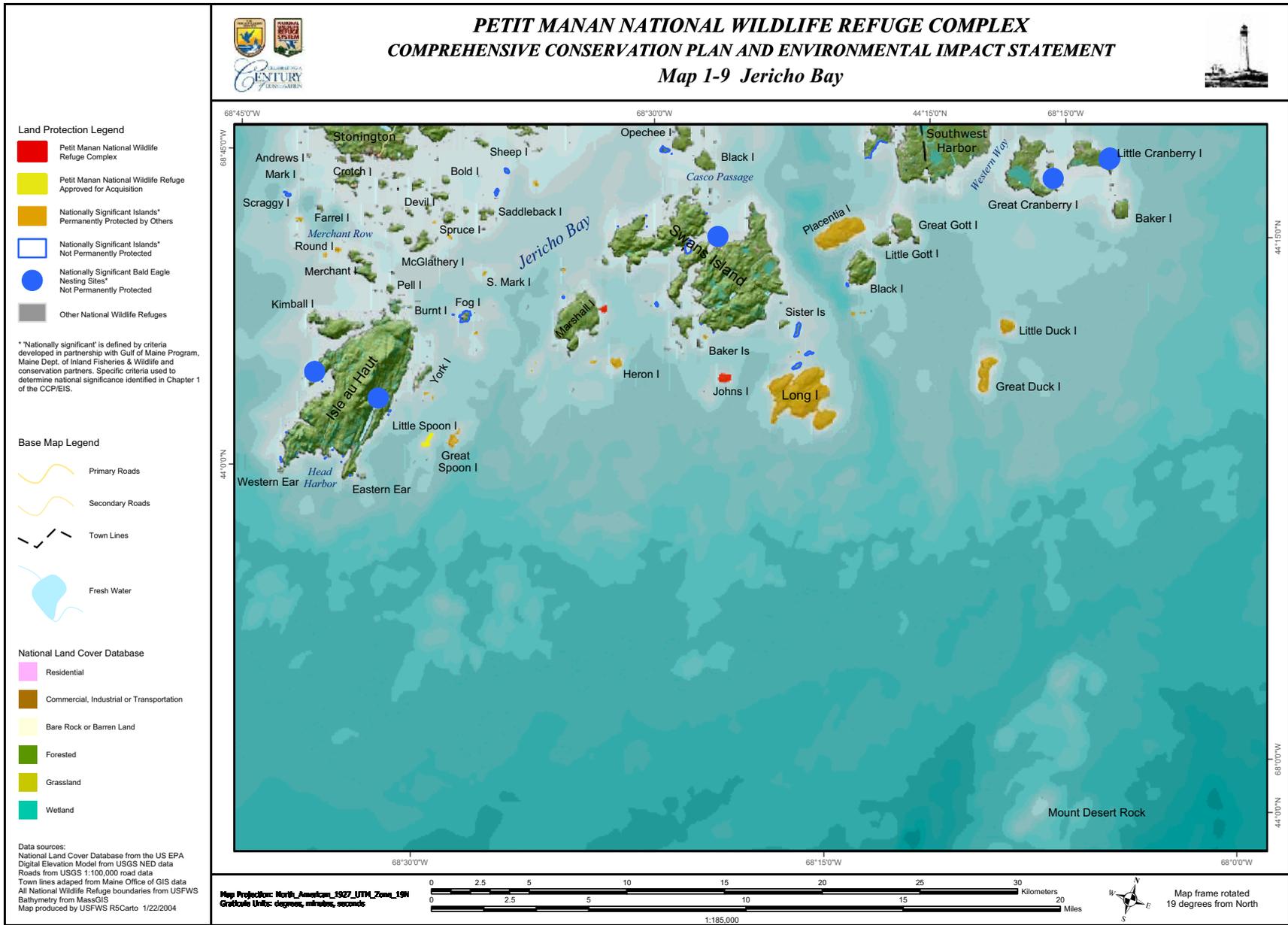
Data sources:
National Land Cover Database from the US EPA
Digital Elevation Model from USGS NED data
Roads from USGS 1:100,000 road data
Town lines adapted from Maine Office of GIS data
All National Wildlife Refuge boundaries from USFWS
Bathymetry from MassGIS
Map produced by USFWS R5Carto 1/21/2004



Map Projection: North_American_1987_UTM_Zone_19N
Graphic Units: degrees, minutes, seconds



Map frame rotated 19 degrees from North





PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX

COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-10 Frenchmans Bay



Land Protection Legend

- Petit Manan National Wildlife Refuge Complex
- Petit Manan National Wildlife Refuge Approved for Acquisition
- Nationally Significant Islands* Permanently Protected by Others
- Nationally Significant Islands* Not Permanently Protected
- Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
- Other National Wildlife Refuges

* 'Nationally significant' is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

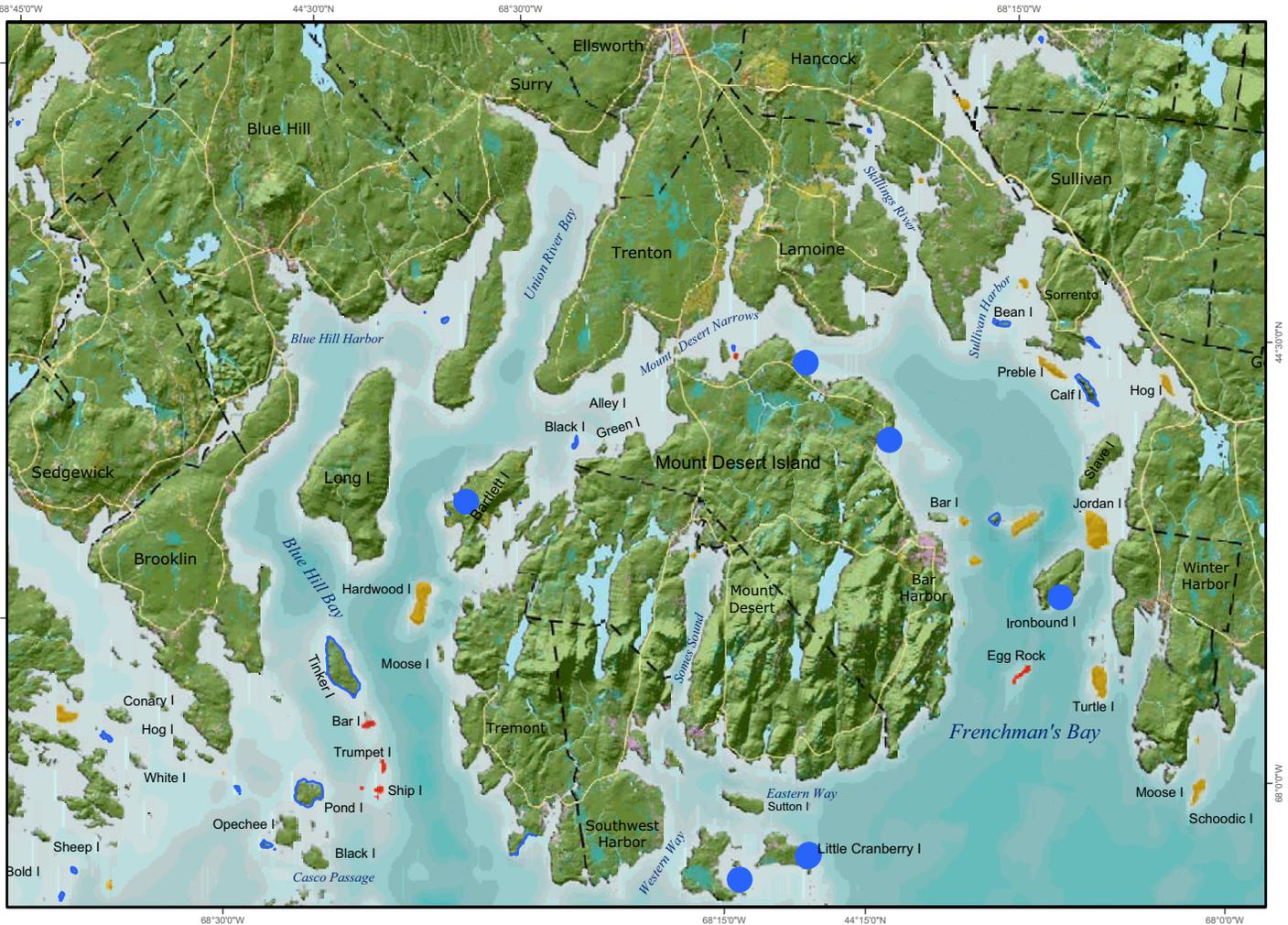
Base Map Legend

- Primary Roads
- Secondary Roads
- Town Lines
- Fresh Water

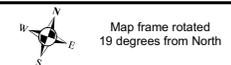
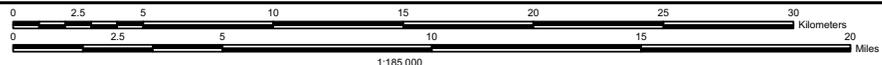
National Land Cover Database

- Residential
- Commercial, Industrial or Transportation
- Bare Rock or Barren Land
- Forested
- Grassland
- Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/22/2004



Map Projection: North_American_1983_UTM_Zone_19M
 Graphic Units: degrees, minutes, seconds





PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT



Map 1-11 Petit Manan

Land Protection Legend

- Petit Manan National Wildlife Refuge Complex
- Petit Manan National Wildlife Refuge Approved for Acquisition
- Nationally Significant Islands* Permanently Protected by Others
- Nationally Significant Islands* Not Permanently Protected
- Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
- Other National Wildlife Refuges

* 'Nationally significant' is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCPI/EIS.

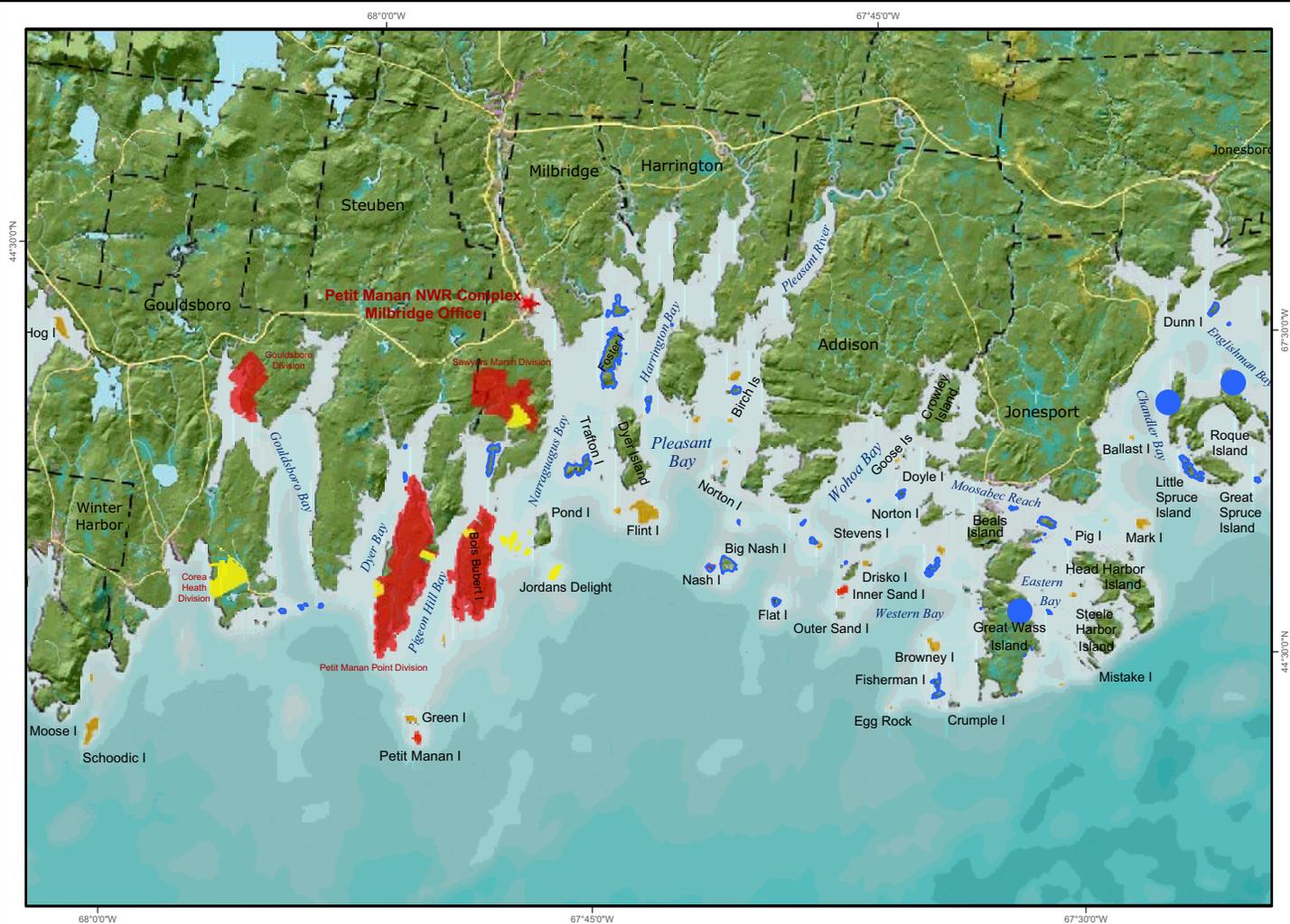
Base Map Legend

- Primary Roads
- Secondary Roads
- Town Lines
- Fresh Water

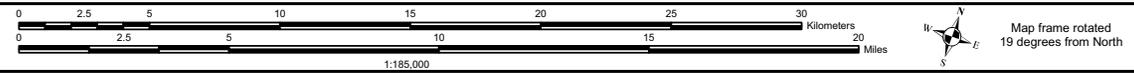
National Land Cover Database

- Residential
- Commercial, Industrial or Transportation
- Bare Rock or Barren Land
- Forested
- Grassland
- Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/22/2004



Map Projection: North_American_1927_UTM_Zone_19N
 Grid Units: degrees, minutes, seconds





PETIT MANAN NATIONAL WILDLIFE REFUGE COMPLEX

COMPREHENSIVE CONSERVATION PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Map 1-12 Cobscook Bay



Land Protection Legend

- Petit Manan National Wildlife Refuge Complex
- Petit Manan National Wildlife Refuge Approved for Acquisition
- Nationally Significant Islands* Permanently Protected by Others
- Nationally Significant Islands* Not Permanently Protected
- Nationally Significant Bald Eagle Nesting Sites* Not Permanently Protected
- Other National Wildlife Refuges

*'Nationally significant' is defined by criteria developed in partnership with Gulf of Maine Program, Maine Dept. of Inland Fisheries & Wildlife and conservation partners. Specific criteria used to determine national significance identified in Chapter 1 of the CCP/EIS.

Base Map Legend

- Primary Roads
- Secondary Roads
- Town Lines
- Fresh Water

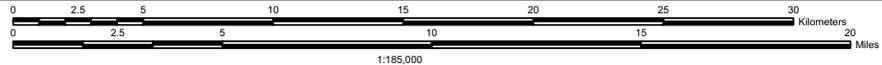
National Land Cover Database

- Residential
- Commercial, Industrial or Transportation
- Bare Rock or Barren Land
- Forested
- Grassland
- Wetland

Data sources:
 National Land Cover Database from the US EPA
 Digital Elevation Model from USGS NED data
 Roads from USGS 1:100,000 road data
 Town lines adapted from Maine Office of GIS data
 All National Wildlife Refuge boundaries from USFWS
 Bathymetry from MassGIS
 Map produced by USFWS R5Carto 1/22/2004



Map Projection: North_American_1983_UTM_Zone_18N
 Grid Units: degree, minutes, seconds



Map frame rotated 19 degrees from North

Actions Common to All Alternatives

Although the alternatives differ in many ways, they also share some similarities. Listed below are actions common to all alternatives:

- Keep this CCP current through scientific research and adaptive management.
- Support our existing partnerships and pursue new ones vital to successfully managing all aspects of the Refuge Complex, from protecting species and habitat to providing wildlife-dependent public use and education.
- Support our conservation partners, particularly the MDIFW and the National Audubon Society, in their ongoing protection of nationally significant habitat for seabirds, wading birds, and nesting bald eagles.
- Support our refuge friends group, the Friends of Maine Seabird Islands, and continue our successful program for refuge volunteers, who have provided thousands of hours of work in refuge administration, public use, and biology.
- Develop a Memorandum of Understanding with the U.S. Coast Guard to facilitate their access to refuge land to maintain navigational equipment.
- Implement our Fire Management Plan and EA (2002), Safety Program and Operations Plan (2000), Continuity of Operations Plan (1999), and Hunt Plan and EA (2001) as part of this CCP.
- Publish these step-down management plans as near as possible to these projected completion dates: Habitat Management Plan (by 2004); Habitat and Species Inventory and Monitoring Plan (by 2005); Visitor Services Plan (by 2005); Facilities and Signs Plan (by 2005); Law Enforcement Plan (by 2006); Cultural Resources Management and Protection Plan (by 2008); Compatibility Determinations for Wildlife-Dependent Recreational Uses (concurrently with the final CCP); and, our Land Protection Plan (concurrently with the final CCP).
- Maintain 112 acres in three freshwater impoundments as stopover and foraging habitat for fall migrating waterfowl, wading birds, and shorebirds.
- Maintain Refuge Complex buildings, roads, and parking lots, one cabin on Cross Island and two on Bois Bubert Island, a dwelling on Metinic Island, boat ramps and boardwalks on Matinicus Rock, Egg Rock, Petit Manan, and Libby islands, Two Bush Island light (not designated historic), the John Hollingsworth Memorial and Birch Point foot trails on the Petit Manan Point division, and the Egg Rock seawall.
- Maintain historic lighthouses and associated buildings at least to the minimum national historic preservation standards, and comply with Section 106 of the National Historic Preservation Act before disturbing any ground.

- Acquire, as they become available from willing sellers, the 467 privately owned acres within our approved acquisition boundaries; and, continue to pursue the 400-acre Corea Heath as a no-cost transfer from the U.S. Navy.
- Continue refuge revenue sharing payments to the 20 coastal towns where we own land, subject to changes in its appraised market value, congressional appropriations, and new acquisitions.
- Pursue the idea of establishing a new Refuge Complex Headquarters and Coastal Education Center by developing and evaluating site criteria in cooperation with our conservation partners, then producing a separate environmental assessment that includes public involvement.
- Provide technical assistance to landowners interested in protecting or enhancing their land for wildlife.
- Continue our approved special use permits, and evaluate new requests for special use permits, especially, permits for research that will improve decisions about managing natural resources or conserving species of concern and their habitats on the Refuge Complex.
- Develop a Memorandum of Understanding with the Passamaquoddy Tribes (Pleasant Point and Indian Township Reservations), and other interested Wabanaki Tribes to facilitate sharing resources and expertise; namely the identification and protection of cultural resources.

Affected Environment

Introduction

Our study area falls in the U.S. portion of the Gulf of Maine Rivers ecosystem: in particular, the 7,691 acres on our mainland refuges and 42 refuge islands, and the 151 nationally significant coastal nesting islands not permanently protected of York, Cumberland, Sagadahoc, Lincoln, Knox, Hancock, and Washington counties.

The Refuge Complex Landscape

Maine has a longer coastline than any other state in the continental United States. From west to east, its 7,039 miles include the Saco, Casco, Muscongus, Penobscot, Jericho, Frenchman’s, Pleasant, and Machias bays (see map 1–2, “Petit Manan National Wildlife Refuge Complex”). That coastline can be divided into five distinct geologic sections (Conkling, 1995), from Maine’s most populous beaches and thousands of acres of salt marsh in the south to the huge tides (20 feet at West Quoddy Head), rugged gray and dark-green cliffs, sea stacks, fewer people, and rare seabirds at the southern end of their breeding range “Down East.”

Maritime influences strongly affect the climate of coastal Maine: annual precipitation averages 42 inches; temperatures average 45 degrees in the south, 44 degrees along the mid-coast, and 40 degrees in the north. The coastal region also has the longest growing season in the state, averaging between 140 and 160 days per year.

According to the Maine Department of Environmental Protection, the state exceeds acceptable levels for particulates, sulfur dioxide, and carbon monoxide. (Visit the Maine DEP website, www.state.me.us/DEP/pubs/environment 2002). Ground ozone levels, a particular health hazard, are a concern in the southern counties. In 1978, Congress designated the 7,000-acre Moosehorn Refuge Wilderness Area a Class 1 air quality area. Class 1 areas receive the highest levels of protection under the Clean Air Act. Although the Refuge Complex lacks air quality monitoring stations, most of the air pollutants that affect Moosehorn are also likely at Petit Manan (Porter, per com, 2002). Acadia National Park operates two air quality monitoring sites, at McFarland Hill and Cadillac Mountain.

Point- and nonpoint-source pollution affect the quality of Maine's coastal waters, which are monitored primarily by two state agencies: the Department of Marine Resources and the Department of Environmental Protection. We do not monitor water quality on the Refuge Complex, so we are unsure of how those pollutants are directly affecting them.

The U.S. Census estimates Maine's population at 1,274,923, with an average density of 41.3 persons per square mile; most live in coastal counties. The southern coast and mid-coast are growing at almost twice the rate of the state as a whole. Its top three industries rank (1) education, health, and social services; (2) retail; and (3) manufacturing. Wood products, pulp and paper dominate Maine's manufacturing industry, and consistently pay the state's "livable wage," but they are now in a difficult investment climate. Real estate and land development also support Maine's economy. Some natural resource industries with ties to the Refuge Complex also contribute: aquaculture and other commercial fisheries; ecotourism; commercial seabird viewing; forestry; blueberry production; hunting and fishing; and environmental education.

Island Resources

The 42 islands in the Refuge Complex display incredibly diverse habitats and associated fish, wildlife, plant, and insect species. Some are Federal- or State-listed as threatened, endangered, or special concern; among them, bald eagles, roseate terns, common terns, Arctic terns, Atlantic puffins, razorbill, and harlequin ducks. Mammal species found on the refuges include: the gray seal, harbor seal, white-tailed deer, moose, black bear, coyote, fox, raccoon, mink, and otter. Non-native plants such as timothy, salt spray rose, and raspberry, and invasive plants such as purple loosestrife also occur. Chapter 3, part 2, "Refuge Complex Island Resources," discusses each of the 42 islands of the Refuge Complex in detail: its acquisition history, its natural resources, and our management of its public use and access.

The seasonal demand for access to Maine coastal islands is high. Historically, their non-consumptive recreational uses have included picnicking, hiking, wildlife observation, photography, and camping. Their consumptive uses have included berry picking, fishing, shell fishing, and sport hunting for waterfowl (including eiders), upland game birds, and deer.

The public can gain access to coastal islands in various ways, depending on their ownership. Two Refuge Complex islands form part of the 325-mile, 104-island waterway maintained by the Maine Island Trail Association (MITA), and are open to overnight camping: Bois Bubert and Halifax islands. Acadia National Park allows access, primarily by private boat, to several of its islands. All of the islands owned by the State of Maine are open to the public, and are accessible by private boat. Some are State parks; others were acquired to protect habitat for nesting seabirds, and are closed to public access during the nesting season. The Nature Conservancy also owns islands that are open to the public, and occasionally may offer trips and tours; but generally, visitors use private boats.

Mainland Resources

The three divisions of the Refuge Complex on the mainland offer ecologically diverse habitat for a tremendous variety of resident and migratory species. In addition, the Corea Heath tract, pending a no-cost transfer from the U.S. Navy, will become a fourth mainland division and further enhance the ecological diversity of the Refuge Complex.

The Petit Manan Point Division

This 2,195-acre division, in the Town of Steuben, Washington County, offers rocky ledges, sphagnum bogs, blueberry barrens, maritime slope bog, cedar swamp, jack pine stands, red spruce forests with some mixed hardwoods, coastal raised heath peatlands, fresh and saltwater marshes, old hayfields, and more than 10 miles of shoreline with exposed cobble beaches. State-listed plants include Nova Scotia false-foxglove (*Agalinis neoscotica*), Pickering's reed bent-grass (*Calamagrostis pickeringii*), salt-marsh sedge (*Carex recta*), swarthy sedge (*Carex adjusta*), and moonwort (*Botrychium lunaria*) (Widrig 1996). Rare or noteworthy community types include maritime slope bog, tall meadow, Larch forest, maritime spruce-fir, jack pine, spruce-fir flats, spruce woodland, northern white cedar swamp, and spruce slope forest (MNAP 2002).

Petit Manan Point is noted for its use by migrating waterfowl, songbirds, shorebirds, and raptors. Land bird species of concern (appendix B) that breed on the division include American woodcock, eastern wood-pewee, chestnut-sided warbler, and bobolink. For the past 5 years, the productivity of its Monitoring Avian Productivity and Survivorship (MAPS) station has been among the top 5 percent of stations in North America, excluding Alaska. Warblers commonly seen include the magnolia, black-and-white, black-throated green, and Nashville warbler. Other species commonly seen include the American redstart, white-throated sparrow, hermit thrush, Swainson's thrush, and common yellowthroat. Its three freshwater wetlands cover 112 acres, and are managed to provide habitat for fall migratory waterfowl, shorebirds, and wading birds. The most abundant species observed are American black duck, mallard, and green-winged teal.

The Petit Manan Point division also maintains two hiking trails: The John Hollingsworth Memorial Trail and the Birch Point Trail. Occasionally, refuge staff and volunteers lead interpretive programs or teachers lead environmental education classes there. It is not open to hunting.

The Gouldsboro Bay Division

This 607-acre division, in the Town of Gouldsboro, Hancock County, offers mature conifer forest, northern hardwood-mixed forest, early successional deciduous forest, maritime salt marsh and estuary, and saltwater tidal and aquatic bed habitats. The ages of its forest stands vary, because of limited cutting before we acquired the property.

This division also has a MAPS station, which it has monitored for the past 3 years. Its common bird species are the same as those mentioned above. Bald eagles nested there in 2001 and 2002.

A hiking trail to the salt marsh, an overlook, and the interpretation of an historical site are in the developmental stage. Unfortunately, all-terrain vehicles (ATVs) are illegally using this area for access to the salt marshes, and more enforcement is needed. Signs are in place to alert ATV users that the vehicles are not allowed on refuge lands. This division is open to hunting migratory game birds, waterfowl, and small and big game, under State and refuge regulations.

The Sawyers Marsh Division

This 933-acre division, in the Town of Milbridge, Washington County, lies northeast of Petit Manan Point, at the head of a broad tidal marsh used extensively by migratory shorebird and waterfowl species including black duck, and wood duck. Many species of shorebirds and wading birds feed in its shallow waters and the adjacent inter-tidal areas. Most of the marsh is privately owned. The upland habitat surrounding it consists of several large stands of white birch, various other hardwood species, red spruce, and balsam fir. The ages of those stands vary, partly because of a wildfire in the early 1950s and partly because of cutting before we acquired the property.

Surrounded by privately owned land, this division offers little opportunity for public access. As at the Gouldsboro Bay division, ATV's are illegally using this area for access to the salt marshes. Signs are in place to alert ATV users that their vehicles are not allowed on the refuge. The Sawyers Marsh division is open to hunting migratory game birds, waterfowl, and small and big game, under state and refuge regulations.

The Corea Heath Division

This 400-acre coastal plateau bog is situated on the Schoodic peninsula, in the Town of Gouldsboro, Washington County. We are awaiting its no-cost transfer from the U.S. Navy, which has used it since the 1950's as a

communications facility, but has also designated 240 acres of the heath as an ecological preserve.

Among 115 coastal raised peatlands in Maine, the Corea Heath ranks 5th for coastal peat land features and 6th for all peat land features. Its ecological communities include open bog, forested bog, open fen, acidic ledges, coniferous and birch woodlands, and more than a mile of boulder and cobble shoreline. In 1996, the University of Maine and Acadia National Park completed a biological inventory. A copy is on file at Refuge Complex headquarters in Milbridge. The heath has been closed to public use since the U.S. Navy acquired it.

Environmental Consequences

A cooperative, interagency approach to protecting the resources of the Gulf of Maine watershed offers the greatest opportunity to improve conditions over the long term. We can more easily predict the extent and duration of consequences on the geographic scale of the 7,961-acre Refuge Complex than on the scale of the 26-million-acre watershed. Thus, our predictions may prove more accurate on the smaller scale than on the larger.

Some types of actions do not require further description or analysis here, because they do not significantly affect the human environment: for example, researching or collecting information about refuge resources; conducting environmental education and interpretation; building, operating, and maintaining refuge infrastructure (unless major construction is involved); or enforcing Federal laws or regulations. Only minor changes in new or revised management plans or in the amount or types of public use also fall under this NEPA exclusion.

At the end of this section, Table 1-1, “A summary of the effects on the Refuge Complex environment by alternative,” predicts the foreseeable consequences of implementing each alternative on the major resources listed below. When we lack reliable, quantitative information about how some actions could impact resources of concern, we describe their direct or indirect effects in the qualitative terms “positive,” “neutral,” or “negative.”

Effects on Water Quality and Soils

No action proposed in any alternative violates the Clean Water Act. Over the long term, considering direct and indirect impacts, alternative C would provide the greatest benefit to improved water quality and soils protection. This is due to the greater land protection it affords, while its habitat and public use management designs would maintain or restore water quality and soils. Alternative B would be ranked next highest, followed by alternative A, then alternative D.

Effects on Air Quality

No action proposed in any alternative violates State or Federal EPA standards for the Clean Air Act. Alternative D contributes the least additional air pollution caused by vehicle emissions and prescribed fire. Alternative A, then B, respectively, follows with the next lowest contribution by these

sources. Alternative C proposes the most acres of prescribed fire, and would result in the highest number of visitors traveling by automobile; however, those impacts are partially offset by its substantially greater land protection benefits, compared with the other alternatives. In summary, alternative D would benefit air quality the most, followed by alternative A, then B, then C.

Effects on the Local and Regional Economy

Overall property tax losses to towns are greatest in alternative C, because it proposes the largest expansion of the Refuge Complex, followed by alternative B, then A. No property taxes are lost in alternative D, because it proposes no expansion.

Alternative C would possibly result in two new commercial seabird viewing opportunities, while alternative B would possibly result in one new opportunity. We would maintain current opportunities with the implementation of alternative A, while there would be a loss of opportunity on Petit Manan Island with implementation of alternative D.

Alternatives B and C would provide the greatest increases in hunting opportunities and associated revenue. An approximate increase of 114 hunter days is predicted with either alternative, generating an additional \$11,772 to the local economy. There would be no change in hunter opportunity or revenues generated with alternative A. Alternative D proposes to eliminate hunting, which would result in a total loss of hunter opportunity and revenues generated.

None of the alternatives would appreciably impact Maine's sheep industry; however, two local sheep operators would be most impacted by alternative D, as it would cause them to incur some expense in modifying their operations.

Predicting with any certainty the potential impacts on the aquaculture industry is difficult, since our Ecological Services Maine Field Office recommendation for a quarter-mile buffer near finfish operations are not always incorporated into ACOE permits. However, alternative C, which proposes the largest expansion, has the greatest potential to impact individual aquaculture operations. At present, we know of six aquaculture leases which have been issued off islands proposed for acquisition in this alternative. Of the six, two leases are for low intensity shellfish operations and three are finfish operations over a quarter-mile from the island proposed for acquisition. Only one facility, Treat Island, would be a concern if the current facility were to be moved or expanded. The island expansion proposed in alternative B has the next highest potential to impact the industry, although to our knowledge, no aquaculture leases have been issued next to proposed islands. Alternative A follows next, although no leases are known. No impact would result from alternative D.

Effects on Public Access, Educational and Recreational Opportunities

Compared with alternatives A and D, alternatives B and C would appreciably expand Service ownership (respectively, 87 islands or 151 islands, or portions thereof) where priority public uses would be allowed outside seabird and bald eagle nesting seasons. Since virtually all of those islands are privately owned, that would represent an increase in authorized public access to Maine coastal islands. Alternative A includes a 30-island expansion. Alternative D would not allow any public access on refuge islands.

Over the next 15 years, we project increased visitation in alternatives A, B, and C, commensurate with their proposed expansions and increased visitor services programs. Alternative C would realize the greatest potential increase in annual visitation with an additional 23,500 visitors; followed by alternative B with 11,750; and, alternative C with 4,700. Under alternative D, we predict annual visitation would actually decline over current levels over the next 15 years, since the seabird colonies in the most popular viewing areas would no longer be intensively managed and their numbers could decline.

We would expect to meet or exceed the demand for priority public use programs under alternatives B and C. We would increase our environmental education, interpretation, wildlife observation and photography programs on the mainland, offer a new deer hunting opportunity on Petit Manan Point Division, and continue to provide waterfowl hunting on the majority of islands. Camping would continue to be allowed on two Refuge Complex islands, in partnership with MITA. Alternative C is the only alternative that would allow furbearer trapping in certain areas, a new opportunity on the Refuge Complex. Alternative A would continue current programs, where unmet requests for programs are a common occurrence. Alternative D would emphasize environmental education on the mainland and with partners, but would scale back on programs that draw more people to the area.

Effects on Cultural Resources

All of the alternatives comply with legal mandates to protect and maintain archeological and historic sites. All of the alternatives also propose to improve relations with the Passamaquoddy and other Wabanaki Tribes through a partnership agreement. Alternatives B and C would improve our baseline information on existing and potential sites through surveys. We would develop partnerships to protect and restore historic sites. Under alternatives A and D, very little change would occur; we would continue to meet only the minimum standards for protection of historic sites.

Effects on Vegetation and Habitats

In alternatives A, B, and C, few changes in vegetation management would occur on the Refuge Complex. The few changes that would occur under alternatives B and C include up to 100 acres of northern hardwood-mixed forest and scrub shrub managed to diversify age classes, and active management of rare plant sites and jack pine stands. In alternative D, no vegetation management would occur, so any changes would be the result

of natural processes. On the islands, the primary difference in active vegetation management would be associated with the number of proposed seabird restoration projects. In alternative A, it would remain at 6 projects; in alternative B it would be 12 projects; in alternative C it would be 18 projects, and in alternative D, it would be minimal maintenance of the existing 6 projects.

Effects on Threatened and Endangered Species

Alternatives A, B, and C would maintain the seasonal closures to protect roseate terns and bald eagles nesting on the Refuge Complex. Alternative D would close Refuge Complex islands to public use year-round. Roseate terns are nesting on two Refuge Complex islands, and bald eagles are nesting on four islands and the Gouldsboro Bay Division. Alternatives A, B and C would continue to manage the six seabird restoration projects, which provide nesting or foraging sites for roseate tern. Alternative C, with the largest expansion proposal, would provide the greatest long-term benefits to roseate tern and bald eagles by protecting existing and potential future nesting sites, and would contribute the most to those species' recovery goals. Alternative B would provide the second greatest long-term benefits, followed by alternative A. Alternative D does not propose an expansion, and would provide the least support to recovery goals.

Effects on Seabirds, Wading Birds, and Waterfowl

Alternatives A, B and C would maintain the public access restriction on Refuge Complex islands during the seabird nesting season, which includes the nesting seasons for wading birds and waterfowl. Alternative D would close all Refuge Complex islands to public use year-round. All alternatives would maintain the freshwater impoundments on the Petit Manan Point division so important to thousands of migrating waterfowl.

Alternative C, with the largest expansion proposal and 12 proposed new seabird restoration projects, would provide the greatest benefit to those species. It would also identify important wading bird and waterfowl habitats on the mainland in need of protection, and pursue Service acquisition under a separate authorization, as warranted. Alternative B, with the next largest expansion proposal and six proposed new seabird restoration projects, would provide the next greatest benefit, followed by alternative A, with its smaller expansion and continued management of six seabird restoration sites. Alternative D does not propose an expansion, and would dramatically scale back seabird restoration on the six projects.

Effects on Other Native Wildlife of Management Concern

All of the alternatives strive to protect native species and habitat diversity. No significant changes to vertebrate or invertebrate population viability or species distribution is predicted under any of the alternatives, even after consideration of their proposed public use, hunting, trapping, and predator management. Additional protection of native species would be afforded by the proposed Refuge Complex expansions in alternatives A, B, and C. Alternative C, with the largest expansion proposal, would afford the

greatest benefits to native species, followed by alternative B, then A. Alternative D does not propose an expansion.

Effects of Wilderness Recommendations

Only alternatives B and C recommend wilderness designations. Thirteen islands in 8 WSAs would be managed according to the provisions of the Wilderness Act, wilderness management regulations (50 CFR 35) and Service policy (6 RM 8) to maintain their wilderness character while also accomplishing refuge purposes and the Refuge System mission. They would continue to be accessible by motorboat, but the use of motorized vehicles, motorized equipment, or mechanical transport on the islands would be allowed only for (1) emergency purposes or (2) when necessary to meet minimum requirements for administering the area as wilderness or to accomplish refuge purposes. There are no impacts predicted on current compatible, priority public uses occurring on Refuge islands. Alternatives A and D do not recommend wilderness designation; those islands would not be managed to preserve their wilderness character; they would only be managed to accomplish refuge purposes and the mission of the Refuge System. Alternative D would exclude public access year-round on any island in the Refuge Complex.

Effects on Environmental Justice

Our analysis of environmental justice concludes that we do not predict any of our management alternatives would cause disproportionately high and adverse human health or economic impacts to minority or low-income populations in coastal Maine.

Cumulative Effects on the Environment

Cumulative effects can arise from individually minor but collectively significant actions taken separately over time, including other agencies' actions, if they are interrelated and affect the same environment. None of our proposed alternatives are expected to have significant cumulative adverse impacts on air quality, soils, hydrology, wetlands, or water quality in coastal Maine or elsewhere in New England.

Each of the alternatives proposes varying participation in ongoing, watershed-based land protection partnerships. The greatest number of islands to be acquired by the Service is 151, under alternative C. These are scattered from the New Hampshire border to Cutler, Maine, and represent only 3 percent of the estimated 4,617 islands along the Maine coast. No one area of the coast would be disproportionately affected. When combined with actions by other Federal, State, and local organizations working in coastal Maine, we expect all of the alternatives to have a positive, cumulative effect on soils, hydrology, wetlands, and water quality within their respective watersheds.

All of the alternatives are intended to maintain or improve biological resources on the Refuge Complex, in coastal Maine, and within the Gulf of Maine Rivers ecosystem. The combination of our management actions with other organizations' actions could result in significant, beneficial

cumulative effects by (1) increasing protection and management for Federal and State-listed threatened and endangered species; (2) improving uplands and wetlands habitats that are regionally declining; and (3) reducing invasive, exotic plants and animals. We expect none of the alternatives to have significant adverse cumulative effects on the cultural resources or the economy of coastal Maine.

Relationship between Short-term Uses of the Human Environment and the Enhancement of Long-term Productivity

This section evaluates the relationship between local, short-term uses of the human environment and its long-term productivity. By long-term, we mean that an impact would extend beyond the 15-year planning horizon of this draft CCP/EA; by short-term, we mean less than 15 years.

In summary, we predict that all alternatives would contribute positively to maintaining or enhancing the long-term productivity of the environment of coastal Maine. All of the alternatives strive to maintain or enhance the long-term productivity and sustainability of natural resources on the Refuge Complex. In varying degrees, the alternatives propose actions that promote watershed- or ecosystem-wide partnerships geared to identifying and protecting important coastal habitats. The alternatives strive to protect our Federal trust species and the habitats they depend on, as in the case of public use restrictions during the seabird nesting seasons. Alternatives A, B, and C would maintain the intensive seabird restoration projects that have resulted in important regional increases in these species. Outreach and environmental education are a priority in each alternative to encourage Refuge Complex visitors to be better stewards of our environment.

All alternatives propose stepped-up outreach and enforcement to eliminate existing uses determined to be not appropriate and incompatible, such as ATV use and rockweed harvesting. The purpose is to reduce impacts on wildlife and habitats and enhance the long-term productivity of these sites. While the intent is the same, alternatives A and D would not provide the staffing or funding levels to ensure that these uses can be eliminated.

The dedication of certain areas to developments, such as roads, trails, visitor facilities on the mainland divisions, and research facilities on the islands represents a loss of long-term productivity on localized areas, but is not considered significant given the land base. Camping in designated areas on two islands would be allowed to continue in alternatives A, B and C, but in the latter two alternatives we would monitor it closely, and we would establish thresholds of change which may trigger eliminating this use. Sheep grazing would also be allowed to continue in alternatives A, B, and C, but, as with camping, we would monitor it closely and develop specific operating prescriptions in a special use permit.

Unavoidable Adverse Effects

Unavoidable adverse effects arise from actions that could cause significant harm to the human environment but cannot be avoided, even with mitigation measures. We considered property tax losses to towns, increased visitation and its effects, and prescribed fire as the principle activities that

could have unavoidable adverse effects. In its section “Effects on the Local and Regional Economy,” chapter 4, “Environmental Consequences,” describes the actual losses in property tax revenue for towns. Although their effects on coastal towns vary, none of the alternatives would contribute to a significant, cumulative loss of tax revenue in any one town.

Alternatives A, B, and C respectively predict increasing levels in visitation. Enhanced services and facilities for Refuge Complex visitors will draw more people to the area; in particular, we are predicting more groups with increased environmental education and interpretive programs. Even under a carefully designed program, increased visitation would result in higher levels of disturbance to wildlife, although most of those would occur in localized areas. We intend to manage our visitor use programs to minimize those effects. The effects of prescribed burning in treating vegetation would impact visual quality for a short time each year (< 7 days), but will be implemented under conditions that comply with State Clean Air Act and Federal EPA standards. Those effects would not be significant.

Finally, we will undertake biological monitoring as part of all alternatives, to enable our staff to adapt management actions and address any unforeseen situations. As a result, we predict none of the alternatives would result in significant, unavoidable, adverse environmental impacts.

Potential Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those which cannot be reversed, except perhaps in the extreme long term or under unpredictable circumstances. An example of an irreversible commitment is an action which contributes to the extinction of a species. Once extinct, it can never be replaced.

In contrast, irretrievable commitments of resources are those which can be reversed, given sufficient time and resources, but represent a loss in production or use for period of time. An example of an irretrievable commitment is the maintenance of forest and shrub land as open field and grasslands. If for some reason grasslands were no longer an objective, they would gradually revert to shrub land and forest, or the process could be expedited with plantings.

Only a few actions proposed in the alternatives would result in an irreversible commitment of resources. One is committing land to the construction of the proposed new Refuge Complex Headquarters and Coastal Education Center. All alternatives propose that we continue to pursue this action. A separate environmental assessment will evaluate the site-specific impacts of constructing this facility, once a location is selected.

Another irreversible commitment of resources impacting local communities is Service land acquisition. Alternatives, A, B, and C propose a Refuge Complex expansion at increasing levels, respectively. Once those lands become part of the Refuge Complex, their reversion to private ownership is unlikely.

The commitment of resources to maintaining the freshwater impoundments, grasslands and open fields (alternatives, A, B, and C only) is very small compared with the benefits derived from the increased biodiversity. On the mainland, these wetlands, grasslands, and fields provide nesting, foraging, and migrating habitat for many migratory bird species of conservation concern. They also benefit Refuge Complex visitors by providing wildlife observation opportunities. On the islands, maintaining grasslands and fields is vitally important to providing high quality seabird nesting habitat.

Alternatives A, B, and C would maintain the seasonal, public access closures on nesting seabird islands. Alternative D would close the islands to public use year-round. This represents an irretrievable loss of resources for some members of the public visiting the Refuge Complex in the future. However, keeping in mind that the primary purpose of the closures is to protect migratory bird habitat, the trade-off of reduced public access during the critical seabird nesting season is warranted. Also, with more than 4,617 islands off the coast of Maine, there are likely others that could provide recreational opportunities at the times when the Refuge Complex islands are closed.



Red-winged blackbird
USFWS photo

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Physical Resources</u>				
Water Quality and Soils	Service acquisition of 1,501 acres not in conservation ownership increases direct, permanent benefits to water quality and soils productivity	Service acquisition of 2,934 acres not in conservation ownership considerably increases direct, permanent benefits to water quality and soil productivity	<p>Impacts resemble alternative B except:</p> <p>Service acquisition of 6,930 acres not in conservation ownership greatly increases direct, permanent benefits to water quality and soil productivity</p> <p>Some low intensity, short duration negative effects from the annual use of herbicides and prescribed fire (~ 250 acres)</p> <p>Slight increase in localized soil compaction from construction of at least 2 photo blinds.</p> <p>No violations of Federal or State Clean Water Act standards</p>	<p>Service acquisition of 467 acres not in conservation ownership minimally increases direct, permanent benefits to water quality and soil productivity</p> <p>Increase in direct and permanent benefits to current refuge lands since they would be closed to all public uses; sheep grazing would be eliminated; and, the intensity of seabird restoration work would be greatly reduced</p> <p>Some soil compaction from use on existing Petit Manan Point trails</p> <p>No violations of Federal or State Clean Water Act standards</p>
	Negligible increase in negative impacts from estimated 10% rise in visitation, which would be offset by limited impact monitoring and "Leave No Trace" outreach program	Potential to improve water quality and soil productivity on high visitation and sheep-grazed islands increased monitoring and threshold standards and limits set; no significant negative impacts from estimated increases in visitation since most visitors would be on seabird viewing boat tours		
	Some low intensity, short duration negative effects from annual use of herbicides, and prescribed fire (~ 55 acres)	Some low intensity, short duration negative effects from annual use of herbicides, and prescribed fire (~110 acres)		
	Some localized soil erosion along Metinic Island shoreline from sheep grazing			
	Some soil compaction from use on existing Petit Manan Point trails	Some localized, permanent soil compaction from use on existing and planned trails on all 4 mainland divisions; however, designated trail would also reduce "unauthorized" trail use in more sensitive areas		
	No violations of Federal or State Clean Water Act standards	No violations of Federal or State Clean Water Act standards		

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Physical Resources (cont'd)</u>				
Air Quality	<p>Potential for contributing direct and indirect short-duration air pollution from prescribed burning on up to 55 acres/year; however, implementation would adhere to stipulations in 2002 Fire Plan to minimize effects</p> <p>Increase in direct, long-term benefits from protecting and maintaining over 9,000 acres (existing and expanded Refuge Complex lands) of natural vegetation and wetlands, which act as pollution filters</p> <p>Negligible contribution to air pollution from refuge visitor vehicle emissions; however, refuge visitation is mostly incidental to other primary destinations</p> <p>No violation of Federal or State Clean Air Act standards, including no impacts to Class I airshed over Moosehorn Wilderness Area</p>	<p>Same type of impacts as described for alternative A; however, the difference is in the increased levels and distribution of the impact. None of these impacts is considered significant:</p> <p>Prescribed burning would occur on up to 110 acres/year;</p> <p>Over 10,000 acres (existing and expanded Refuge Complex lands) of natural vegetation and wetlands would be protected and functioning as pollution filters</p> <p>Slight increase in vehicle emissions predicted from increased visitation in summer and fall tourist seasons; however, refuge visitation is mostly incidental to other primary destinations</p> <p>No violation of Federal or State Clean Air Act standards, including impacts to Class I airshed over Moosehorn Wilderness Area</p>	<p>Same type of impacts as described for alternative A; however, the difference is in the considerable increased levels and distribution of the impact. None of these impacts is considered significant:</p> <p>Prescribed burning would occur on up to 250 acres/year;</p> <p>Over 14,000 acres (existing and expanded Refuge Complex lands) of natural vegetation and wetlands would be protected and functioning as pollution filters</p> <p>Greatest increase in vehicle emissions predicted from increased visitation in summer and fall tourist seasons; however, refuge visitation is mostly incidental to other primary destinations</p> <p>No violation of Federal or State Clean Air Act standards, including impacts to Class I airshed over Moosehorn Wilderness Area</p>	<p>No prescribed burning would occur; no impacts to air pollution from this source</p> <p>No violation of Federal or State Clean Air Act standards, including impacts to Class I airshed over Moosehorn Wilderness Area</p>

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Socioeconomic Resources</u>				
Local and Regional Economies	<p>Proposed refuge island expansion would result in an estimated total of \$31,000 property tax increase in affected towns; an overall average rate of 0.04% per town</p> <p>No new commercial seabird viewing opportunities, thus no additional economic outputs</p> <p>No appreciable increases in benefits to local economies from refuge visitation; hunter-generated expenditures (e.g., equipment purchases, food, lodging, services, etc) would generate revenues estimated to be \$66,710/year</p>	<p>Proposed refuge island expansion would result in an estimated total of \$130,000 property tax increase in affected towns; an overall average rate of 0.05% per town</p> <p>Increased direct and indirect economic benefits over the long term from establishment of at least 1 new seabird viewing location</p> <p>No appreciable increases in benefits to local economies from refuge visitation; however, the new refuge hunt on Petit Manan Pt division would generate additional hunter - expenditures (e.g., equipment purchases, food, lodging, services, etc) in local communities of about \$11,712/year over current levels</p>	<p>Proposed refuge island expansion would result in the highest estimated total of \$225,000 property tax increase in affected towns; an overall average rate of 0.08% per town</p> <p>Highest increase in direct and indirect economic benefits over the long term from establishment of at least 2 new seabird viewing location</p> <p>No appreciable increases in benefits to local economies from refuge visitation; however, hunter-generated benefits similar to alternative B</p>	<p>No island expansion so no change to current contributions to local and regional economies over the short-term, including property taxes</p> <p>Over the long term, there would be reduced economic outputs from the reduced seabird viewing opportunities and elimination of hunting</p>

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Socioeconomic Resources (cont'd)</u>				
Public Access, Educational and Recreational Opportunities	Slight increase in visitation consistent with predictions of increased tourism in surrounding towns (~ 10%); current visitation is 47,000 visitor days annually (50% on seabird viewing boat tours)	Appreciable increase in visitation in response to increased visitor services programs; namely school groups participating in environmental education programs; visitation would increase to ~ 58,750 visitor days annually	Largest increase in annual visitation predicted, ~ 70,500 visitor days, due to considerable increase in refuge land base	Major decline in visitation over the long term; dramatic decrease in public access, educational, and recreational opportunities since all islands would be closed to public access year round; also, limited programs would be offered on mainland units
	Maintain current seasonal access restrictions on refuge islands to protect nesting seabirds or bald eagles	Maintain seasonal access restrictions on refuge islands; modified to allow earlier access on eider and gull-only islands	Impacts from compatible, priority public use programs resemble alternative B; except expanded environmental education and interpretive programs and 2 new seabird viewing sites would be established over the long term	Hunting and camping opportunities would be eliminated
	All 30 islands proposed for Service acquisition would have seasonal restrictions imposed; a likely change (but extent unknown) from current private ownership	All 87 islands proposed for Service acquisition would have seasonal access restrictions imposed; a change (but extent unknown) from access allowed by current private ownership	All 151 islands proposed for Service acquisition would have seasonal access restrictions imposed; a change (but extent unknown) from access allowed by current private ownership	
	No change to compatible, priority public use programs and infrastructure offered; camping would continue on 2 islands on MITA trail	Marked increase in wildlife observation and photographic opportunities with new trails on Gouldsboro Bay, Sawyers Marsh, and Corea Heath mainland division; also, one new seabird viewing site would be established over the long term	New opportunity offered for furbearer trapping in certain locations under refuge and State regulations	
		New deer hunting opportunity on Petit Manan Pt division and waterfowl hunting on newly acquired islands; however, may occasionally impact use of area by other non-hunting visitors		
		Maintain camping on 2 islands on MITA trail with increased oversight and monitoring		

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Socioeconomic Resources (cont'd)</u>				
Cultural resources	<p>Acquisition of 1,501 acres, including 30 islands not in conservation ownership, would afford permanent protection of cultural sites</p> <p>No violation of National or State Historic Preservation Act standards; however, only minimal maintenance on lighthouse structures</p> <p>Improved relations with Passamaquoddy and other Wabanaki Tribes through development of an MOU</p>	<p>Appreciable increase in permanent protection of cultural sites with proposed acquisition of 2,934 acres, including 87 islands, not in conservation ownership.</p> <p>No violation of National or State Historic Preservation Act standards; increased restoration of historic structures</p> <p>Improved relations with Passamaquoddy and other Wabanaki Tribes through development of an MOU</p>	<p>Greatest increase in permanent protection of cultural sites with proposed acquisition of 6,930, including all or portions of 151 islands, not in conservation ownership.</p> <p>No violation of National or State Historic Preservation Act standards; increased restoration of historic structures</p> <p>Improved relations with Passamaquoddy and other Wabanaki Tribes through development of an MOU</p>	<p>Provides fewest opportunities for additional cultural site protection; however, affords greatest protection from human disturbance on refuge islands since no public access allowed year round</p> <p>Improved relations with Passamaquoddy and other Wabanaki Tribes through development of an MOU</p>
Wilderness	No wilderness proposed	<p>Recommends 13 islands in 8 wilderness study areas as part of the National Wilderness Preservation System</p>	<p>Recommends 13 islands in 8 wilderness study areas as part of the National Wilderness Preservation System</p>	No wilderness proposed
<u>Biological Resources</u>				
Vegetation and Habitats	<p>No change from current habitat management priorities:</p> <p>1) maintain 6 seabird restoration projects on refuge islands; continue to use mowing, prescribed burning, herbicides, and sheep grazing as management tools</p>	<p>Expand habitat and management priorities to include:</p> <p>1) maintain 12 seabird restoration projects on refuge islands; continue to use mowing, prescribed burning, herbicides, and sheep grazing as management tools</p>	<p>Same as alternative B except:</p> <p>Expand to 18 seabird restoration projects on refuge islands</p>	<p>Dramatic reduction in management of vegetation and habitats; allow vegetation succession to occur unimpeded. Grasslands and other early successional habitats would change to shrub and early forest habitats over the long-term on mainland. On seabird restoration projects, with reduced management, much would change to raspberry thickets</p>

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
	<u>Biological Resources (cont'd)</u>			
	<p>2) maintain up to 70 acres of open field habitat on Petit Manan Pt division; continue to use mowing and prescribed burning as management tools</p> <p>3) maintain 3 freshwater impoundments (~ 112 acres) on Petit Manan Pt division</p>	<p>2) maintain up to 100 acres of early successional and open field habitat on Petit Manan Pt division</p> <p>3) maintain 3 freshwater impoundments (~ 112 acres) on Petit Manan Pt division</p> <p>4) control invasive plants before they can become established</p> <p>5) increase protection of rare plant sites by developing site management and monitoring plans</p> <p>6) increase protection of salt marsh habitats through increased inventories and monitoring</p> <p>7) maintain forested habitats for species of conservation concern</p>		
Threatened and Endangered Species	Maintain permanent protection of active and historic bald eagle and roseate tern nesting sites on current refuge lands, including predator control and seasonal closures	Maintain permanent protection of active and historic bald eagle and roseate tern nesting sites on current refuge lands, including predator control and seasonal closures	Maintain permanent protection of active and historic bald eagle and roseate tern nesting sites on current refuge lands, including predator control and seasonal closures	Maintain permanent protection of active and historic bald eagle and roseate tern nesting sites on current refuge lands; however, lack of lethal predator control would likely adversely affect nesting roseate tern

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Biological Resources (cont'd)</u>				
Seabirds, Wading birds, and Waterfowl	Protect an additional active bald eagle site, and historic bald eagle and roseate tern nesting sites through proposed expansion	Appreciably increase protection of active bald sites; 37 islands in expansion proposal are bald eagle nesting sites, and 2 are historic roseate tern nesting sites.	Appreciably increase protection of active bald eagle sites; 101 islands in expansion proposal are bald eagle nesting sites, and 2 are historic roseate tern nesting sites.	No new sites protected; no new restoration projects
		Refuge expansion proposal provides for bald eagles and roseate terns to expand to new areas	Refuge expansion proposal provides for bald eagles and roseate terns to expand to new areas	
	Increased, long-term benefits from habitat and vegetation management noted above; nesting and migration habitats to be maintained; predators would continue to be managed at 6 intensively managed seabird restoration sites	Direct, long-term benefits from habitat and vegetation management noted above; nesting and migration habitats to be maintained; predators would be managed at 12 intensively managed seabird restoration sites	Direct, long-term benefits from habitat and vegetation management noted above; nesting and migration habitats to be maintained; predators would be managed at 18 intensively managed seabird restoration sites	Affords the least benefits to nesting terns as habitat quality would decrease with reduced management at seabird restoration projects
	Increased protection of nesting and migration habitat, through proposed acquisition, including 30 islands	Populations and productivity levels to be sustained or increased over baseline year 2000 levels; improved distribution and #'s of seabird colonies over the long-term through proposed acquisition, including 87 islands not in conservation ownership	Populations and productivity levels to be sustained or increased over baseline year 2000 levels; affords greatest opportunity to improve the distribution and #'s of seabird colonies over the long-term through proposed acquisition, including all or portions of, 151 islands not in conservation ownership	Lack of lethal predator control, and fewest acres proposed for acquisition, would likely adversely affect nesting birds
		Birds would also benefit from seasonal closures and laughing gull control	Birds would also benefit from seasonal closures and laughing gull control	

Table 1-1 Summary of the effects of management alternatives on Refuge Complex resources (cont'd.)

Refuge Complex Resources	Alternative A Current Management	Alternative B Service's Preferred	Alternative C	Alternative D
<u>Biological Resources (cont'd)</u>				
Other Native Wildlife of Concern	<p>No appreciable changes to numbers and distribution of native wildlife of concern on existing refuge lands; however, some loss of individual native wildlife, which are predating on nesting seabirds, and/or are hunted during our regulated hunting seasons</p> <p>No expectation that refuge management would result in a loss in population viability for any native species of concern</p> <p>Increased, permanent protection of habitat supporting a wide diversity of native wildlife through proposed acquisition, including 30 islands</p>	<p>Same as alternative A except:</p> <p>Appreciable increase in permanent protection of habitat supporting a wide diversity of native wildlife through proposed acquisition, including 87 islands</p> <p>Some additional loss of white-tailed deer with new hunting program on Petit Manan Point</p>	<p>Same as alternative B except:</p> <p>Affords the greatest permanent protection of habitat supporting native wildlife through proposed acquisition, including all or portions of 151 islands</p> <p>Some loss of individual animals through furbearer trapping program</p>	<p>Same as alternative A except:</p> <p>No loss of individual animals to hunting or predator control as these activities would not occur</p> <p>Provides fewest acres of additional permanent protection of habitat through refuge acquisition (467 acres)</p>

Table 1-2 Land acquisition summary by alternative

	Alternative A (Current Management)	Alternative B (Service' Preferred Alternative)	Alternative C	Alternative D
<u>Lands to be acquired within the existing, approved Petit Manan Refuge boundary*</u>				
Mainland	120 acres	120 acres	120 acres	120 acres
Islands (or parts of)	14 islands** (347 acres)	14 islands** (347 acres)	14 islands** (347 acres)	14 islands** (347 acres)
Corea Heath	400 acres	400 acres	400 acres	400 acres
<u>Lands proposed for acquisition which would expand the existing, approved Petit Manan Refuge boundary</u>				
Mainland	153 acres	153 acres	153 acres	0
Islands (or parts of)	30 islands (881 acres)	87 islands (2,314 acres)	151 islands (6,310 acres)	0
Total Acres To Be Acquired (by alternative)	1,901 acres	3,334 acres	7,330 acres	867 acres

* All lands acquired will become part of Petit Manan Refuge; also, acquisition has been on-going during development of the CCP. Contact Refuge Headquarters for latest information.

** Six of these islands are already part-owned by the Service; or in the process of Service acquisition.

Petit Manan National Wildlife Refuge Complex
P.O. Box 279, Water Street
Milbridge, ME 04658-0279
207/546-2124
petitmanan@fws.gov
<http://petitmanan.fws.gov>

U.S. Fish and Wildlife Service Website
<http://www.fws.gov>

For National Wildlife Refuge System Information:
1800/344 WILD
<http://www.refuges.fws.gov>

Federal Relay Service
for the deaf or hard of hearing
1800/877 8339

April 2004

