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Chapter 1

Piping plover

The Purpose and Need for Action

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Introduction

This Draft Comprehensive Conservation Plan and Environmental Assessment for Rachel Carson National Wildlife Refuge combines two documents required by Federal law: a CCP required by the National Wildlife Refuge System Improvement Act of 1997 (PL. 105–57; 111 STAT. 1253); and, an EA, required by the National Environmental Policy Act of 1969 (NEPA). The U.S. Fish and Wildlife Service (Service, we, our) will issue a final decision based on this document to guide our management decisions and actions on the refuge over the next 15 years.

This draft CCP/EA has five chapters and ten appendixes. Chapter 1, “The Purpose and Need for Action,” sets the stage for chapters 2 through 4. It

- describes the purpose and need for a CCP for the Rachel Carson NWR,
- identifies national and regional mandates and plans that influenced this document,
- highlights the purposes for which the refuge was established and its land acquisition history,
- identifies the status of refuge management plans,
- presents the vision and goals for the refuge,
- explains the planning process used in developing this document, and
- describes the issues addressed during the planning process.

Chapter 2, “Description of the Alternatives,” presents three management alternatives, including current management, (the no-action alternative), and the Service-preferred alternative. Each offers different strategies for meeting goals and objectives and responding to issues.

Chapter 3, “Description of the Affected Environment,” describes the physical, biological, and human environment.

Chapter 4, “Environmental Consequences,” evaluates the environmental consequences of implementing each of the three proposed management alternatives.

Chapter 5, “Consultation and Coordination with Others,” summarizes the involvement of the public and our conservation partners in the planning process, and lists the planning team.

Ten appendixes provide additional documentation and reference information used in compiling this document.

The Purpose and Need for Action

We propose to develop a CCP for the Rachel Carson refuge that best achieves its purposes, vision, and goals; contributes to the National Wildlife Refuge System mission; adheres to Service policies and mandates; addresses significant issues; and, incorporates sound principles of fish and wildlife management.

This draft CCP/EA evaluates three alternatives or different ways of achieving the criteria above. We designed into each alternative the potential to be fully developed into a final

CCP. Our analysis includes predicting the socioeconomic, physical, cultural, and biological benefits and consequences of implementing each alternative. Chapter 2 describes our proposed action in detail as alternative B, “The Service-Preferred Alternative.”

Developing a CCP with partner and public involvement is vital for the future management of every national wildlife refuge. The purpose of a CCP is to provide the Rachel Carson refuge with strategic management direction for the next 15 years, by

- providing a clear statement of desired future conditions for habitat, wildlife, facilities, visitor services, and staffing,
- providing State of Maine agencies, refuge neighbors, visitors, and conservation partners a clear understanding of the reasons for management actions,
- ensuring refuge management reflects the policies and goals of the Refuge System and legal mandates,
- ensuring the compatibility of current and future public use,
- providing long-term continuity and direction for refuge management, and
- providing direction for refuge staffing, operations, maintenance, and budget requests.

The present need to develop the CCP for the Rachel Carson refuge is manifold. First, the refuge Improvement Act requires that all national wildlife refuges have CCPs in place by 2012. Second, the refuge lacks a master plan to accomplish the actions noted above in an environment that has changed dramatically since the refuge was first established. For example, significant development pressure and population growth in coastal Maine are impacting the integrity of refuge habitats, and staffing and visitation has increased. Third, we have developed strong partnerships, vital to our continued successes, with land trusts, watershed associations, and other conservation groups throughout the 11-town refuge region. Our responsibility is to clearly develop our priorities through this plan. Finally, we need a CCP to guide us in future habitat management and land protection that promotes the conservation of significant coastal ecosystems and Federal trust species.

Our planning process allows State of Maine agencies, the public, and our conservation partners to engage in resolving management issues and concerns. All of these reasons clearly underscore the need for the strategic direction a CCP provides.

Project Area

The Rachel Carson refuge lies in the heart of the Gulf of Maine watershed, in a region of great biological diversity (map 1–1). The refuge harbors estuaries that provide nurseries for many marine fish. Its tidal rivers provide passage to upstream spawning areas for anadromous fish. Its diverse aquatic and upland habitats support breeding, migrating and wintering birds, and provide essential habitat for nationally threatened and endangered species. Because it lies at the mouth of more than a dozen tidal rivers and their watersheds, the refuge sits at a critical place in an increasingly developed, fragmented region where those rivers meet the sea.

The refuge stretches along 50 miles of coastline in York and Cumberland counties in southern Maine (map 1–2). Our project analysis area includes lands owned by the Service as well as lands evaluated for future Service acquisition.

The 5,293-acre refuge has 10 divisions between Kittery and Cape Elizabeth: approximately 35 percent tidal, 10 percent freshwater wetlands and 55 percent uplands. Tidal habitats include beach, dune, dune grassland, river, rocky shore, estuarine, bay and salt marsh. Freshwater wetlands include cattail marsh, bog, emergent scrub-shrub wetlands, pocket swamps, red maple swamps and floodplain forest. Most of the upland forests consist of mixed oak and pine forest; however, hemlock, spruce and pitch pine stands as well as hickory and maple forests also grow here. Viburnums, winterberry, blueberry, serviceberry, Virginia rose and male berry compose much of the shrub understory. Other upland habitats are composed of grassland units and thicket units. Habitats are quite diverse, containing elements from the more southern oak-pine forests and the softwood forests of the north. Those two community types blend in Southern Maine, creating a wealth of biodiversity.

Service Policies and Legal Mandates Guiding the CCP

This section presents hierarchically, from the national to the local level, highlights of the laws, Service policy, regulations, and resource plans and conservation initiatives that directly influenced the development of this draft CCP/EA.

❖ The U.S. Fish and Wildlife Service and Its Mission

The Service, as part of the Department of Interior, administers the National Wildlife refuge System. The Service mission is

“Working with others, to conserve, protect, and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.”

Congress entrusts the Service with such conservation and protection national resources as migratory birds and fish, Federal-listed endangered and threatened species, inter-jurisdictional fishes, wetlands, certain marine mammals, and national wildlife refuges. The Service also enforces Federal wildlife laws and international treaties on importing and exporting wildlife, assists States with their fish and wildlife programs, and helps other countries develop wildlife conservation programs.

The Service manual contains the standing and continuing directives for implementing those authorities, responsibilities, and activities. The manual can be accessed at <http://www.fws.gov/directives/direct.html>.

Special Service directives that affect the rights of citizens or the authorities of other agencies are published separately in the Code of Federal Regulations, and are not duplicated in the Service manual. Most of the current regulations that pertain to the Service are issued in 50 CFR parts 1-99. The CFR can be accessed at <http://www.access.gpo.gov/nara/cfr/index.html>.

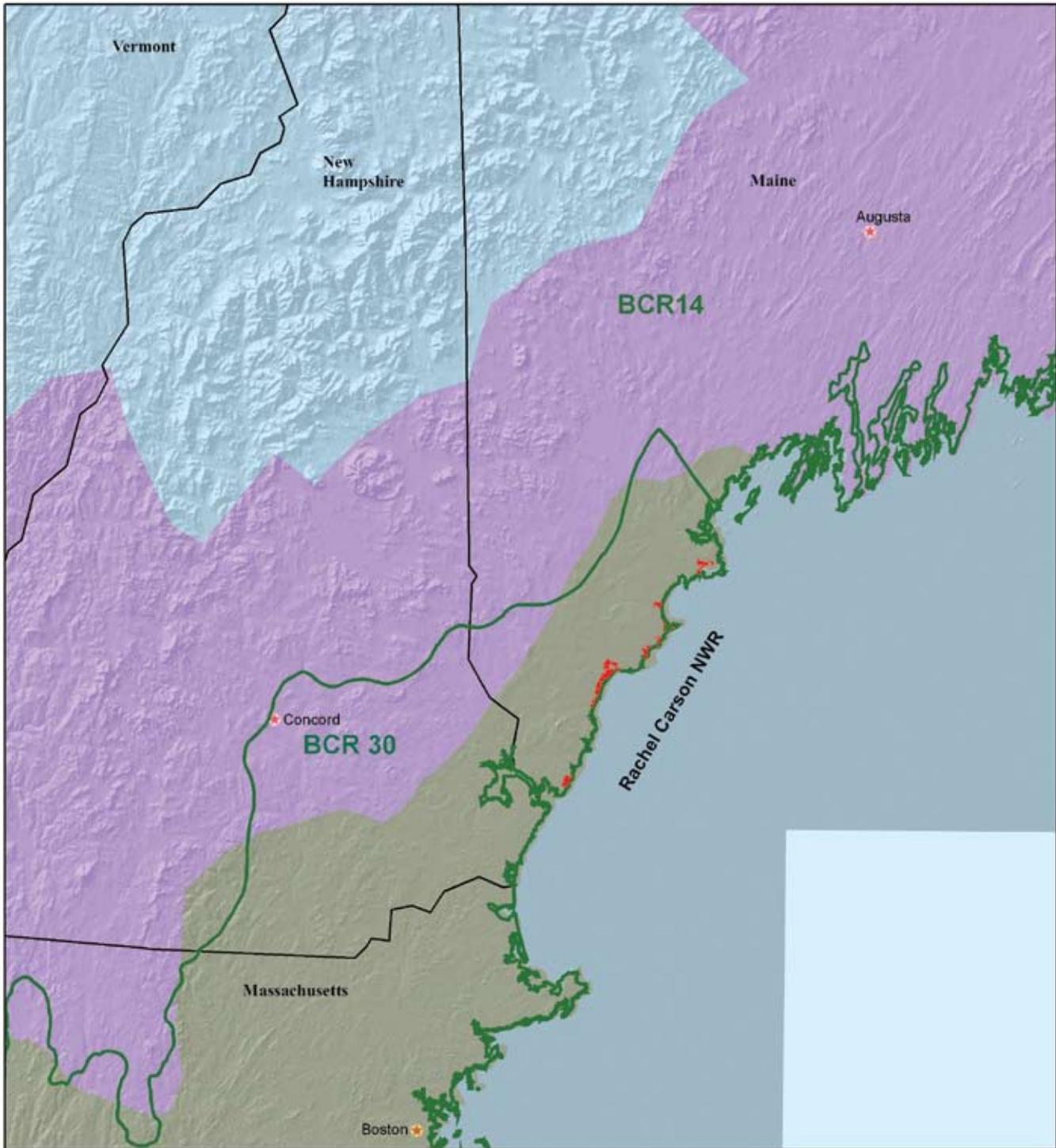
❖ The National Wildlife Refuge System and its Mission

The refuge System is the world’s largest collection of lands set aside specifically to protect fish and wildlife populations and habitats. It began in 1903, when President Theodore Roosevelt designated 3-acre Pelican Island, a pelican and heron rookery in Florida, as a bird sanctuary. Today, more than 540 national wildlife refuges encompass more than 93 million acres of lands and waters in all 50 states and several U.S. territories. At least 40 million visitors hunt, fish, observe and photograph wildlife, or participate in environmental education and interpretive activities on refuges across the nation each year.

When Congress passed the refuge Improvement Act in 1997, it established a unifying mission for the refuge System, a new process for determining compatible public use



Rachel Carson National Wildlife Refuge - Map 1-1



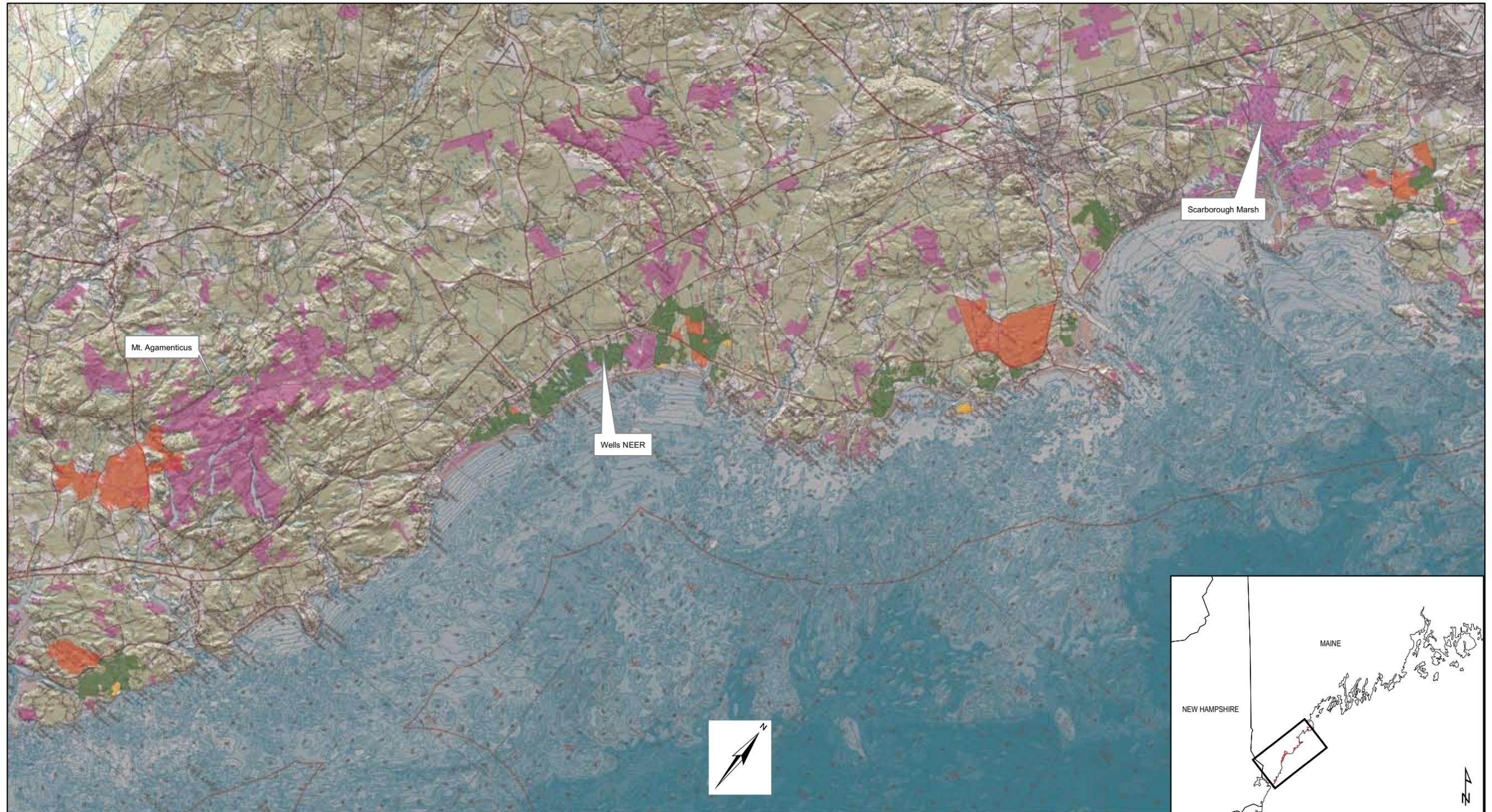
Legend:

- Rachel Carson National Wildlife Refuge
- NABCI Bird Conservation Regions
- Partners in Flight Region 9
- Partners in Flight Region 27

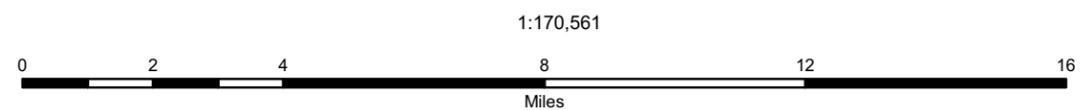
Scale: 1:1,322,269
0 5 10 20 30 40 Miles

North Arrow: N

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Data from USFWS, ESRI.
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- RC NWR Ownership
- RC NWR Easement
- Proposed Expansion Areas
- Other Conserved Lands



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activities on refuges, and the requirement to prepare a CCP for each refuge in the System. The act states that, first and foremost, the refuge System must focus on wildlife conservation. It further states that the refuge System mission, coupled with the purpose(s) for which each refuge was established, will provide the principal management direction on that refuge.

The mission of the refuge System is

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” (P.L. 105–57; 111 STAT. 1253)

The refuge Improvement Act also declares that all existing or proposed refuge uses must be compatible with the refuge purpose and consistent with public safety (see appendix D). Each refuge manager determines the compatibility of an activity by evaluating its potential effect on refuge resources and determining whether it supports the refuge System mission and does not interfere with or detract from refuge purposes and goals. The act designated six priority wildlife-dependent public uses that are to receive enhanced consideration in refuge planning: hunting, fishing, environmental education and interpretation, and wildlife observation and photography.

The Refuge System manual provides a central reference for policy governing the operation and management of the Refuge System not covered by the Service manual, including technical information on implementing refuge policies and guidelines. It can be reviewed at refuge headquarters.

❖ **Fulfilling the Promise**

A yearlong process involving teams of Service employees who examined the Refuge System within the framework of Wildlife and Habitat, People and Leadership culminated with “Fulfilling the Promise: The National Wildlife Refuge System” (USFWS 1999), a vision for the National Wildlife Refuge System. The first-ever Refuge System Conference in Keystone, Colorado in October 1998, was attended by every refuge manager in the country, other Service employees, and scores of conservation organizations. Many “Promises Teams” formed to develop strategies for implementing the 42 recommendations of the conference report. Information from such teams as Wildlife and Habitat, Goals and Objectives, Strategic Growth of the Refuge System, Invasive Species, and Inventory and Monitoring helped guide the development of the goals, strategies and actions in this draft CCP/EA.

❖ **Refuge System Planning Policy**

This policy establishes requirements and guidance for Refuge System planning, including CCPs and step-down management plans. It states that we will manage all refuges in accordance with an approved CCP which, when implemented, will achieve refuge purposes; help fulfill the Refuge System mission; maintain and, where appropriate, restore the ecological integrity of each refuge and the Refuge System; help achieve the goals of the National Wilderness Preservation System; and meet other mandates [Fish and Wildlife Service Manual (602 FW 1,2,3)].

❖ **Maintaining Biological Integrity, Diversity, and Environmental Health Policy**

This policy provides guidance on maintaining or restoring the biological integrity, diversity, and environmental health of the Refuge System including the protection of a broad

spectrum of fish, wildlife, and habitat resources found in refuge ecosystems. It provides refuge managers with a process for evaluating the best management direction to prevent the additional degradation of environmental conditions and to restore lost or severely degraded environmental components. It also provides guidelines for dealing with external threats to the biological integrity, diversity, and environmental health of a refuge and its ecosystem (601 FW 3). See appendix B for more details on the Integrity Policy, how we used it to determine priority resources of concern, and how that lead to the development of habitat goals and objectives at the Rachel Carson refuge.

❖ **Appropriate Refuge Uses Policy**

This policy provides a national framework and procedure for refuge managers to follow when deciding if uses are appropriate on a refuge. It also clarifies and expands on the compatibility policy (603 FW 2.10D), which describes when refuge managers should deny a proposed use without determining compatibility. When we find a use is appropriate, we must then determine if the use is compatible before we allow it on a refuge. This policy applies to all proposed and existing uses in the Refuge System only when we have jurisdiction over the use and does not apply to refuge management activities or situations where reserved rights or legal mandates provide we must allow certain uses (603 FW 1). Appendix D further describes the Appropriate Refuge Uses Policy and describes its relationship to the CCP process.

❖ **Compatibility Policy**

Federal law and Service policy provide the direction and planning framework to protect the Refuge System from incompatible or harmful human activities and ensure that Americans can enjoy Refuge System lands and waters. The Refuge Improvement Act is the key legislation regarding management of public uses and compatibility. The compatibility requirements of the Refuge Improvement Act were adopted in the USFWS Final Compatibility Regulations and Final Compatibility Policy, published October 18, 2000 (Federal Register, Vol. 65, No. 202, pp. 62458-62496). This Compatibility Rule changed or modified Service regulations contained in chapter 50, parts 25, 26, and 29 of the Code of Federal Regulations (USFWS 2000b). The compatibility determinations for Rachel Carson refuge can be found in appendix D along with additional information on the process. To view the policy and regulations online, visit <http://policy.fws.gov/library/00fr62483.pdf>.

❖ **Wildlife-Dependent Recreation Policy**

The Improvement Act defines and establishes that compatible wildlife dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) are the priority general public uses of the Refuge System and will receive enhanced and priority consideration in refuge planning and management over other general public uses. The Wildlife Dependent Recreation Policy explains how we will provide visitors with opportunities for those priority public uses on units of the Refuge System and how we will facilitate these uses. We are incorporating this policy as Part 605, chapters 1–7, of the Fish and Wildlife Service Manual.

❖ **Other Legal Mandates**

Although Service and Refuge System policy and the purpose(s) of each refuge provide the foundation for its management, our administration of national wildlife refuges conforms consistent with a variety of other Federal laws, executive orders, treaties, interstate compacts, and regulations pertaining to the conservation and protection of natural and cultural resources. The Digest of Federal Resource Laws of Interest to the USFWS lists them. It can be accessed at <http://laws.fws.gov/lawsdigest/indx.html>.

Chapter 4, Environmental Consequences, evaluates compliance with the Clean Water Act, Clean Air Act, the National Historic Preservation Act, the Archeological Resources Protection Act, and the Endangered Species Act. This draft CCP/EA is written to fulfill compliance with NEPA.

National and Regional Plans and Conservation Initiatives Guiding the CCP

❖ North American Waterfowl Management Plan (NAWMP)

This plan outlines the strategies among the United States, Canada, and Mexico to restore waterfowl populations through habitat protection, restoration, and enhancement, and calls on the partners to manage sustainable landscapes, consult and cooperate, and use strong biological foundations to make decisions. Its implementation is accomplished at the regional level in 14 habitat Joint Venture partnerships and 3 species Joint Ventures: Arctic goose, black duck, and sea duck. Our project area lies in the Atlantic Coast Joint Venture, which includes all the Atlantic Flyway states from Maine to Florida and Puerto Rico. Five priority focus areas are identified for Maine. Four are coastal areas, and consist of 51,831 acres of wetlands and associated uplands in need of protection and management. Most of the refuge lies in Maine's West Coast Focus Area. A map of focus areas in Maine can be viewed at <http://www.acjv.org>.

The waterfowl goal for the Atlantic Coast Joint Venture is

“Protect and manage priority wetland habitats for migration, wintering, and production of waterfowl, with special consideration to black ducks, and to benefit other wildlife in the joint venture area.”

The Black Duck Joint Venture Plan is also relevant to our project. Black ducks use the refuge during fall migration. The Final Draft—Strategic Plan (April 1993) can be accessed at <http://www.pwrc.usgs.gov/bdjv/bdjvback.htm>.

We used these plans as we developed our goals and objectives for waterfowl and their habitats, and for land protection.

❖ North American Waterbird Conservation Plan (Version 1, 2002)

This plan forms an independent partnership among individuals and institutions with the interest and responsibility for conserving waterbirds and their habitats. It is just one element of a multifaceted conservation program. The primary goal of the plan is to ensure that the distribution, diversity, and abundance of populations and habitats of breeding, migratory, and non-breeding waterbirds are sustained or restored throughout the lands and waters of North America, Central America, and the Caribbean. The plan provides a framework for conserving and managing colonially nesting water-dependent birds. In addition, it will facilitate continent-wide planning and monitoring, national, state, or provincial conservation action, regional coordination, and local habitat protection and management. Regional planning information is being prepared for the Mid-Atlantic New England Working Group.

We used the plan in developing our objectives, actions and strategies for protecting and managing waterbirds. It can be accessed at <http://www.nawcp.org>. Additional information is available at <http://www.fws.gov/birds/waterbirds/manem/index.html>.

❖ **U.S. Shorebird Conservation Plan (2004 Update) and Northern Atlantic Regional Shorebird Plan (Draft 2002)**

This plan is a partnership being undertaken throughout the United States to ensure that stable, self-sustaining populations of all shorebird species are restored and protected. Collaborators include local, state, and Federal agencies, non-governmental organizations, business-related sectors, researchers, educators, and policy makers. The plan was closely coordinated with NAWMP and Joint Venture professionals, as well as the Partners In Flight and North American Waterbird Plan teams as they concurrently developed their revised national plans. These experts helped set conservation goals for each region of the country, identified important habitat and research needs, and proposed education and outreach programs to increase public awareness of shorebirds and the threats they face. The partnerships responsible for developing the plan remain active, and are working to improve and implement the plan's many recommendations.

The U.S. Shorebird Plan identifies three primary objectives.

1. Development of a standardized, scientifically-sound system for monitoring and studying shorebird populations that will provide practical information to researchers and land managers for shorebird habitat conservation
2. Identification of the principles and practices upon which local, regional and national management plans can effectively integrate shorebird habitat conservation with multiple species strategies
3. Design of an integrated strategy for increasing public awareness and information concerning wetlands and shorebirds

Regional plans, such as the North Atlantic Regional Shorebird Plan, are being developed as part of the overall strategy. The North Atlantic Plan is in draft, but provides detailed information on shorebird species of high conservation concern in the region. Once completed, the plan will enhance shorebird diversity and individual species' populations through regional population, habitat, research, education goals and objectives, and identify specific management needs and projects for implementation.

We used the national and regional plans in developing our Species and Habitats of Concern List (appendix B). The national plan can be accessed at <http://shorebirdplan.fws.gov/USShorebird.htm>. The website for accessing the regional plan is <http://shorebirdplan.fws.gov/RegionalShorebird/RegionalPlans.htm>. Additionally, the Program for International Shorebird Monitoring includes sites in and near the Rachel Carson refuge. See <http://www.shorebirdworld.org/fromthefield/PRISM/PRISM1.htm> for more information.

❖ **Partners In Flight Landbird Conservation Plans**

In 1990, Partners in Flight (PIF) was conceived as a voluntary, international coalition of government agencies, conservation organizations, academic institutions, private industry, and other citizens dedicated to reversing the population declines of bird species and "keeping common birds common." The foundation of PIF's long-term strategy for bird conservation is a series of scientifically based bird conservation plans, using physiographic provinces as the planning units.

Rachel Carson refuge falls in PIF Physiographic Area 9—Southern New England. Area 9 covers parts of northern New Jersey, southern New York including Long Island, most of Connecticut, all of Rhode Island, most of eastern Massachusetts, the southeastern corner of New Hampshire, and south coastal Maine (map 1-1). This area has experienced the

greatest amount of urbanization of any part of the Northeast, including the entire Boston—New York corridor. Urbanization and associated human activities severely threaten remaining high-priority habitats, especially maritime marshes and dunes, relict grasslands and mature deciduous forests. Forest fragmentation, which is not a major issue in most parts of the Northeast, is a severe factor threatening forest bird populations. Urban land now covers roughly one-third of the physiographic area. Remaining forests are a mixture of oak-hickory and other hardwoods, white pine-red pine forest, and pine-oak woodlands or barrens (Dettmers and Rosenberg 2000).

The goal of each PIF plan is to ensure long-term maintenance of healthy populations of native birds, primarily non-game birds. Within each physiographic area, the plans rank bird species according to their conservation priority, describe desired habitat conditions, develop biological objectives, and recommend conservation measures. Habitat loss, population trends, and vulnerability of a species and its habitats to regional and local threats all factor into the priority ranking. Many of the top-ranked species in the PIF plan either breed or migrate through the Rachel Carson refuge. The PIF plans can be accessed at <http://www.partnersinflight.org>.

The North American Landbird Conservation Plan (Rich, et al. 2004) identifies a suite of Watch List and Stewardship Species that represent the landbirds of greatest continental importance for conservation action. Many of those are found on the Rachel Carson refuge and other refuges in the Northeast.

❖ **Executive Order 13158 on Marine Protected Areas**

The Order requires the Department of the Interior and the Department of Commerce to develop “a scientifically-based, comprehensive national system of Marine Protected Areas (MPA) representing diverse marine ecosystems, and the Nation’s natural and cultural resources.” An inventory of potential MPAs was completed, and the refuge, due in part to its co-location with the Wells National Estuarine Research reserve, is on that list.

❖ **North American Bird Conservation Initiative (NABCI)**

The NABCI brings together the landbird (PIF), shorebird, waterbird, and waterfowl plans into a coordinated effort to protect and restore all native bird populations and their habitats in North America. All bird conservation partnerships reduce redundancy in the structure, planning and implementation of conservation projects. NABCI uses Bird Conservation Regions (BCRs) to guide landscape-scale, science-based approaches to conserving birds and their habitats (map 1-1).

Rachel Carson NWR lies in the New England Mid Atlantic Bird Conservation Region (BCR 30). This CCP uses the priorities set forth in the PIF Physiographic Area 9 Plan, a subsection of BCR 30, along with priorities of other bird conservation plans. Individual bird conservation plans also help guide bird monitoring, restoration, and habitat management on the refuge. A meeting among conservation partners for BCR 30 was held in December 2004, resulting in consensus on the highest priority species, habitats, geographic areas and conservation actions. The refuge sits on the northern edge of BCR 30, close to BCR 14.

❖ **Regional Wetlands Concept Plan—Emergency Wetlands Resources Act (1990)**

In 1986, Congress enacted the Emergency Wetlands Resources Act to promote the conservation of our Nation’s wetlands. The act directed the Department of Interior to develop a National Wetlands Priority Conservation Plan identifying the location and types of wetlands that should receive priority attention for acquisition by Federal and state

agencies using Land and Water Conservation Fund appropriations. In 1990, our Northeast Region completed a Regional Wetlands Concept Plan to provide more specific information about wetlands resources in the Northeast. A total of 850 wetland sites were identified for protection because of their value, scarcity, and vulnerability. In Maine, 71 wetland sites were identified, with 34 sites (43,445 acres) located within 10 miles of the coastline. We used that information as we developed our land protection strategies.

❖ **Piping Plover Recovery Plan**

Rachel Carson refuge follows recovery plan guidelines for the management of the federal-listed threatened Atlantic Coast piping plover (*Charadrius melodus*) (USFWS 1996a). The refuge manages multiple sites for piping plover, and works with partners to manage off-refuge sites.

❖ **Tern Management Plan**

The Tern Management Plan provides historic background, a review of factors limiting populations, life history information, and techniques for managing and monitoring the tern species nesting from New York to Newfoundland (USFWS 2000). It also identifies research needs and assesses the size and distribution of tern populations in the region. Primarily, it focuses on coastal populations of common, Arctic, roseate, and least terns. It provides specific management techniques to help achieve the goals set forth in several previous planning approaches that have been developed across the Northeast region. We used this plan in developing our tern objectives and strategies.

❖ **Maine Department of Inland Fisheries and Wildlife: Maine's Comprehensive Wildlife Conservation Strategy**

In fall 2001, Congress established a new State Wildlife Grants program that provided funds to state wildlife agencies for the conservation of fish and wildlife and their habitats. Each state is charged with developing a comprehensive wildlife conservation plan by October 2005. As mandated by the SWG program, state fish and wildlife agencies are determining which species and habitats are in greatest need of conservation. Rachel Carson refuge staff consulted with Maine Inland Fisheries and Wildlife staff to consider opportunities for the refuge in conserving species identified in Maine's Comprehensive Wildlife Conservation Strategy. We included the state's species priorities in our "Potential Resources of Concern" table in appendix B.

Refuge Purposes and Land Acquisition History

Rachel Carson refuge was established to preserve migratory bird habitat and waterfowl migration routes associated with southern Maine's coastal estuaries. During the mid-1800s, the estuarine habitats teemed with wildlife. The fishing industry supported many people, and commercial hunters made their living from the wildlife that frequented the marshes. Spurred by the arrival of the railroad in 1842, recreational use of the Maine Coast increased in the 19th and 20th centuries. Thousands of visitors came by train, trolley, and later, automobile. Seasonal and vacation homes built on the edge of the salt marsh quickly followed. By the 1950s and early 1960s, land was at a premium for prospective landowners and individuals and groups interested in protecting natural resources.

On December 16, 1966, Congress established the Coastal Maine National Wildlife Refuge under the authority of the Migratory Bird Conservation Act. In a formal dedication ceremony on June 27, 1970, the refuge was renamed in honor of scientist and author Rachel Carson, who spent much of her life along the Maine Coast. During the mid-1970s,

the refuge acquired 4,000 acres, and has expanded its boundary several times over the years to protect coastal salt marshes from encroaching development, and thereby protect vital wildlife habitat. Its 10 divisions stretch 50 miles along the coast, and share more than 5,000 acres with the municipalities of Cape Elizabeth, Scarborough, Old Orchard Beach, Saco, Biddeford, Kennebunkport, Kennebunk, Wells, Ogunquit, York, and Kittery.

Rachel Carson refuge was established under the authority of the Migratory Bird Treaty Act for “*use as an inviolate sanctuary, or for any other management purpose, for migratory birds*” 16 USC 715d, *Migratory Bird Conservation Act*. Other authorities include:

“...suitable for - - 1) incidental fish and wildlife oriented recreational development, 2) protection of natural resources, 3) conservation of endangered or threatened species ...” 16 USC section 460k-1 *Refuge Recreation Act*

“...conservation of wetlands of the Nation in order to maintain the public benefits they provide to help fulfill international obligations contained in various migratory bird treaties and conventions...” 16 USC Section 13901(b) 100 Stat 3583 *Emergency Wetlands Resources Act of 1986*.

“...for the development, advancement, management, conservation and protection of fish and wildlife resources ..” 16 USC Section 742f(a)(1) *Fish and Wildlife Act of 1956*

“... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services” 16 USC Section 742f(b)(1) *Fish and Wildlife Act of 1956*

The refuge has been very successful over the past two decades in acquiring new lands to meet conservation priorities for the Refuge System. During that period over 2,486 acres have been acquired representing a financial commitment of \$20 million dollars. This consistent support in land protection provides a strong indication that the refuge will meet habitat protection goals.

Refuge Operational Plans (“Step-Down” Plans)

The Service Manual, Part 602, Chapter 4, “Refuge Planning Policy,” lists more than 25 step-down management plans that are generally required on refuges. Those plans contain specific strategies and implementation schedules for achieving refuge goals and objectives. Some plans require annual revisions; others are revised on a 5- to 10-year schedule. Some require additional NEPA analysis, public involvement, and compatibility determinations before they can be implemented. We provide below the current status of step-down plans needed for the refuge, and incorporate by reference those now up-to-date into this draft CCP/EA.

Plans up-to-date

- Fire Management Plan, 1997 (includes prescribed fire and wildfire management direction; annual burn plans are also completed)
- Continuity of Operations Plan, 2004
- Hunt Plan, 1990
- Sport Fishing Plan, 2000

Plans being prepared or now in draft form

- Land Protection Plan (LPP)
- Habitat Management Plan (HMP)

Plans that will need to be completed

- Inventory and Monitoring Plan (IMP)
- Population Monitoring Plan
- Disease Prevention and Control Plan
- Visitor Services Plan
- Law Enforcement Plan
- Integrated Pest Management Plan
- Cultural Resources Management Plan
- Fisheries Resources Management Plan
- Safety Plan
- Water Rights Plan
- Pollution Control Plan
- Compliance Requirements

Wilderness Review

We conducted a Wilderness Review of the refuge in November 2004. Humans have influenced this region for more than 400 years, most recently with dense settlements of roads and houses. As a result, neither the lands that compose the current, approved refuge acquisition boundary, nor the lands within the preliminary project proposal, are suitable for designation as wilderness. We have concluded that none of the wilderness inventory areas at the refuge meet the minimum criteria defined by the Wilderness Act to qualify as wilderness study areas; and, that no further investigation into wilderness designation is needed. For more details on the wilderness review, see appendix C.

Rachel Carson Refuge Vision Statement

Our eponym, Rachel Carson, inspired our vision, which is defined by the mission of the Refuge System. As champions of Rachel Carson's principles, and in recognition of the connectedness of all living things, we are committed to finding reasonable accommodation for the needs of humans and wildlife. Within 15 years, Rachel Carson refuge will have protected 14,684 acres of habitat to benefit trust resources.

Refuge Goals

We developed these goals after consideration of refuge purposes, the Service and Refuge System missions, our vision, and the mandates, plans, and conservation initiatives described above. These are intentionally broad, descriptive statements of purpose. They highlight elements of our vision statement to be emphasized in future refuge management. The biological goals take precedence, but otherwise, the goals are not presented in any particular order.

- Goal 1 Perpetuate the biological integrity and diversity of coastal habitats to sustain native wildlife and plant communities, including species of conservation concern.
- Goal 2 Perpetuate the biological integrity and diversity of freshwater habitats to sustain native wildlife and plant communities, including species of conservation concern.
- Goal 3 Perpetuate the biological integrity and diversity of upland habitats to sustain native wildlife and plant communities, including species of conservation concern.
- Goal 4 Develop the Rachel Carson National Wildlife Refuge as an outstanding center for research and demonstration emphasizing land management techniques for restoring and sustaining healthy estuarine ecosystems in concert with the national Land Management Research Demonstration (LMRD) program.
- Goal 5 Increase appreciation and stewardship of coastal Maine wildlife and their habitats by providing positive wildlife-dependent experiences for refuge visitors.
- Goal 6 Foster off-refuge cooperative actions and partnerships to promote and further refuge goals.

Rachel Louise Carson
writer, scientist, ecologist
 (1907–1964)



Rachel Carson began a 15-year career with the U.S. Fish and Wildlife Service in 1936 as an aquatic biologist, and rose to become Editor-in-Chief of all publications for the Service. With the success of her second book, *The Sea Around Us*, she was able to resign from the Service and purchase a cottage on Southport Island, where she researched its beaches and tide pools for *The Edge of the Sea*.

Rachel Carson wrote about the interconnectedness of all living things; each species has its own ties with others, and all are related to the earth. This is the message of *Silent Spring* and the earth-sea trilogy. She simply and convincingly explained the connections between humans and all creatures of the earth. Persevering under industry and government pressure to abandon her research, in *Silent Spring* she linked the unrestrained use of post-World

War II chemical pesticides with their fearsome biological consequences. That book is also credited with launching the modern environmental movement.

In formal recognition of her achievements, Congress renamed and dedicated the former Coastal Maine National Wildlife Refuge in her honor on June 27, 1970.

The Comprehensive Conservation Planning Process

Effective conservation usually begins with effective community involvement. To ensure that our future management of the refuge will reflect the issues, concerns, and opportunities expressed by the public, we used a variety of public involvement techniques.

❖ An Early Planning Effort

- We developed and kept updating mailing lists of refuge neighbors, friends, professional contacts, and others for information sharing and updates about this CCP.
- In May and June 1998, refuge staff held a series of morning coffees, inviting visitors to discuss current refuge operations and the planning process. We sent four press releases about the CCP to 15 newspapers in Maine and New Hampshire. Local public access cable stations also ran notices. The York County Coast Star, southern Maine's primary local newspaper, raised public awareness by publishing a long article about our refuge planning. We designed and distributed leaflets about the morning coffees and our upcoming Issues Workbook.
- In summer 1999, we distributed to the public 500 copies of a 12-page Issues Workbook, the backbone of this plan's important public participation component. The workbook provided background information about the planning project and a means for interested citizens to share their concerns and thoughts on important refuge issues. A refuge volunteer recorded and tallied the responses in the more than 100 workbooks returned. In July 1999, we sent to our CCP mailing list an update summarizing the responses, and distributed it from the refuge.
- We also held several information-gathering workshops in 1999. They included a gathering of the Extended Planning Team in March; a Public Use and Community Goals meeting in June; and, a Biological Resources meeting in June. Fifteen stakeholder representatives gathered at our facilitated all-day Alternatives Workshop in August. refuge staff and 10 observers, including congressional representatives and Service administrators, assisted participants with goal setting in the topical areas of wildlife, community, public use, and water quality. We mailed a complete summary of the comments and the materials the workshop generated to participants and observers soon after.
- Refuge planning team members met several times per month to synthesize information and prepare the draft CCP, and briefed the Regional Office in September 1999. Additional updates were provided to the Regional Office in 2001 and 2003. Other staff commitments delayed further work on the draft CCP until 2004.

❖ Our Recent Planning Effort

The planning process was restarted in the summer of 2004. This coincided with the development of a Habitat Management Plan (HMP) that lays the biological foundation for managing habitats, wildlife, and plants on the refuge. We also considered the refuge role in the larger network of conservation lands in southern Maine. Habitat management objectives and strategies were determined for lands currently in refuge ownership using updated vegetation maps prepared by Sewall, Inc. in 2004. The Service evaluated lands proposed for acquisition using National Land Cover Data (NLCD) and a GIS watershed habitat analysis by the USFWS Gulf of Maine Coastal Program.

The core planning team included the refuge staff, regional office planning and GIS staff, a regional biologist, and a representative from the Maine Department of Inland Fisheries

and Wildlife. Our staff continually gathers input from partners at management and conservation meetings and workshops.

As part of the planning process, the refuge initiated a wilderness review (see appendix C) of existing refuge lands as required by Service refuge planning policy. The compatibility determinations (described in appendix D) were also reviewed and updated.

The diagram below depicts the steps in the comprehensive conservation planning process and their relationship to National Environmental Policy Act (NEPA) compliance.

Figure 1.1. The Comprehensive Conservation Planning process and its relationship to the National Environmental Policy Act of 1969



Issues and Opportunities

From the Issues Workbook, public and focus group meetings, and planning team discussions, we developed a list of issues, opportunities, or any other item requiring a management decision. We concentrated further on the issues, as these drive the analysis and comparison of alternatives.

1. Planning issues formed the basis for the development and comparison of different management alternatives. A range of opinions on how to resolve these significant issues and meet objectives generated the different alternatives presented in chapter 2. These issues are resolved differently among the alternatives.
2. Other issues and management concerns were identified by refuge staff as important to address under management alternatives in chapter 2.

❖ **Planning Issues**

The following issues were generated by the planning team or brought to our attention by our State or other partners, or the public, during scoping activities. The issues matrix in chapter 2 shows how we deal with these issues through actions and strategies in the three alternatives.

1. How will we provide habitat to protect trust species?

Federal law charges the Service with sustaining populations of migratory birds, anadromous fish, and species listed as threatened or endangered, collectively referred to as “trust species”. In response, the Service seeks to provide habitat to support the life cycles of these species. The Service and its partners who protect wildlife habitat—State agencies, local land trusts, the Maine Audubon Society, and national organizations including The Nature Conservancy and Trust for Public Land—have identified thousands of acres of unprotected habitat in southern coastal Maine that support 43 trust species whose populations are declining. In the preferred action, the Service seeks to protect an additional 5,558 acres of important salt marsh, tidal rivers, shrublands, freshwater wetlands, riparian areas, forests, and grasslands as part of the Rachel Carson NWR (See appendix A). Also, the refuge is actively engaged in watershed and landscape-scale initiatives with conservation partners to support additional land conservation in this region of Maine. Generally, the lands identified for protection are large blocks that provide habitat for the declining species as well as a diverse array of other wildlife. Coastal habitats are in smaller blocks, due to heavy settlement and the paucity of large undeveloped tracts. All these lands proposed for acquisition are vulnerable to changes in land use that threaten to degrade, fragment, or eliminate their wildlife values.

2. How will we manage fish and wildlife populations and habitats?

Rachel Carson refuge hosts large numbers of resident and migrant wildlife and plant species. Some of them, including the federal-listed endangered piping plover, Nelson’s and saltmarsh sharp-tailed sparrows, and the New England cottontail, among others, depend on the refuge for breeding, feeding, or resting habitat. The refuge assesses and monitors the abundance and distribution of wildlife populations through targeted field surveys such as annual breeding bird surveys or through research by university and state partners. Wildlife species that are sensitive to human disturbance or predation, such as piping plover, receive targeted management including seasonal beach closures and predator control. Some habitats are actively managed to provide a range of habitat conditions necessary to support the suite of native wildlife that occur on the refuge. The habitat goals, objectives, and strategies described in chapter 2 and in more detail in the Habitat Management Plan provide a framework for guiding habitat and wildlife management decisions.

3. How will we ensure the integrity of water quality and quantity to protect aquatic-dependent species?

All species, including humans, require water to stay alive. Water is at the center of most management decisions at the Rachel Carson NWR—protecting water quantity and quality to sustain healthy populations of fish, wildlife, and plants that depend on aquatic habitats. Nearly one-third of North America’s bird species use wetlands sometime during their lifecycle, many of these use the refuge sometime during the year. Freshwater, estuarine, and marine wetlands are considered some of the most productive ecosystems in the world and all occur on the refuge.

Despite great improvements in water quality in Maine’s rivers and other aquatic environments, our understanding of the dynamics of these ecosystems is limited. The

increasing land fragmentation and developments in close proximity to wetlands in coastal Maine adds uncertainty to the health and sustainability of aquatic habitats for wildlife and humans. Baseline information is needed on the quantity and quality of water flowing through the refuge and the habitat requirements of the aquatic species (e.g., anadromous fish) that depend on these waters. The refuge will partner with watershed groups and government entities to develop and implement water monitoring initiatives as well as to assess the impacts of land uses (e.g., stormwater runoff) on aquatic systems. The refuge also monitors and controls invasive aquatic species where feasible.

4. How will we build community partnerships to protect and manage coastal wildlife habitats?

We believe that Rachel Carson NWR has more neighbors than any other national wildlife refuge in the System. The refuge has 10 divisions, and owns land in 11 towns: Kittery, York, Ogunquit, Wells, Kennebunk, Kennebunkport, Biddeford, Saco, Old Orchard Beach, Scarborough, and Cape Elizabeth. Our opportunity to work with municipalities is expanding. To achieve its mission, the refuge must be and is engaged in land use and public use decisions by neighboring municipalities and conservation groups.

We have established many valuable partnerships working to protect wildlife and their habitats in southern and coastal Maine. Southern Maine has been continuously settled since 1630, and is now experiencing record growth. The refuge lends its technical expertise to landscape-scale and watershed initiatives on identifying, protecting, and managing important wildlife habitats. Land protection by the refuge and by its conservation partners contributes to the quality of life, by controlling the demand for town services such as road maintenance, schools, and fire and police protection, providing places for the public to understand and appreciate their natural surroundings, and protecting water quality.

5. How will we provide and maintain high quality programs for the six priority public uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation)?

We allow hunting on eight divisions by permit only. More than 300 people buy permits annually from refuge headquarters. About 60 percent are white-tailed deer hunters. The refuge is open to deer, waterfowl, pheasant, and other upland game hunting, and participates in Maine's special archery season. We have two youth hunt days; youth hunt areas allow falconry and are open for the late falcon-hunting season. The refuge follows state regulations although it is more restrictive on some issues. We open new areas to hunting as we acquire them, provided they are sufficiently isolated from developed areas and no biological conflicts exist. We review and usually modify the hunting program each year. Due in part to a long tradition of hunting in the area, the refuge hunting program is generally well accepted. However, refuge neighbors and other landowners contact us each year with their concerns about some hunter behavior and sometimes, about our regulations.

In September 2000, after completing the required process, the refuge was formally opened to sport fishing. After a long consultation with the State of Maine, fishing groups, and anglers, eight bank fishing and access areas were identified and opened on seven of the ten refuge divisions. These areas were selected based on minimizing adverse impacts to habitat and wildlife resources, minimizing conflicts with other existing public uses, and to accommodate as much as possible existing angler interest. Most anglers pursue either sea run brown trout and/or striped bass although other species are occasionally caught as well. In addition to the bank fishing areas, each of the ten refuge divisions has a waterway that is accessible by watercraft. These waterways provide additional opportunity to anglers with their ability to access sections of rivers not open for bank fishing.

A traveler through coastal southern Maine likely will encounter at least one division of the Rachel Carson NWR. However, many visitors and residents may pass by only seeing our boundary signs: “unauthorized entry prohibited.” We have an opportunity to bring thousands of travelers and residents onto the refuge to learn about refuge operations, its wildlife and habitats, the Refuge System, and Rachel Carson’s legacy. The refuge has informational kiosks and signs at a few trailheads with small parking areas. Responders to our issues workbook favored increasing visitor opportunities for wildlife watching in balance with the protection of wildlife and their habitats. The refuge seeks to expand the number of informational kiosks to enhance understanding of refuge habitats, convey its messages, build support for its programs, and attract wildlife-oriented volunteers.

Responders to our workbook suggested we vastly increase our environmental education and interpretation program. They suggested we establish partnerships with educators, and develop cooperative education programs with local schools and private organizations.

6. How will we build and maintain an active volunteer program?

The Friends of Rachel Carson was established in 1988. The small, yet effective group has been instrumental in supporting protection of important coastal habitats by the refuge. Volunteers are essential to the refuge for implementing effective programs and bolstering understanding and support among neighbors and communities. The need for a committed, multi-talented, and geographically dispersed volunteer force is especially important at the refuge because its units are spread across a 50-mile area. We believe strongly that program management and guidance from refuge staff are the keys to building and sustaining a committed, well-trained volunteer force.

7. How will we manage non-native, invasive species on refuge lands?

Most people recognize that non-native, invasive plants and animals can displace native species, degrade wetlands and other natural communities, and reduce natural diversity and wildlife habitat values. Non-native plants out-compete native species by dominating light, water, and nutrient resources. We are concerned that, once established, invasive plants are expensive and labor-intensive to eliminate; they are able to establish easily, reproduce prolifically, and disperse readily, making eradication difficult. Preventing new invasions is extremely important for maintaining biological diversity and native plant populations.

The refuge initiated an effort to systematically identify, locate, and map invasive plant species occurring on refuge lands. This information will be used to develop an integrated pest management program to guide control, monitoring and evaluation projects. Twenty non-native invasive plant species that are affecting the quality of native habitats are documented for the refuge. In addition, hemlock woolly adelgid is documented on Gerrish Island near the Brave Boat Harbor Division. This insect pest has decimated hemlock stands in some areas south of New England. Little is currently known about the presence or effect of aquatic invasive species such as the green crab. Further research is needed to understand the effects of all invasive species on the natural habitats of coastal Maine.

❖ Other Issues to Address

1. How will we resolve potential conflicts managing wildlife habitats and protecting historical resources?

The refuge is required by law to comply with the Section 106 of the National Historical Preservation Act (NHPA), which requires federal agencies to consider the effects of their undertakings on historic properties that are eligible for inclusion on the National Register of Historic Places. The refuge Improvement Act establishes a mission for the Service:

“Working with others, to conserve, protect, and enhance, fish, wildlife and plants, and their habitats for the continuing benefit of the American people.” That mission enables the refuge to contribute to the fulfillment of U.S. obligations to International Treaties.

Current management practices used on the refuge take into consideration possible historical resources. Projects and habitat management plans routinely receive NHPA review from the Regional and State Historic Preservation Officers, and archaeological or historical studies performed as required.

The Maine State Historic Preservation Officer (SHPO) has led the U.S. Army Corps of Engineers to decline issuance of two 404 wetland permits the refuge needs to authorize the restoration of salt marsh on the refuge. The SHPO contends that salt marsh ditches are a historic landscape eligible for inclusion on the National Register, and that restoration work would have an adverse impact on that landscape. Although disagreeing with the SHPO impact opinion, the Service (at SHPO request) has carefully recorded through photographs and measurements the dimensions and configurations of the ditching, and the SHPO recognizes that as sufficient mitigation. However, the Corps still declines to issue the permit without a Memorandum of Agreement between the Service and SHPO. The Service will consult with and seek a Solicitors review and opinion on the legitimacy of the Army Corps of Engineers declining this permit. Additionally, there is indication that the Corps has issued 404 permits for similar activities conducted by other federal agencies and Service offices in Maine, and the Solicitor’s review will include an examination of consistency in permit decisions by the Corps. The Solicitor’s opinion will establish a basis upon which the Refuge will proceed with marsh restoration activities in the event this permit matter cannot be resolved with the Corps.

2. How will we respond to harbor dredging and beach nourishment that affect the refuge?

Currently, only one harbor dredge project, in the Webhannet River in Wells, exists in the refuge. That is an on-going, controversial project.

Several controversial beach nourishment projects have occurred along the southern Maine coast. That involves dredging sand from one location and placing it onto a beach, almost always in front of homes, to replace beach that has eroded.

Both of those practices fail to address the dynamic nature of beach and tidal river systems with natural processes creating constant change in beach conditions. Shoreline home development and its associated rock jetties limit the natural dynamics of these barrier beaches, preventing the natural movement of sand up or down the coast.

The refuge will work with others to review dredging and beach nourishment projects, and will not support new dredging projects in the existing waterways of the refuge. We will encourage towns to adopt more sustainable development patterns that limit or prevent beach development.

Plan Amendment and Revision

Periodic review of the CCP will be required to ensure that objectives are being met and management actions are being implemented. Ongoing monitoring and evaluation will be an important part of this process. Monitoring results or new information may indicate the need to change our strategies.

At a minimum, CCPs will be fully revised every 15 years. We will modify the CCP documents and associated management activities as needed, following the procedures

outlined in Service policy and NEPA requirements. Minor revisions that meet the criteria for categorical exclusions (550 FW 3.3 C) will only require an Environmental Action Memorandum.