Tampa Bay Refuges
Egmont Key National Wildlife Refuge
Pinellas National Wildlife Refuge
Passage Key National Wildlife Refuge
Hillsborough, Pinellas, and Manatee Counties, Florida

Michael Lusk, Refuge Manager
1502 SE Kings Bay Drive
Crystal River, FL 34429

Office: 727-570-5417

Michael_Lusk@fws.gov

U.S. Fish & Wildlife Service
1 800/344 WILD
http://www.fws.gov

May 2010

Tampa Bay Refuges - Egmont Key National Wildlife Refuge, Pinellas National Wildlife Refuge, Passage Key National Wildlife Refuge Comprehensive Conservation Plan

U.S. Fish & Wildlife Service

Tampa Bay Refuges

Egmont Key National Wildlife Refuge
Pinellas National Wildlife Refuge
Passage Key National Wildlife Refuge

Hillsborough, Pinellas, and Manatee Counties, Florida

Comprehensive Conservation Plan

USFWS Photo

Comprehensive Conservation Plans provide long-term guidance for management decisions; set forth goals, objectives, and strategies needed to accomplish refuge purposes; and identify the Fish and Wildlife 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.

Tampa Bay Refuges

Egmont Key, Pinellas,and Passage Key
National Wildlife Refuges

Comprehensive Conservation Plan

U.S. Department of the Interior
Fish and Wildlife Service
Southeast Region

May 2010

Submitted by: Signed — Date: 07/31/2009
Keith Ramos, Acting Refuge Manager
Chassahowitzka NWR Complex

Concur: Signed — Date: 9/23/2009
Elizabeth Souhlaver, Refuge Supervisor
Southeast Region

Concur: Signed — Date: 9-24-09
Jon Andrew, Regional Chief
Southeast Region

Approved by: Signed — Date: 9-25-09
Sam Hamilton, Regional Director
Southeast Region

COMPREHENSIVE CONSERVATION PLAN

TAMPA BAY REFUGES

EGMONT KEY NATIONAL WILDLIFE REFUGE
PINELLAS NATIONAL WILDLIFE REFUGE
PASSAGE KEY NATIONAL WILDLIFE REFUGE

Hillsborough, Pinellas, and Manatee Counties, Florida

U.S. Department of the Interior
Fish and Wildlife Service

Southeast Region
Atlanta, Georgia

May 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Executive Summary

The U.S. Fish and Wildlife Service (Service) has prepared this Comprehensive Conservation Plan (CCP) to guide the management of the Tampa Bay National Wildlife Refuges, consisting of Egmont Key, Pinellas, and Passage Key in Hillsborough, Pinellas, and Manatee Counties, Florida. The CCP outlines programs and corresponding resource needs for the next 15 years, as mandated by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act).

Before the Service began planning, it conducted a biological review of the refuges' wildlife and habitat management programs and conducted public scoping meetings to solicit public opinion of the issues the CCP should address. The biological review team was composed of biologists from federal and state agencies and non-governmental organizations that have an interest in the refuges. The staff held three public scoping meetings and two public meetings to solicit public reaction to the proposed alternatives. Also, a 30-day public review and comment period of the Draft Comprehensive Conservation Plan and Environmental Assessment for the Tampa Bay National Wildlife Refuges was provided.

The Service developed and analyzed three alternatives. Alternative A proposed to maintain the status quo, that is, would represent no change from current management of the refuges. The refuges would continue with the primary mission of providing habitat for wildlife. Wildlife and habitat would be protected through a variety of management tools, such as area closures, predator control, law enforcement, exotic plant control, erosion control, and cleanup of trash. These activities (except for the closures) would be conducted on an opportunistic basis or under the direction and guidance of others.

The refuges would continue to be managed by one full-time assistant refuge manager, with the support of nine staff members, stationed at the Chassahowitzka National Wildlife Refuge. The refuges would continue to be assisted by numerous partners in opportunistically conducting bird and other wildlife surveys, educating visitors, and encouraging wildlife photography and observation. The Service would continue its cooperative management agreement with the Florida Park Service to manage Egmont Key National Wildlife Refuge (Egmont Key NWR), with the state being responsible for most public recreation and interpretation of natural and cultural resources, and the Service being primarily responsible for the management of all wildlife and habitat. Meetings between the two agencies would continue to be held approximately twice a year.

Under this alternative, the existing level of funding and staffing would be maintained. Accordingly, some positions would not be filled when vacated if funds needed to be reallocated to meet rising costs or new priorities.

Alternative B, the preferred alternative, is considered to be the most effective management action for meeting the purposes of the refuges. Under Alternative B, the Service would take more of a leadership role by coordinating and/or directing activities and decisions made by partners that have an impact on the refuges, including: coordinating, directing, and conducting bird surveys and Atlantic loggerhead sea turtle surveys; coordinating additional bird surveys and monitoring and conducting research on the gopher tortoises of Egmont Key; and, with partners, identifying, mapping, and protecting state-listed plant species on the refuges. The Service would promote and support increasing the Friends group to more than 150 members.

Under this alternative, Service staff dedicated to the Tampa Bay Refuges would be increased to four full-time permanent employees and one part-time permanent employee, which would include the addition of a law enforcement officer to increase protection of wildlife, habitat, and visitor safety; a biological technician

to conduct bird surveys, predator and exotic species control, and beach management activities; a public use specialist to facilitate and create opportunities for environmental education, interpretation, and wildlife photography and observation; and a part-time administrative office assistant. Larger office space to accommodate the increased staff along with the Friends group would be acquired, as well as facilities for boat storage and use; also, a visitor center would be established.

The cooperative agreement with the Florida Park Service to manage Egmont Key would be enhanced under this alternative by establishing monthly communications and quarterly meetings. Further, the Service would facilitate the transfer of the U.S. Coast Guard (USCG) property on Egmont Key to the Service, and would establish the Service's interest in the Pilots Compound property in the event that occupancy of that property changes. Acquisition of these lands would enable the Service to better conserve, protect, and manage the habitat on Egmont Key.

Alternative C proposed that the Service would take on an even greater leadership role at the refuges, enhancing and expanding the activities proposed under Alternative B. The Service staff dedicated to the Tampa Bay Refuges would be increased to seven full-time permanent employees, including two law enforcement officers, one biological technician, one public use specialist, one maintenance person/equipment operator, and an administrative office assistant. The Service would promote and support increasing the Friends group to 200-300 members. Additional equipment and facilities would be acquired to support the staff and increased activities on the refuges.

The additional staff members would allow the refuges to increase the frequency of some monitoring (e.g., piping plover); initiate bird research; routinely monitor and research gopher tortoises; enhance protection of wildlife, habitats, and visitor safety; control exotic and invasive vegetation on a routine basis; and provide educational events on a routine basis, including weekly interpretive tours using concessionaire(s) selected and operating under Service contract.

Under this alternative, the Service would own and manage all of Egmont Key without sharing that responsibility with the Florida Park Service—dissolving the cooperative agreement to manage Egmont Key State Park and allowing the Service to manage the island in a comprehensive manner.

The Service selected Alternative B as its preferred alternative and is reflected in this CCP. Alternative B is selected for implementation because it directs the development of programs to best achieve the purpose and goals of the refuges; emphasizes enhanced leadership roles on the refuges, collection of habitat and wildlife data, and protection of wildlife; and ensures long-term achievement of refuge and Service objectives. At the same time, the management actions provide increased and balanced levels of compatible public use opportunities consistent with existing laws, Service policies, and sound biological principles. It provides the best mix of program elements to achieve desired long-term conditions.

Under this alternative, all lands under the management and direction of the refuges will be protected, maintained, and enhanced to best achieve national, ecosystem, and refuge-specific goals and objectives within anticipated funding and staffing levels. In addition, the action positively addresses priority resource issues and concerns expressed by the public.

I. Background

INTRODUCTION

This CCP for Tampa Bay Refuges was prepared to guide management actions and direction for the refuges. Fish and wildlife conservation will receive first priority in refuge management; wildlife-dependent recreation will be allowed and encouraged as long as it is compatible with, and does not detract from, the mission of the refuges or the purposes for which they were established.

A planning team developed a range of alternatives that best met the goals and objectives of the refuges and that could be implemented within the 15-year planning period. The draft of this CCP was made available to state and federal government agencies, conservation partners, and the general public for review and comment. The comments from each entity were considered in the development of this CCP.

PURPOSE AND NEED FOR THE PLAN

The purpose of the CCP is to develop a management action that best achieves the refuges' purposes; attains the vision and goals developed for the refuges; contributes to National Wildlife Refuge System (Refuge System) mission; addresses key problems, issues, and relevant mandates; and is consistent with sound principles of fish and wildlife management.

Specifically, the CCP is needed to:

- Provide a clear statement of management direction;
- Provide neighbors, visitors, and government officials with an understanding of Service management actions on and around each refuge;
- Ensure that Service management actions, including land protection and recreation/education programs, are consistent with the mandates of the Refuge System; and
- Provide a basis for the development of budget requests for operations, maintenance, and capital improvement needs.

FISH AND WILDLIFE SERVICE

The Service traces its roots to 1871 and the establishment of the Commission of Fisheries involved with research and fish culture. The once-independent commission was renamed the Bureau of Fisheries and placed under the Department of Commerce and Labor in 1903.

The Service also traces its roots to 1886 and the establishment of a Division of Economic Ornithology and Mammalogy in the Department of Agriculture. Research on the relationship of birds and animals to agriculture shifted to delineation of the range of plants and animals so the name was changed to the Division of the Biological Survey in 1896.

The Department of Commerce, Bureau of Fisheries, was combined with the Department of Agriculture, Bureau of Biological Survey, on June 30, 1940, and transferred to the Department of the Interior as the Fish and Wildlife Service. The name was changed to the Bureau of Sport Fisheries and Wildlife in 1956 and finally to the Fish and Wildlife Service in 1974.

The Service, working with others, is responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people through federal programs relating to migratory birds, endangered species, interjurisdictional fish and marine mammals, and inland sport fisheries (142 DM 1.1).

As part of its mission, the Service manages more than 540 national wildlife refuges covering over 95 million acres. These areas comprise the Refuge System, the world's largest collection of lands set aside specifically for fish and wildlife. The majority of these lands, 77 million acres, is in Alaska. The remaining acres are spread across the other 49 states and several United States territories. In addition to refuges, the Service manages thousands of small wetlands, national fish hatcheries, 64 fishery resource offices, and 78 ecological services field stations. The Service enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program that distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

NATIONAL WILDLIFE REFUGE SYSTEM

The mission of the Refuge System, as defined by the Improvement Act 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."

The Improvement Act established, for the first time, a clear legislative mission of wildlife conservation for the Refuge System. Actions were initiated in 1997 to comply with the direction of this new legislation, including an effort to complete comprehensive conservation plans for all refuges. These plans, which are completed with full public involvement, help guide the future management of refuges by establishing natural resources and recreation/education programs. Consistent with the Improvement Act, approved plans will serve as the guidelines for refuge management for the next 15 years. The Improvement Act states that each refuge shall be managed to:

- Fulfill the mission of the Refuge System;
- Fulfill the individual purposes of each refuge;
- Consider the needs of wildlife first;
- Fulfill requirements of comprehensive conservation plans that are prepared for each unit of the Refuge System;
- Maintain the biological integrity, diversity, and environmental health of the Refuge System; and
- Recognize that wildlife-dependent recreation activities, including hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation, are legitimate and priority public uses; and allow refuge managers authority to determine compatible public uses.

The following are just a few examples of your national network of conservation lands. Pelican Island National Wildlife Refuge (NWR), the first refuge, was established in 1903 for the protection of colonial nesting birds in Florida, such as the snowy egret and the brown pelican. Western refuges were established for American bison (1906), elk (1912), prong-horned antelope (1931), and desert bighorn sheep (1936) after over-hunting, competition with cattle, and natural disasters decimated once-

abundant herds. The drought conditions of the 1930s Dust Bowl severely depleted breeding populations of ducks and geese. Refuges established during the Great Depression focused on waterfowl production areas (i.e., protection of prairie wetlands in America's heartland). The emphasis on waterfowl continues today but also includes protection of wintering habitat in response to a dramatic loss of bottomland hardwoods. By 1973, the Service had begun to focus on establishing refuges for endangered species.

Approximately 38 million people visited national wildlife refuges in 2002, most to observe wildlife in their natural habitats. As the number of visitors grows, there are significant economic benefits to local communities. In 2001, 82 million people, 16 years and older, fished, hunted, or observed wildlife, generating $108 billion. In a study completed in 2002 on 15 refuges, visitation had grown 36 percent in 7 years. At the same time, the number of jobs generated in surrounding communities grew to 120 per refuge, up from 87 jobs in 1995, pouring more than $2.2 million into local economies. The 15 refuges in the study were Chincoteague (Virginia); National Elk (Wyoming); Crab Orchard (Illinois); Eufaula (Alabama); Charles M. Russell (Montana); Umatilla (Oregon); Quivira (Kansas); Mattamuskeet (North Carolina); Upper Souris (North Dakota); San Francisco Bay (California); Laguna Atacosa (Texas); Horicon (Wisconsin); Las Vegas (Nevada); Tule Lake (California); and Tensas River (Louisiana) the same refuges identified for the 1995 study. Other findings also validate the belief that communities near refuges benefit economically. Expenditures on food, lodging, and transportation grew to $6.8 million per refuge, up 31 percent from $5.2 million in 1995. For each dollar spent on the Refuge System, surrounding communities benefited with $4.43 in recreation expenditures and $1.42 in job-related income (Caudill and Laughland, unpubl. data).

Volunteers continue to be a major contributor to the success of the Refuge System. In 2002, volunteers contributed more than 1.5 million hours on refuges nationwide, a service valued at more than $22 million.

The wildlife and habitat vision for national wildlife refuges stresses the following: that wildlife comes first; that ecosystems, biodiversity, and wilderness are vital concepts in refuge management; that refuges must be healthy and growth must be strategic; and that the Refuge System should serve as a model for habitat management with broad participation from others.

The Improvement Act stipulates that comprehensive conservation plans be prepared in consultation with adjoining federal, state, and private landowners and that the Service should develop and implement a process to ensure an opportunity for active public involvement in the preparation and revision (every 15 years) of the plans.

All lands of the Refuge System will be managed in accordance with an approved comprehensive conservation plan that will guide management decisions and set forth strategies for achieving refuge unit purposes. The plan will be consistent with sound resource management principles, practices, and legal mandates, including Service compatibility standards and other Service policies, guidelines, and planning documents (602 FW 1.1).

LEGAL AND POLICY CONTEXT

Legal Mandates, Administrative and Policy Guidelines, and Other Special Considerations

Administration of national wildlife refuges is guided by the mission and goals of the Refuge System, congressional legislation, presidential executive orders, and international treaties. Policies for management options of refuges are further refined by administrative guidelines established by the Secretary of the Interior and by policy guidelines established by the Director of the Service. Select

legal summaries of treaties and laws relevant to administration of the Refuge System and management of the Tampa Bay Refuges are provided in Appendix C.

Treaties, laws, administrative guidelines, and policy guidelines assist the refuge manager in making decisions pertaining to soil, water, air, flora, fauna, and other natural resources; historical and cultural resources; research and recreation on refuge lands; and provide a framework for cooperation between Tampa Bay Refuges and other partners, such as the Florida Department of Environmental Protection, and private landowners, etc.

Lands within the Refuge System are closed to public use unless specifically and legally opened. No refuge use may be allowed unless it is determined to be compatible. A compatible use is a use that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge. All programs and uses must be evaluated based on mandates set forth in the Improvement Act. Those mandates are to:

- Contribute to ecosystem goals, as well as refuge purposes and goals;
- Conserve, manage, and restore fish, wildlife, and plant resources and their habitats;
- Monitor the trends of fish, wildlife, and plants;
- Manage and ensure appropriate visitor uses as those uses benefit the conservation of fish and wildlife resources and contribute to the enjoyment of the public; and
- Ensure that visitor activities are compatible with refuge purposes.

The Improvement Act further identifies six priority wildlife-dependent recreational uses. These uses are: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. As priority public uses of the Refuge System, they receive priority consideration over other public uses in planning and management.

Biological Integrity, Diversity, and Environmental Health Policy

The Improvement Act directs the Service to ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans. The policy is an additional directive for refuge managers to follow while achieving refuge purpose(s) and the Refuge System mission. It provides for the consideration and protection of the broad spectrum of fish, wildlife, and habitat resources found on refuges and associated ecosystems. When evaluating the appropriate management direction for refuges, refuge managers will use sound professional judgment to determine their refuges' contribution to biological integrity, diversity, and environmental health at multiple landscape scales. Sound professional judgment incorporates field experience, knowledge of refuge resources, refuge role within an ecosystem, applicable laws, and best available science, including consultation with others both inside and outside the Service.

NATIONAL AND INTERNATIONAL CONSERVATION PLANS AND INITIATIVES

Multiple partnerships have been developed among government and private entities to address the environmental problems affecting regions. There is a large amount of conservation and protection information that defines the role of the refuge at the local, national, international, and ecosystem levels. Conservation initiatives include broad-scale planning and cooperation between affected parties to address declining trends of natural, physical, social, and economic environments. The

conservation guidance described below, along with issues, problems, and trends, was reviewed and integrated where appropriate into this CCP.

This CCP supports, among others, the Partners-in-Flight Plan, the North American Waterfowl Management Plan, the Western Hemisphere Shorebird Reserve Network, and the National Wetlands Priority Conservation Plan.

North American Bird Conservation Initiative. Started in 1999, the North American Bird Conservation Initiative is a coalition of government agencies, private organizations, academic institutions, and private industry leaders in the United States, Canada, and Mexico working to ensure the long-term health of North America's native bird populations by fostering an integrated approach to bird conservation to benefit all birds in all habitats. The four international and national bird initiatives include the North American Waterfowl Management Plan, Partners-in-Flight, Waterbird Conservation for the Americas, and the U.S. Shorebird Conservation Plan.

North American Waterfowl Management Plan. The North American Waterfowl Management Plan is an international action plan to conserve migratory birds throughout the continent. The plan's goal is to return waterfowl populations to their 1970s' levels by conserving wetland and upland habitat. Canada and the United States signed the plan in 1986 in reaction to critically low numbers of waterfowl. Mexico joined in 1994, making it a truly continental effort. The plan is a partnership of federal, provincial/state and municipal governments, non-governmental organizations, private companies, and many individuals, all working towards achieving better wetland habitat for the benefit of migratory birds, other wetland-associated species and people. Plan projects are international in scope, but implemented at regional levels. These projects contribute to the protection of habitat and wildlife species across the North American landscape.

Partners-in-Flight Bird Conservation Plan. Managed as part of the Partners-in-Flight Plan, the peninsular Florida physiographic area represents a scientifically based land bird conservation planning effort that ensures long-term maintenance of healthy populations of native land birds, primarily non-game land birds. Non-game land birds have been vastly under-represented in conservation efforts, and many are exhibiting significant declines. This plan is voluntary and non-regulatory, and focuses on relatively common species in areas where conservation actions can be most effective, rather than the frequent local emphasis on rare and peripheral populations.

U.S. Shorebird Conservation Plan. The U.S. Shorebird Conservation Plan is a partnership effort throughout the United States to ensure that stable and self-sustaining populations of shorebird species are restored and protected. The plan was developed by a wide range of agencies, organizations, and shorebird experts for separate regions of the country, and identifies conservation goals, critical habitat conservation needs, key research needs, and proposed education and outreach programs to increase awareness of shorebirds and the threats they face.

North American Waterbird Conservation Plan. This plan provides a framework for the conservation and management of 210 species of waterbirds in 29 nations. Threats to waterbird populations include destruction of inland and coastal wetlands, introduced predators and invasive species, pollutants, mortality from fisheries and industries, disturbance, and conflicts arising from abundant species. Particularly important habitats of the southeast region include pelagic areas, marshes, forested wetlands, and barrier and sea island complexes. Fifteen species of waterbirds are federally listed, including breeding populations of wood storks, Mississippi sandhill cranes, whooping cranes, interior least terns, and Gulf Coast populations of brown pelicans. A key objective of this plan is the standardization of data collection efforts to better recommend effective conservation measures.

RELATIONSHIP TO STATE WILDLIFE AGENCY

A provision of the Improvement Act, and subsequent agency policy, is that the Service shall ensure timely and effective cooperation and collaboration with other state fish and game agencies and tribal governments during the course of acquiring and managing refuges. State wildlife management areas and national wildlife refuges provide the foundation for the protection of species, and contribute to the overall health and sustainment of fish and wildlife species in the State of Florida.

The Florida Fish and Wildlife Conservation Commission's (FWC) mission is "managing fish and wildlife resources for their long-term well-being and the benefit of people." The FWC manages the state's fish and wildlife resources to conserve some of the most complex and delicate ecosystems in the world as well as a wide diversity of species. The FWC scientists work to provide the latest scientific information used to make good management decisions involving fish and wildlife populations, habitat issues, and the human dimension aspects of conservation. FWC law enforcement officers enforce rules to protect fish and wildlife, keep waterways safe for millions of boaters, and cooperate with other law enforcement agencies providing homeland security. In addition, the FWC staff communicates with a variety of audiences to encourage participation, responsible citizenship and stewardship of the state's natural resources, including hunter safety training, boating safety classes, and birding and outdoor recreation classes. The FWC territory includes 53,927 square miles of land and 5,983 square miles of water. The territory includes 5.6 million acres of wildlife management areas, 2,276 miles of tidal shoreline, about 10,550 miles of rivers, streams and creeks, and about 7,700 lakes greater than 10 acres. In the state, there are over 200,000 hunters, more than 3 million freshwater and saltwater anglers (residents and nonresidents), and more than 3 million wildlife watchers.

The state's participation and contribution throughout this planning process will provide for ongoing opportunities and open dialogue to improve the ecological sustainment of fish and wildlife in the State of Florida. An essential part of comprehensive conservation planning is integrating common mission objectives where appropriate.

II. Refuge Overview

INTRODUCTION

There are 28 national wildlife refuges in the State of Florida (Figure1). The Tampa Bay Refuges are managed as part of the Chassahowitzka National Wildlife Refuge Complex (Figure 2). The Tampa Bay Refuges currently have one dedicated full-time assistant refuge manager, and are otherwise supported by nine staff members located 100 miles away at Crystal River NWR in Crystal River, Florida. The Tampa Bay Refuges include Egmont Key, Pinellas, and Passage Key Refuges (Figure 3).

Egmont Key NWR (Figure 4) is located at the mouth of Tampa Bay, along the Gulf Coast of Florida in Hillsborough County. In 1974, the 392-acre refuge was established to protect the Key's significant natural, historical, and cultural resources from the impending threats of development. Egmont Key is the only refuge island open to the public in Tampa Bay and has been traditionally visited for many years as a primary recreation destination. The refuge is open only during daylight hours. The island receives about 130,000-170,000 visitors annually that access the island by private or tour boat (USFWS Tampa Bay Refuges Visitor Services Review Report, March 2004; and Kleen and Hunter, USFWS, Tampa Bay Refuges Biological Review Report, June 2006).

Specifically, Egmont Key NWR seeks to provide nesting habitat for brown pelicans and other waterbirds, as well as to conserve and protect barrier island habitat and preserve historical structures of national significance. Presently, the island's approximately 244 acres of beach and coastal berm supports more than 110 species of nesting, migrating, and wintering birds. Thousands of laughing gulls and royal terns, hundreds of brown pelicans and sandwich terns, dozens of black skimmers and least terns, and a handful of American oystercatchers, nest annually. Egmont Key provides valuable wildlife habitat in the very populated Tampa Bay area. The island is listed as critical habitat for endangered piping plovers and provides habitat and protection for endangered manatees and sea turtles. Approximately 20-70 endangered Atlantic loggerhead turtles nest annually. Egmont has an unusually high population of gopher tortoises and box turtles. Two wildlife sanctuaries, one on the east side of the island and one at the south end of the island, comprise about 97 acres and are closed to all public use, year-round (Kleen and Hunter, June 2006).

Cooperative management agreements between the Service, the U.S. Coast Guard (USCG), and the Florida Department of Environmental Protection (FDEP) entrust daily management activities of Egmont Key Refuge to the Florida Park Service (FPS). The FPS plays a critical role in managing recreation on the island. Egmont Key State Park is managed to protect, and restore the historic structures (i.e., historic lighthouse, guard house, gun batteries, and brick roads) and for swimming, sunbathing, shelling, and picnicking. Park staff also assist the refuge in habitat and wildlife management on a regular basis. Park staff monitor sea turtle nesting, control exotic species, and care for injured birds. The USCG owns 55 acres, including the lighthouse, at the north end of the island. This property is the focus of the Florida State Parks operation due to the concentration of historic sites (e.g., Fort Dade) on this property. In addition, the Tampa Bay Pilots Association (TBPA) leases 5 acres of land from Hillsborough County and two tracts totaling 5 acres from the Service along the east side of the island to conduct their business of piloting large ships into and out of Tampa Bay (Figure 5).

Figure 1. National Wildlife Refuges of Florida

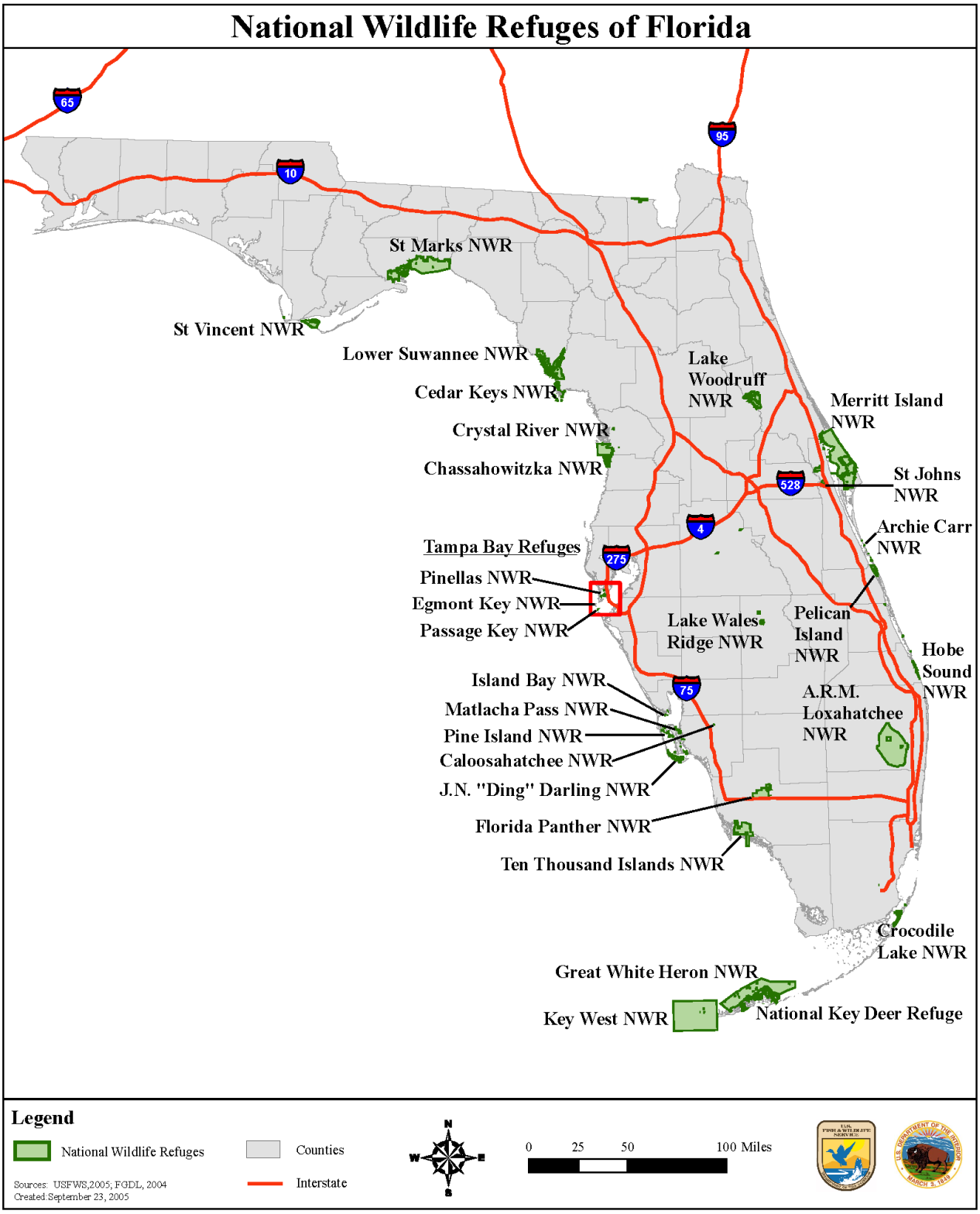


Figure 2. Chassahowitzka National Wildlife Refuge Complex

Figure 3. Tampa Bay Refuges

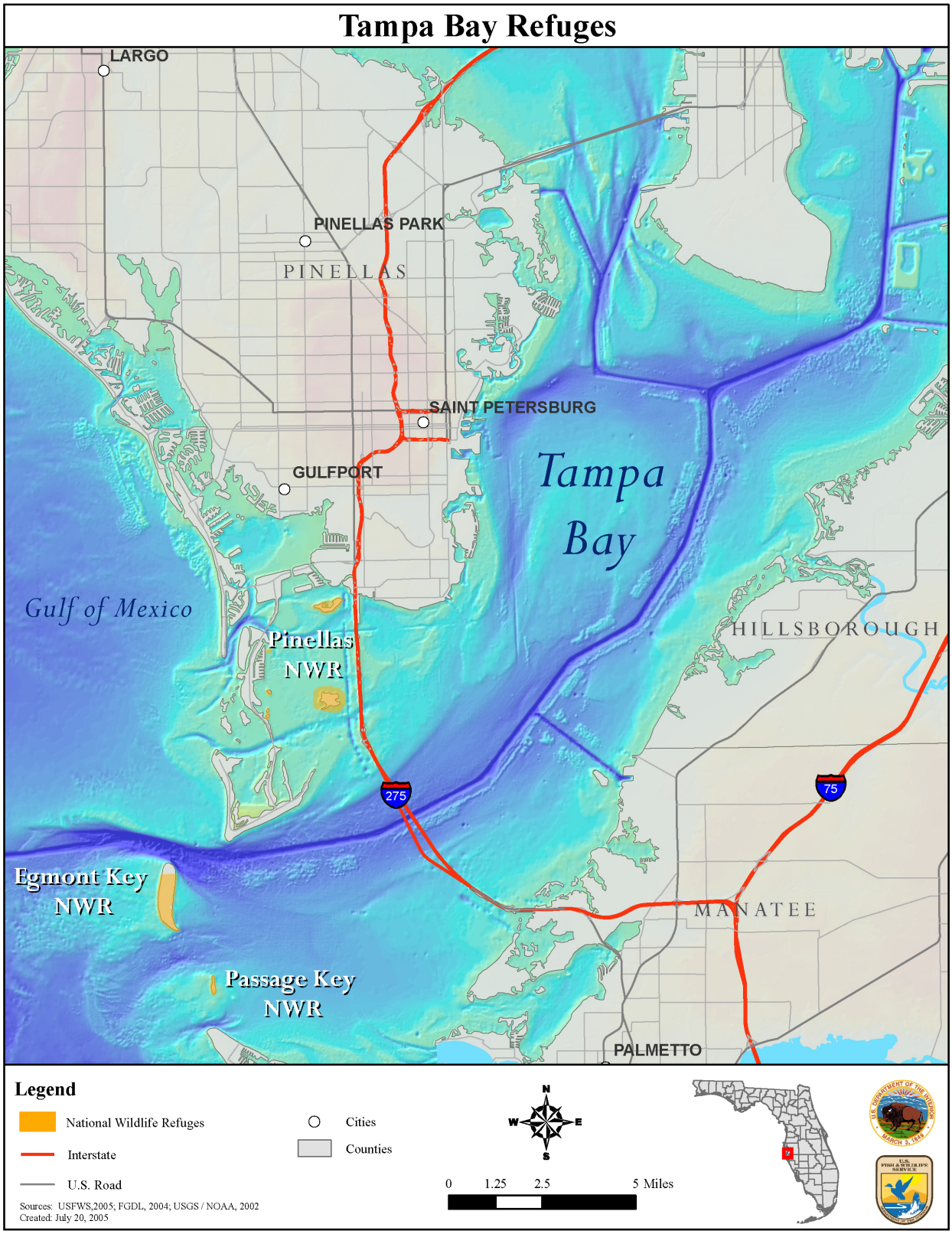


Figure 4. Egmont Key National Wildlife Refuge

Figure 5. Land Ownership of Egmont Key National Wildlife Refuge

Pinellas NWR (Figure 6) is located at the mouth of Tampa Bay, along the Gulf Coast of Florida, in Pinellas County. The refuge was established in 1951 as a breeding ground for colonial bird species. It contains seven mangrove islands encompassing about 394 acres, with only Indian Key within the city limits of St. Petersburg. The refuge is comprised of Little Bird, Mule, Jackass, Listen, and Whale Island Keys and leases Tarpon and Indian Keys from Pinellas County. A Pinellas County seagrass sanctuary is located around Tarpon and Indian Keys and the use of internal combustion engines within this zone is prohibited to protect seagrass beds. Hundreds of brown pelicans and double-crested cormorants and dozens of herons, egrets, and roseate spoonbills nest within Tarpon and Little Bird Keys. Pinellas Key provides important mangrove habitat for most long-legged wading species, especially for reddish egrets. All of the mangrove islands of Pinellas NWR are closed to public use year-round to protect migratory birds (Kleen and Hunter, USFWS, June 2006).

Passage Key NWR (Figure 7) is located at the entrance to Tampa Bay in Manatee County, along the Gulf Coast of Florida, just north of Bradenton, Florida. When Passage Key was originally designated as a federal bird reservation by President Roosevelt in 1905, it was a 60- acre island with a freshwater lake and lush vegetation. Unfortunately, erosion and hurricanes have virtually destroyed the key. It is now a meandering sand bar, varying is size from 0.5 to 10 acres, depending on weather (USFWS, Visitor Services Review Report, March 2004). In 1970, Passage Key NWR was designated a Wilderness Area, and because of its fragility and small size it is now closed to all public use (Figure 8). The refuges' objectives are to provide habitat for colonial waterbirds. Hundreds of brown pelicans, laughing gulls, black skimmers, and royal terns nested annually until the island washed away in 2007. Small numbers of herons and egrets also nested on the island. The key once hosted the largest royal tern and sandwich tern nesting colonies in the state of Florida. Passage Key NWR is closed to public use year-round to protect the migratory birds that use the island.

REFUGE HISTORY AND PURPOSE

The Tampa Bay Refuges are crucial to the survival of many threatened and endangered species. For the most part, none of the priority public uses are actively promoted by the Service on the Tampa Bay Refuges. However, there are excellent opportunities for wildlife observation, wildlife photography, outreach, and environmental education and interpretation. Fishing is a primary public use off-shore, with the state and local governments providing primary enforcement oversight over the waterways (USFWS Visitor Services Review Report, March 2004).

During the Pleistocene era, the Tampa Bay Refuges were part of the mainland of Florida. At the end of the last glacial period, ~20,000 years ago, ice began to melt rapidly and the sea level rose swiftly, separating them from Florida.

Egmont Key NWR is the only refuge in this group open for public visitation and is the refuge for which the most historical and cultural information exists. Little historical information exists for Pinellas or Passage Key NWRs.

Figure 6. Pinellas National Wildlife Refuge

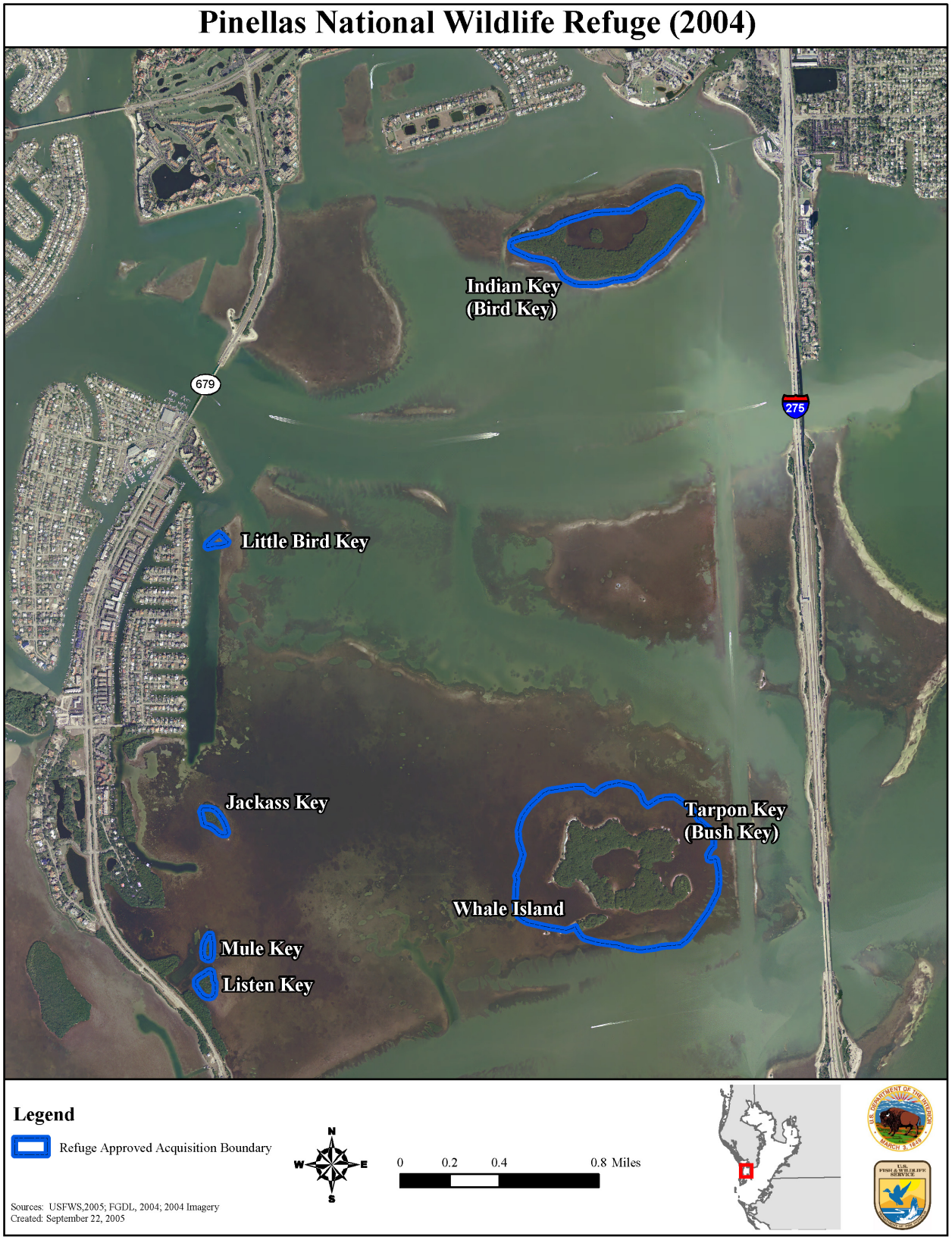
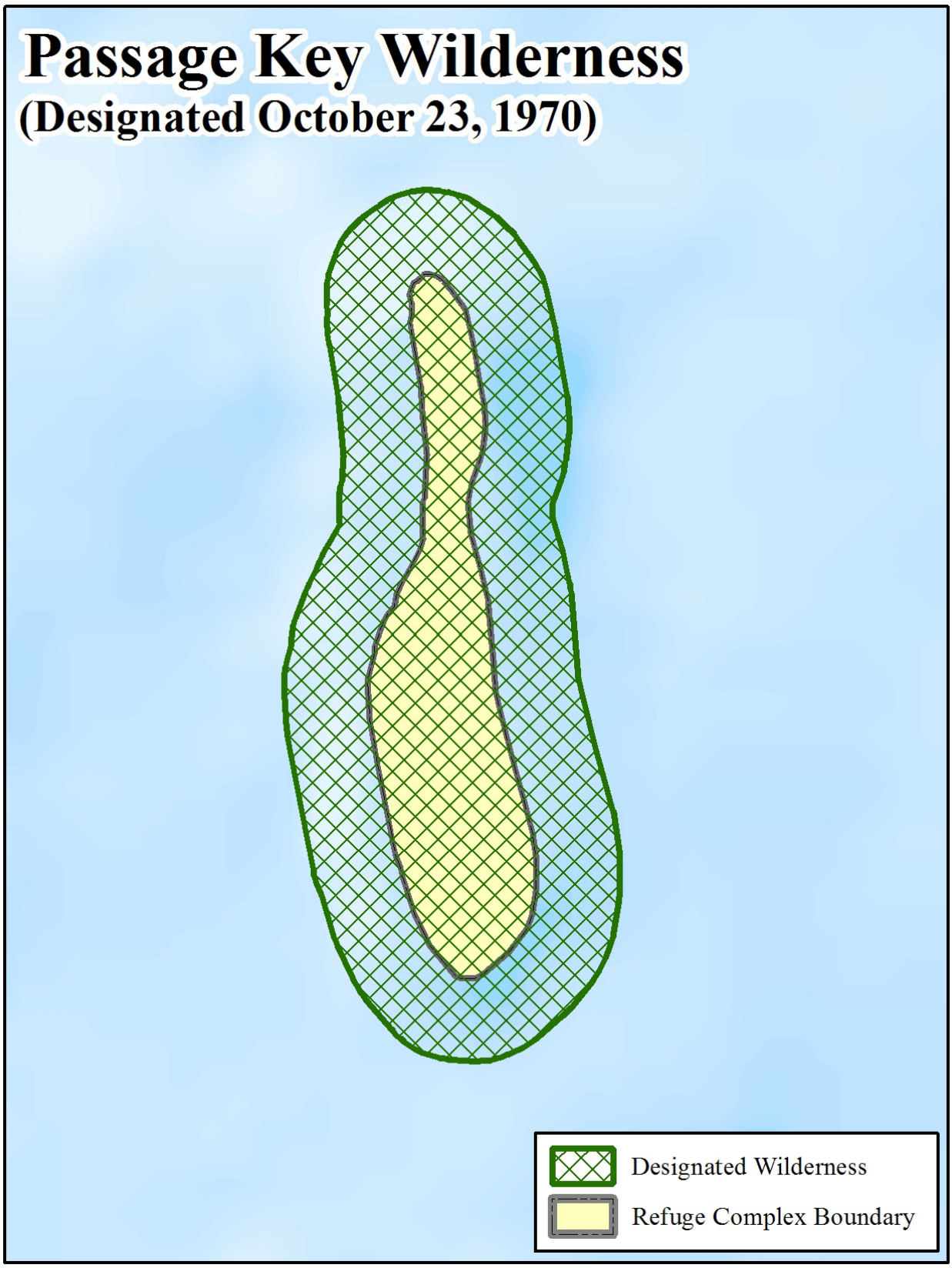


Figure 7. Passage Key National Wildlife Refuge

Figure 8. Passage Key NWR Wilderness



Egmont Key has a rich history. The entire key is listed on the National Register of Historic Places. Artifacts of aboriginal/Indian pottery dating back 2,000 years have been found on the island. Since there is no freshwater source and because travel to the key entails crossing open water, it is likely that the key was used only periodically by Native Americans for hunting, crabbing, and shell fishing. Spanish expeditions first sighted the key in the early 1500s. The first recorded contact with the key was in 1757 by Don Francisco Maria Celi, a Spanish explorer. Egmont Key was named in 1763, after the second Earl of Egmont, John Perceval, the first Lord of the British Admiralty, and a member of the Irish House of Commons.

When mapped by the Geodetic Survey in 1875, Egmont Key was approximately 50 percent larger than it is today. The first lighthouse was built in 1848 and was the only lighthouse on the western Gulf Coast of Florida. After hurricanes damaged the lighthouse in 1848 and 1852, the lighthouse was moved inland and rebuilt in 1857-58, and remains in service today. In the 1850s, Egmont Key was used as a holding area for Seminole Indians as they were being transported to Arkansas and Oklahoma.

Early in the Civil War, the key saw occupation by Confederate blockade-runners; while later in the 1860s, Union forces used Egmont Key to operate their Gulf Coast blockade of the Confederacy. The key was also used as a refuge for Union sympathizers and a military prison during the war.

Construction of Fort Dade began in 1898, with temporary gun batteries to protect Tampa at the outbreak of the Spanish/American War. The Spanish fleet never came, but by 1910 a small town of about 300 residents, brick streets, a narrow gauge railroad, an electric generating plant, and 70 buildings existed. At this time, during World War I, Fort Dade was used as a training center for National Guard Coast Artillery Units. The fort was deactivated in the early 1920s, but later reactivated and used during World War II, as a harbor patrol station and an ammunition storage facility.

Egmont Key became a national wildlife refuge in 1974 and was named to the National Register of Historic Places. In 1989, the State of Florida established Egmont Key State Park through cooperative agreement with the Service. At the present time, the USCG maintains the lighthouse and owns 55 acres at the north end of the island. The lighthouse is believed to be the oldest structure still used for its original purpose in the Tampa Bay area. The historic ruins of Fort Dade and Egmont Key State Park are managed by the FPS in cooperation with the Service. Also, the Tampa Bay Pilots Association leases a 10-acre tract of land, 5 acres from Hillsborough County and 5 acres in two additional tracts from the Service along the east side of the island to conduct its business of piloting large ships into and out of Tampa Bay (Figure 9).

Egmont Key NWR, established in 1974, is administered in accordance with the National Wildlife Refuge System Administration Act of 1966. The refuge has four basic purposes:

1. provide nesting, feeding, and resting habitat for brown pelicans, terns, and other colonial nesting waterbirds;
2. conserve and protect barrier island habitat and preserve historical structures of national significance;
3. provide habitat and protection for endangered species such as manatees and sea turtles; and
4. provide wildlife-dependent recreation and environmental education for the public (USFWS Visitor Services Review Report, March 2004).

Figure 9. Existing facilities of Egmont Key National Wildlife Refuge

Pinellas NWR was established in 1951 for use as an inviolate sanctuary and for migratory birds. It is closed to the public. Pinellas NWR includes Tarpon, Whale, Indian, Little Bird, Mule, Jackass, and Listen Keys. The larger islands in this group are surrounded by extensive seagrass flats, and as a result no internal combustion engines are allowed within a signed boundary to protect these areas. The refuge has two basic purposes:

1. provide nesting, feeding, and resting habitat for brown pelicans and other waterbirds; and
2. preserve and protect barrier island habitat (Kleen and Hunter, USFWS, June 2006).

Passage Key NWR was established under executive order (Theodore Roosevelt) in 1905 as a preserve and breeding ground for native birds. Congress designated Passage Key NWR as a Wilderness Area in 1970 (36 acres). Passage Key is closed to the public. A hurricane swept through this area in 1921, transforming this mangrove island containing a freshwater lake into a meandering sandbar. Passage Key NWR stands at the mouth of Tampa Bay, where it faces the full force of storms off the Gulf of Mexico, and now ranges in size from 0.5-10 acres. The refuge is an intermittent island that is very important to birds. When the land is exposed, birds populate the area. The refuge has two basic purposes:

1. provide nesting, feeding, and resting habitat for colonial waterbirds including laughing gulls, royal terns, black skimmers, sandwich terns, brown pelicans and oystercatchers; and
2. provide critical habitat and protection for thousands of shorebirds and waterbirds (Kleen and Hunter, USFWS, June 2006).

SPECIAL DESIGNATIONS

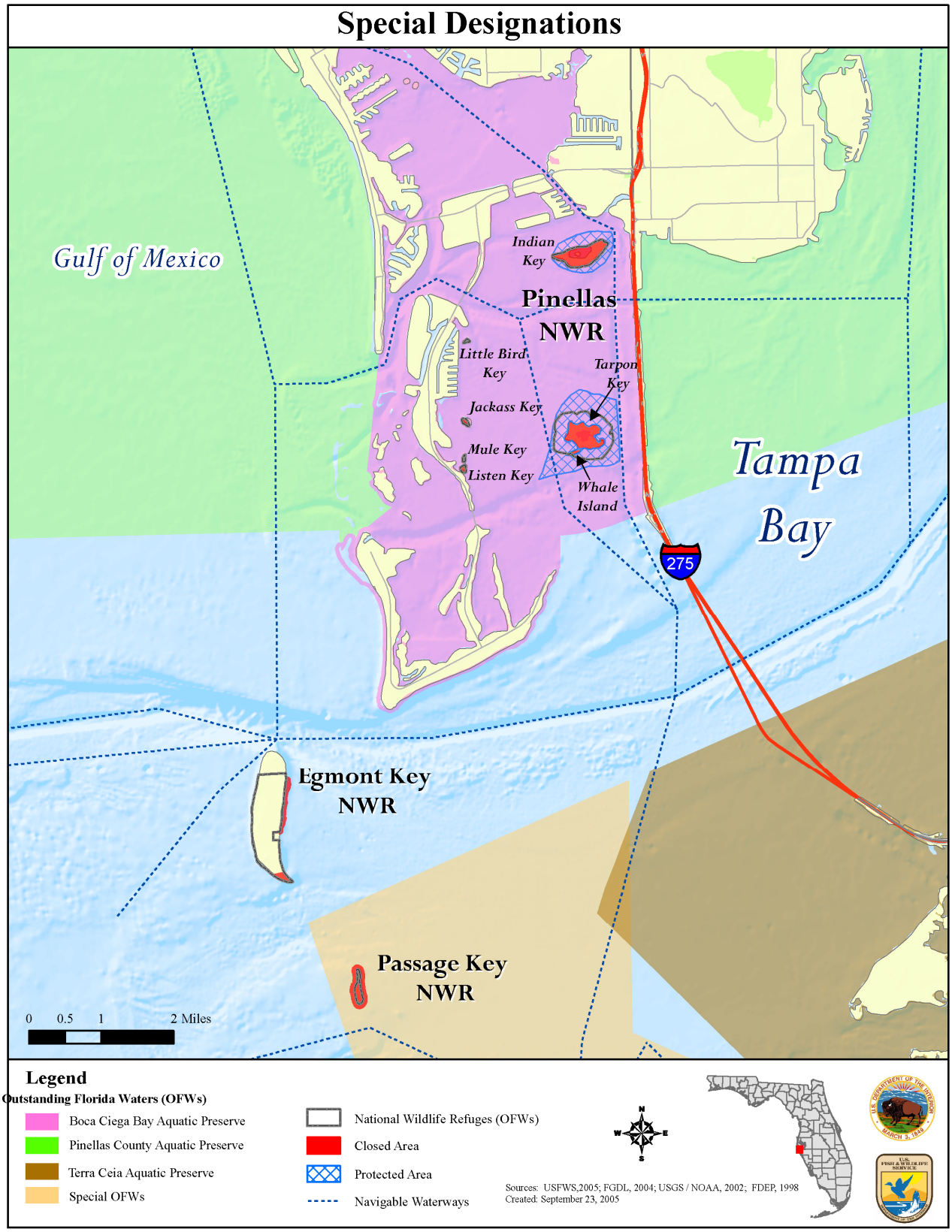
Special designations in the Tampa Bay region are depicted in Figure 10.

Egmont Key NWR – Egmont Key has two principal features. The first is an extensive series of military structures and ruins, and a still-operating lighthouse. The second is the island itself, relatively remote, yet accessible, with its beaches and island vegetation. Because of its colorful military past, Egmont Key NWR was listed on the National Register of Historic Places in 1979. The Egmont Key lighthouse has also been designated a Hillsborough County Landmark. Egmont Key NWR and State Park is cooperatively managed with FPS. The bird sanctuary area at the southern end of Egmont Key is closed to all public use, year-round, and a vessel exclusion zone has been established around the seagrass beds on the east side of the island to protect them from propeller damage. Egmont Key is an Index Nesting Beach Site for the Atlantic loggerhead sea turtle in the State of Florida. The refuge is also designated as critical habitat for piping plovers.

Pinellas NWR – All of the islands of Pinellas NWR are closed to the public to protect the habitat and wildlife. Pinellas County has established seagrass sanctuaries around Tarpon and Indian Keys. These areas are posted to prevent boats with internal combustion engines from entering the seagrass beds. Because of Tarpon Key's unique shape, topography, and vegetative status as a mangrove island, it is a significant nesting, resting, and feeding area for a variety of marsh and waterbirds. Boca Ciega Bay Aquatic Preserve, in which Pinellas NWR is located, is designated as an Outstanding Florida Water (OFW).

The OFW designation is given to waters that are "worthy of special protection due to their natural attributes" (Section 403.061, Florida Statutes); these waters are listed in Section 62-302.700, Florida Administrative Code. All permanent water bodies within state parks have been designated as OFW. The OFW designation affords the highest protection possible under state

Figure 10. Special designations



water quality rules by prohibiting degradation of water quality from the conditions existing at the time of designation. OFWs in the Tampa Bay area are:

- Hillsborough River State Park, Hillsborough Bay segment;
- Cockroach Bay Aquatic Preserve, Coastal Middle Tampa Bay Basins segment;
- Little Manatee River, Middle Tampa Bay segment;
- Terra Ceia State Aquatic Preserve, Coastal Lower Tampa Bay Basins segment;
- Boca Ciega State Aquatic Preserve, Lower Tampa Bay segment;
- Pinellas County Aquatic Preserve, Lower Tampa Bay segment; and,
- Lake Manatee State Recreation Area, Manatee River segment (Florida Department of Environmental Protection, "Basin Status Report," November 2001).

Other significant land and water resources in the vicinity of the Tampa Bay Refuge's include:

- DeSoto National Memorial and Mullet Key (named the number one beach in the continental U.S.) (The Tampa Bay Estuary Program, "Charting the Course for Tampa Bay," May 2006);
- Little Manatee River State Recreation Area;
- National Society's Washburn Sanctuary (Bird Key) in Terra Ciega Bay;
- Ybor City State Memorial; and
- Weedon Island County Preserve.

With the exception of Passage Key NWR Wilderness area, other lands within the Tampa Bay Refuges were reviewed for their suitability in meeting the criteria for wilderness areas, as defined by the Wilderness Act of 1964. No other areas in the refuges were found to meet these criteria. Therefore, the suitability of other lands within the Tampa Bay Refuges for wilderness designation is not further analyzed in this CCP.

Passage Key NWR – Congress designated Passage Key NWR a Wilderness Area in 1970 (36 acres). The refuge is closed to visitation to protect wildlife and other natural, cultural, and/or other resources consistent with the conservation purpose(s) of the refuge. In 1992, a year-round, 100-yard buffer zone was established around the perimeter of Passage Key NWR to protect nesting terns and gulls. Wilderness designation provides an additional level of protection for this refuge, but does not open the area to public access or use.

ECOSYSTEM CONTEXT

An ecosystem is a geographical area that includes and interconnects all the living (biotic) organisms, their physical (abiotic) surroundings, and the natural cycles that sustain them. The Outer Coastal Plain Ecological Province (Bailey 1978) encompasses a large portion of the southeastern, coastal United States. The Outer Coastal Plain Ecological Province is an area of gentle slopes with abundant water resources. Estuaries, swamps, marshes, rivers, and lakes are abundant and provide habitat for a wide variety of plant and animal life. The Tampa Bay Refuges are located in the southern part of the Outer Coastal Plain Ecological Province, in an area designated as the North Florida-Peninsular Florida ecosystem unit (Figure 11). The North Florida Ecosystem includes several important areas with protective designations, including Ocala National Forest and Okefenokee and Merritt Island NWRs. In total, 13 national wildlife refuges and 1 national fish hatchery exist in the North Florida Ecosystem. Various other local, state, and federal conservation areas are also located within the North Florida Ecosystem. Conservation areas in the Tampa Bay region are identified in Figure 12. The North Florida Ecosystem spans temperate and subtropical climates, numerous physiographic districts, and a wide variety of habitats. Barrier islands, xeric scrub, pine flatwoods, freshwater marshes, lakes, streams, springs, mixed hardwood/pine forests, cypress swamps and domes, dry

prairies, maritime forests, hardwood hammocks, estuarine marshes, pine rocklands, sandhill woodlands, coastal strands, sawgrass prairies, sloughs, and tree islands of the North Florida Ecosystem serve a variety of native wildlife, including over 100 federally listed species, as well as interjurisdictional fishes, neotropical migratory birds, non-game waterbirds, and waterfowl.

Specifically, the Tampa Bay Refuges are located along the Gulf Coast in the Southwestern Florida Flatwoods Sub-ecoregion of the Southern Coastal Plain Ecoregion. Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources (U.S. Environmental Protection Agency, http://www.epa.gov/wed/pages/ecoregions/level_iii.htm). The Southern Coastal Plain consists of mostly flat plains, but it is a heterogeneous region containing barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic Coasts. Tampa Bay is the most prominent geographic feature in the region. In central Florida, an area of discontinuous highlands contains numerous lakes. The ecoregion is low in elevation (less than 100' MSL) with little relief. Its textured soils are wet, coarse, and sandy. The climate is subtropical with a long growing season. Average annual temperatures are about 74^{o} F and average annual rainfall is about 50 inches; supporting a diverse range of flora and fauna. The ecoregion was once covered by a variety of forest communities that included trees of longleaf pine, slash pine, pond pine, beech, sweetgum, southern magnolia, white oak, and laurel oak. Population growth has been rapid in the last 35 years, and much of the region has been urbanized. Land cover is now mostly slash and loblolly pine with oak-gum-cypress forest in some low-lying areas, citrus groves, pasture for beef cattle, and urban areas (U.S. Environmental Protection Agency, "Level III Ecoregions of Florida—revised April 2000;" Native Seed Network, http://www.nativeseednetwork.org/ecodetail?region=75). Present land use in the Tampa Bay basin is characterized as: 28 percent agricultural and rangelands; 19 percent developed and urban; 18 percent upland forests; 10 percent wetlands; 8 percent shrub and brush; and 17 percent open water. Table 1 lists types of natural communities in the Tampa Bay Basin, and Table 2 lists unique or rare natural communities in the Tampa Bay Basin (Florida Department of Environmental Protection, "Basin Status Report," November 2001).

Tampa Bay's wetlands, mangroves, and shoreline areas are important ecological resources and support the state's largest and most diverse colonies of wading and shorebirds and one of the most productive bird nesting habitats in the United States. Three classes of emergent tidal wetlands are generally recognized in the Tampa Bay area: mangrove forests; salt marshes; and salt barrens. The emergent tidal wetlands collectively provide critical habitat for much of the bay's wildlife. Marsh grasses and mangrove trees provide critical feeding, nesting, and sheltering habitat for a variety of birds such as pelicans, cormorants, herons, ibises, spoonbills, and egrets. The areas provide important attachment sites for algae and invertebrate communities and provide submerged habitat for hundreds of recreationally and commercially important species of fish, crabs, shrimp, and other shellfish such as the pink shrimp, tarpon, snook, menhaden, mullet, blue crabs, and red drum. Sizable populations of bottle-nosed dolphins also inhabit the bay, while the shallow seagrass flats provide an important fish nursery and feeding ground for the endangered Florida manatee (Imperial, August 2000).

Interior parts of Egmont Key are undeveloped and covered with palmetto, shrubs and natural vegetation. The interior ecological system of Egmont Key is described as a Palustrine system with forest and scrub/shrub consisting of broad-leaved evergreens. The shoreline is an intertidal estuarine system with scrub/shrub consisting of needle-leafed evergreens near a sandy shore.

Figure 11. U.S. Fish and Wildlife Service Ecoregions – Southeast Region

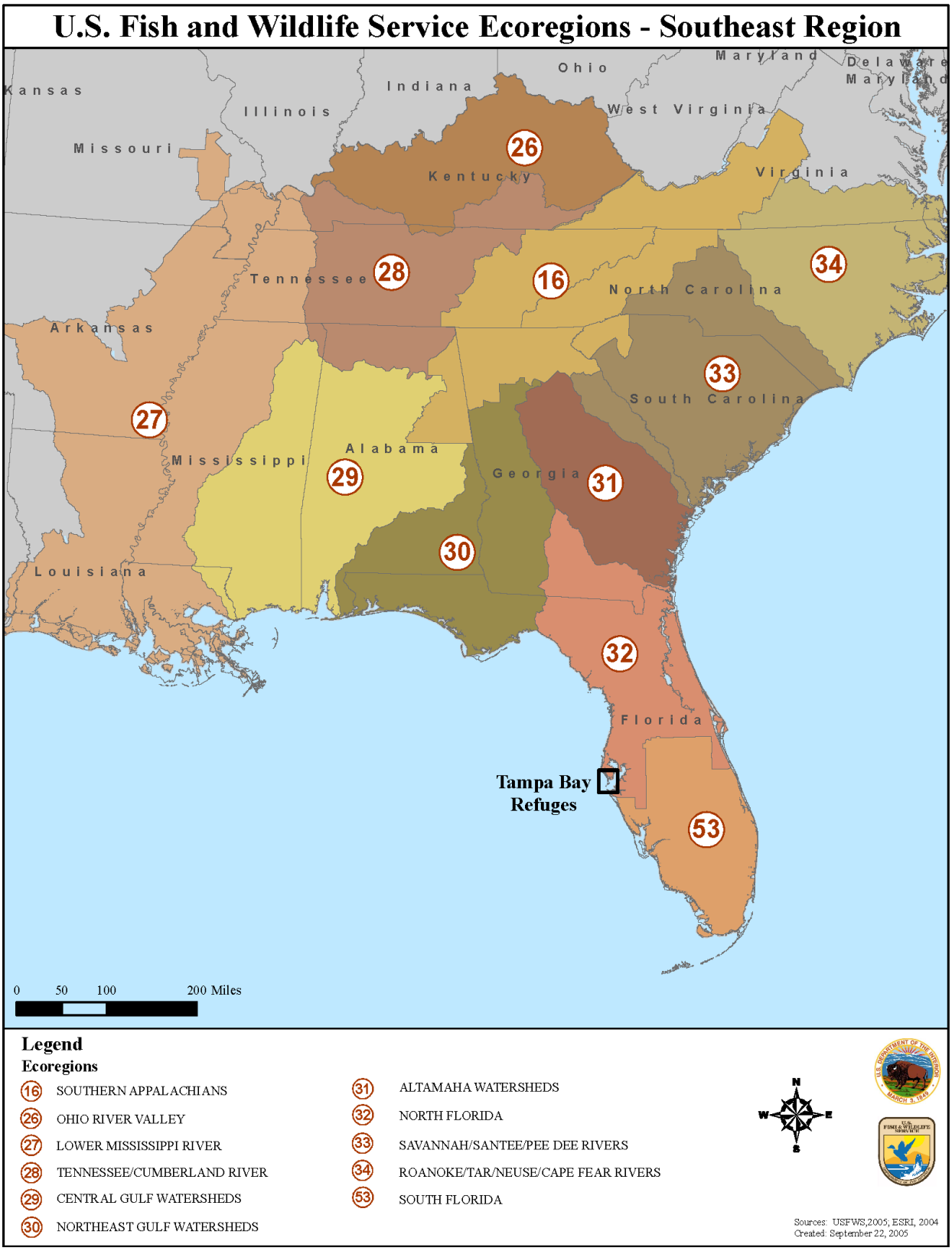


Figure 12. Conservation Areas in the Tampa Bay Region

Table 1. Types of natural communities in the Tampa Bay Basin

Land-Cover Category	Community Type	Area in Acres	Percentage of Total Area	Characteristics
Uplands				
1	Coastal strand	12	0.001	Occurs on well drained sandy coastlines and includes typically zoned vegetation of upper beach, nearby dunes, or coastal rock formations.
2	Dry prairie	74,353	4.55	Large treeless grasslands and shrublands on very flat terrain, interspersed with scattered cypress domes, cypress strands, isolated freshwater marshes, and hammocks.
3	Pinelands	67,393	4.12	Includes north and south Florida pine flatwoods, south Florida pine rocklands, scrubby flatwoods, and commercial pine plantations. Cypress domes, bayheads, titi swamps, and freshwater marshes are commonly interspersed in isolated depressions.
4	Sand pine scrub	4,735	0.29	Xeric plant community dominated by overstory of sand pine. Occurs in well drained sands deposited along former shorelines and islands of ancient seas.
5	Sandhill	2,949	0.18	Xeric plant community dominated by overstory of scattered longleaf pine, along with understory of turkey oak and bluejack oak. Occurs in areas of rolling terrain on deep, well-drained sands.
6	Xeric oak scrub	9,165	0.56	Hardwood community consisting of clumps of low-growing oaks interspersed with white sand. Occurs in areas of deep, well-washed sterile sand.
7	Mixed hardwood pine	42,152	2.58	Southern extension of the Piedmont southern mixed hardwoods, occurring mainly on clay soils of the northern Panhandle. Also includes upland forests in which a mixture of conifers and hardwoods dominate overstory.
8	Hardwood hammock	101,179	6.19	Includes major upland hardwood associations that occur statewide on fairly rich sandy soils.
9	Tropical hammock	N/A	N/A	Cold-intolerant hardwood community with very high plant diversity that occurs on coastal uplands in extreme south Florida. It is characterized by tropical trees and shrubs at the northern edge of their range, which extends into the Caribbean.

Land-Cover Category	Community Type	Area in Acres	Percentage of Total Area	Characteristics
Wetlands				
10	Coastal salt marsh	7,028	0.43	Herbaceous and shrubby wetland communities that include cordgrass, needlerush, and transitional or high salt marshes, occurring statewide in brackish waters along protected low energy estuarine shorelines.
11	Freshwater marsh	46,123	2.82	Wetland communities dominated by wide assortment of herbaceous plant species growing on sand, clay, marl, and organic soils in areas where water depths and inundation regimes vary.
12	Cypress swamp	37,466	2.29	Regularly inundated communities that form forested buffer along large rivers, creeks, and lakes, or occur in depressions as circular domes or linear strands. Strongly dominated by bald cypress or pond cypress.
13	Hardwood swamp	59,510	3.64	Association of wetland-adapted trees, composed either of pure stands of hardwoods or a hardwood-cypress mixture that occurs on organic soils and forms the forested floodplain of nonalluvial rivers, creeks, and broad lake basins.
14	Bay swamp	N/A	N/A	Type of hardwood swamp often found in shallow depressions in pinelands or at base of sandy ridges where seepage maintains constantly wet soils. Broadleaf evergreen trees such as sweetbay, swamp bay, and loblolly bay dominate overstory.
15	Shrub swamp	3,677	0.23	Dominated by low-growing, woody shrubs or small trees, usually found in wetlands changed by natural or human processes, such as altered hydroperiod, fire, clear-cutting or land clearing, and siltation.
16	Mangrove swamp	9,142	0.56	Dense, brackish water swamps, usually dominated by red, black, and white mangroves that occur along low-energy shorelines and in protected, tidally influenced bays of southern Florida. Comprises freeze-intolerant tree species that are distributed south of a line from Cedar Key on the Gulf Coast to St. Augustine on the Atlantic Coast.
17	Bottomland hardwood	N/A	N/A	Wetland-adapted forests composed of pure stands of hardwoods or a mixture of hardwoods and cypress. They occur throughout the state on organic soils and form the forested floodplains of nonalluvial rivers, creeks, and broad lake basins. Tree species include a mixed overstory containing black gum, water tupelo, bald cypress, blue beech, and swamp ash.

Land-Cover Category	Community Type	Area in Acres	Percentage of Total Area	Characteristics
Open Water				
18	Water	273,380	16.73	Open water areas of inland lakes, ponds, rivers, and streams and brackish and saline waters of estuaries and bays.
Disturbed				
19	Grassland and agricultural lands	447,511	27.38	Upland communities with very low-growing grasses and forbs. Intensively managed sites such as improved pastures, lawns, golf courses, road shoulders, cemeteries, or weedy fallow agricultural fields.
20	Shrub and brush	133,213	8.15	Includes different situations where natural upland communities have recently been disturbed and are recovering through natural succession.
21	Exotic plant communities	N/A	N/A	Upland and wetland areas dominated by invasive non-native species that outgrow and outcompete native plant communities.
22	Barren land	315,381	19.30	Developed areas such as roads, parking lots, and buildings.

N/A—This community type is not present in the basin.

Source: *Natural community definitions are adapted from Kautz, Randy, D. T. Gilbert, and G. M. Mauldin. 1993. "Vegetative Cover in Florida Based on 1985-1989 Landsat Thematic Mapper Imagery." Florida Scientist 56(3):135-154.*

Table 2. Unique or rare natural communities in the Tampa Bay Basin

Natural Community Type	FNAI Global Rank	FNAI State Rank
Beach dune	G4	S2
Bird rookery	N/A	N/A
Coastal dune lake	G2	S1
Estuarine composite substrate	G3	S3
Estuarine consolidated substrate	G3	S3
Estuarine grass bed	G2	S2
Estuarine tidal marsh	G4	S4
Estuarine tidal swamp	G3	S3
Estuarine unconsolidated substrate	G5	S5
Geological feature	N/A	N/A
Manatee aggregation site	N/A	N/A
Marine grass bed	G2	S2
Marine mollusk reef	G3	S3
Marine tidal swamp	G3	S3
Maritime hammock	G4	S2
Scrub	G2	S2
Xeric hammock	G3	S3

N/A = Not available.

Note: *The Florida Natural Areas Inventory Global Rank characterizes an element's relative rarity or endangerment worldwide, with G1 being critically imperiled globally because of extreme rarity or because of extreme vulnerability to extinction, and G5 being demonstrably secure globally. Likewise, the State Rank of S1 through S5 characterizes an element's relative rarity or endangerment in Florida. The rankings are based on many factors, the most important being the estimated number of element occurrences, estimated abundance (or area for natural communities), range, estimated adequately protected occurrences, relative threat of destruction, and ecological fragility.*

Source: *Marois, Katherine C. June 1999. Tracking List of Rare, Threatened, and Endangered Plants and Animalsand Natural Communities of Florida. Tallahassee, Florida: Florida Natural Areas Inventory.*

REGIONAL CONSERVATION PLANS AND INITIATIVES

Comprehensive conservation plans and environmental documents are being prepared for the 28 national wildlife refuges in the State of Florida. The plans will provide refuge managers with a 15-year strategy and broad direction to: conserve wildlife and their habitats; achieve refuge purposes; and contribute toward the mission of the Refuge System. In addition, the plans identify wildlife-dependent opportunities available to the public, including opportunities for hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

The National Estuary Program, established as part of the 1987 amendments to the Clean Water Act (CWA), seeks to protect and restore 28 designated estuaries of national significance, that are deemed to be threatened by pollution, development, or overuse. The Tampa Bay Estuary Program is one of the seven estuary programs in the Gulf of Mexico. Several federal agencies participate in the planning and assessment efforts: EPA, NOAA, USGS, DOI, and USDA (U.S. EPA, http://www.epa.gov/owow/oceans/nepccr/, June 2007; U.S. EPA, http://www.epa.gov/owow/oceans/nccr/2005/, December 2004).

The Office of Ocean and Coastal Resource Management (OCRM), National Oceanic and Atmospheric Administration (NOAA), provides national leadership, strategic direction, and guidance to state and territory coastal programs and estuarine research reserves. It oversees six major programs. Each program has a national reach, but is designed to account for local resources and needs. The Office works with state and territory coastal resource managers to develop a scientifically based, comprehensive national system of marine protected areas (MPAs) and supports effective management and sound science to protect, sustain, and restore coral reef ecosystems. These activities are mandated by the Coastal Zone Management Act, the MPA Executive Order, and the Coral Reef Conservation Act (National Oceanic and Atmospheric Administration, http://coastalmanagement.noaa.gov/).

USGS National Coastal Program Plan -- "*A Plan for a Comprehensive National Coastal Program*" describes a comprehensive national coastal program that responds to critical regional needs while addressing national issues associated with coastal change, including nutrient enrichment, oxygen depletion, harmful algal blooms, chemical contamination, diseases in marine organisms, and fish kills; shoreline erosion, the increasing susceptibility of coastal communities to natural hazards and sea level rise, increasing demands on non-living resources (including groundwater, sand and gravel, and energy resources); and declines in living marine resources, habitat loss, loss of biodiversity, and invasions of non-indigenous species (U.S. Geological Survey, http://marine.usgs.gov/coastal-plan/index.html).

The Tampa Bay National Estuary Program (TBNEP), now simply called the Tampa Bay Estuary Program (TBEP), was established in 1991 as a partnership of Hillsborough, Manatee, and Pinellas Counties; the cities of Tampa, St. Petersburg, and Clearwater; the Southwest Florida Water Management District; the FDEP; the U.S. Environmental Protection Agency and the USGS. *Charting the Course*, A Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay, seeks to restore and protect water quality and bay habitats as the foundation for healthy and diverse populations of fish and wildlife. The CCMP details progress made in restoring and protecting Tampa Bay and advances strategies for continuing improvements in the future. *Charting the Course* was first released in 1996, and updated in 2006 (Tampa Bay Estuary Program, May 2006). This management plan defined a new direction for Tampa Bay resource management recognizing that environmental management must be an evolving/adaptive process that shifts away from emphasis on piecemeal oversight and toward a holistic view that assesses cumulative impacts of human action on entire natural systems (ecosystem management). Many collaborative activities (Table 3) have been

initiated as a result of this multi-agency task force. Many research and study reports for the TBEP are available at: http://gulfsci.usgs.gov/tampabay/reports/index.html .

One important component and outgrowth of the TBEP is the USGS's *Gulf of Mexico Integrated Science - Tampa Bay Study.* This study responds to the need to use an integrated science approach for studying the interrelations between geological, biological, chemical, and hydrological components of estuarine systems, and the impact of natural and anthropogenic change to all components of estuarine systems. The USGS Geological, Biological Resources, Water Resources, and National Mapping Disciplines are working together with other federal, state, and local partners to develop and implement an integrated, multidisciplinary science strategy for estuarine research. Results from this research will enable scientists and resource managers to better assess the fate of our estuaries in the future. The integrated science strategy developed through this project will be used as a model for USGS integrated science in other Gulf of Mexico estuaries.

The Southwest Florida Water Management District has developed the Comprehensive Watershed Management (CWM) program to conduct water resource assessment and planning on a watershed basis. The CWM was designed to allow for careful evaluation of the regional status of water resources, with emphasis on the Districts' Areas of Responsibility: Water Supply; Flood Protection; Water Quality; and Natural Systems. Multi-disciplinary and multi-agency teams were convened to develop and implement watershed management activities within each of the District's watersheds. Of particular import is the Tampa Bay/Anclote River Comprehensive Watershed Management Plan.

The "*American Oystercatcher Conservation Plan for the Atlantic and Gulf Coasts of the United States*" (Shulte and Brown, April 2006) focuses on *H. p. palliatus* in the United States, referred to as "American Oystercatcher" or simply as "oystercatchers." The present plan addresses only the populations on the East and Gulf Coasts and summarizes current knowledge of their life history, distribution, and population trends, describes current threats, lists research and management needs, and outlines recommended conservation actions. Conservation activities recommended to address these threats include: identification and protection of existing habitat; creation of new habitat through carefully designed use of dredge-spoil materials; management of existing protected areas to reduce predation and disturbance; and control of predator populations, especially in the nesting season.

"*Florida's Endangered and Threatened Species Management and Conservation Plan*" (Florida Fish and Wildlife Conservation Commission, 2004), as required under Section 5 of the Florida Endangered and Threatened Species Act of 1977 [s.372.072, Florida Statutes] is a plan for management and conservation of endangered and threatened species.

Future of the Region: A Strategic Regional Policy Plan for the Tampa Bay Region (FRSRPP) (Tampa Bay Regional Planning Council, September 2005) was prepared pursuant to Chapter 186, Florida Statutes, and Chapter 27E-5, Florida Administrative Code. The FRSRPP is a long range guide for physical, economic, and social development of the region which identifies regional goals and policies. The purpose of the plan is the identification of objectives and/or issues of most importance to the Tampa Bay Region and which have the greatest impact on the formulation of a regional vision. The following goals serve as the foundation for the SRPP: Affordable Housing; Economic Development; Emergency Preparedness; Natural Resources; Regional Transportation.

Atlantic loggerhead sea turtle recovery plan – Egmont Key serves as a loggerhead sea turtle nesting index beach necessary to determine population status and trends along the Atlantic and Gulf Coasts of the United States to determine progress towards the recovery (Kleen and Hunter, USFWS, June 2006).

North American Waterbird Conservation Plan (NAWCP) – The draft Southeastern U.S. Waterbird Conservation Plan stresses protection of nesting and foraging habitats for both colonial and non-colonial waterbird. Egmont Key and Passage Key are important for supporting large colonies of beach-nesting species (brown pelicans; sandwich, royal, and least terns; black skimmers; and laughing gulls). Pinellas Key provides important mangrove habitat for most long-legged wading species, especially for reddish egrets. Tampa Bay represents the northern most "large" nesting population of reddish egrets on the Gulf Coast of Florida (Kleen and Hunter, USFWS, June 2006).

Contributions to Partner in Flight (PIF) – PIF formed Bird Conservation Plans by Bird Conservation Regions that set conservation priorities and habitat and population objectives. Habitats found on primarily Egmont Key and Pinellas include: Upland forest and scrub, primarily important for transient Nearctic-Neotropical migratory landbirds crossing the Gulf of Mexico, and mangrove woodlands, primarily Pinellas Refuge: northernmost stable populations for Mangrove Cuckoo, Black-whiskered Vireo, and Florida Prairie Warbler along Gulf Coast of Florida (Kleen and Hunter, USFWS, June 2006).

Contributions to the U.S. Shorebird Conservation Plan (USSCP) – The USSCP is a partnership effort being undertaken throughout the country to ensure that shorebird populations are restored and protected. Primary objectives of this plan are: Development of scientifically-sound monitoring system to provide practical information to researches and land managers; Identify principles upon which management plans can integrate shorebird habitat conservation with multiple species strategies; and Design a strategy for increasing public awareness and information concerning wetlands and shorebirds.

Tampa Bay Refuge's are included in the Southeastern Coastal Plain-Caribbean Regional Shorebird Conservation Plan. Priorities in this regional plan focus on providing adequate nesting, foraging, and roosting habitat for especially beach nesting and inlet foraging species. Beach and sandflat habitats on Egmont Key and Passage Key provide important nesting habitat for American oystercatcher and foraging and roosting habitat for many species of shorebirds (including occasional non-breeding snowy plover and Wilson's plover, also winter habitat for occasional piping plover) (Kleen and Hunter, USFWS, June 2006).

Contributions to the *North American Bird Conservation Initiative* (NABCI) - A broad coalition of governmental, non-governmental, and academic organizations interested in coordinating efforts to conserve bird populations and the landscapes upon which they depend. NABCI evolved in 1998 from conservationists recognizing the value of coordinating and integrating planning, implementation, and evaluation efforts of NAWCP, PIF, and USSCP (Kleen and Hunter, USFWS, June 2006).

The Tampa Bay Estuary Atlas, maintained by the University of South Florida, is designed to provide citizens, scientists, professionals, and planners with comprehensive and current water quality, hydrologic, and ecological data, as well as information about recreational opportunities and a library of scientific and educational materials on water resource issues. The Atlas is a "one stop information shop" for concerned citizens and scientists alike. The Atlas functions as a warehouse for a variety of water resources information, including documents and educational links. The Atlas is a tool to help in maintaining and improving Tampa Bay's vital water resources. There exists enormous interest and wide-public support for conservation and protection of Tampa Bay's natural resources as evidenced by the many local initiatives and programs. Just a few of the many projects and restoration efforts in the Tampa Bay region are:

- Agency on Bay Management, Tampa Bay Regional Planning Council
- Florida Forever Program , Florida Department of Environmental Protection
- Florida Natural Areas Inventory, Florida State University conducts a variety of conservation planning and analysis projects.

- Florida's Springs: Strategies for Protection and Restoration, An educational document provided by the Florida Springs Task Force
- Gulf of Mexico Integrated Science -Tampa Bay Study Overview , and Five Year Science Plan for the Tampa Bay Study, USGS
- Inshore Marine Monitoring and Assessment Program, An EPA-funded initiative to assess the coastal marine water of Florida.
- Ocean & Coastal Resource Management, NOAA
- Restore America's Estuaries, A national non-profit organization dedicated to preserving the nation's network of estuaries.
- Southwest Florida Conservation Corridor: Tampa Bay Watershed Section, The Agency on Bay Management, the Natural Resources Committee of the Tampa Bay Regional Planning Council.
- Tampa Bay Oil Spill Restoration Plan and Environmental Assessment, Florida Department of Environmental Protection.
- Tampa Bay Surface Water Improvement and Management (SWIM) Plan, Southwest Florida Water Management District

Table 3. Monitoring, restoration, and research programs in Tampa Bay

Water and Air Quality

Program	Agency	Budget
Surface Water Monitoring	EPCHC	$150,000.00
Surface Water Monitoring	Pinellas County	$695,000.00
Beach Water Quality	Pinellas County	$10,000.00
Bioassay Studies	Pinellas County	$18,000.00
Surface Water, Benthic, and Air Quality Monitoring	Manatee County	$289,500.00
Surface Water Monitoring	City of Tampa	$400,000.00
Water Quality Monitoring	City of Clearwater	$208,800.00
Surface Water Monitoring	Tampa Bay Water	unavailable
Water Quality, Benthic Studies, Air Quality Monitoring	EPCHC	$979,000.00
Atmospheric Deposition	University of South Florida/EPA funded	unavailable
Benthic Nutrient Flux	FMRI	unavailable
Microbial Monitoring – Health Beaches	USF	unavailable
Non-point pollution control	USCG	$264,000.00

Habitats

Program	Agency	Budget
Satellite monitoring shoreline vegetative habitat	FMRI, NOAA	unavailable
Watershed Characterization Studies	EPCHC, Pinellas County	unavailable
Sediment chemistry, grain size, benthos	Manatee and Pinellas Counties	unavailable
Seagrass aerial photography mapping	SWFWMD, TBRPC	$150,000.00
Seagrass transect monitoring	City of Tampa Bay Study Group, SWFWMD-SWIM Program	$350,000.00
Seagrass Restoration Techniques	FMRI	$500,000.00
Seagrass Restoration Techniques	USF	$40,000.00+
Labyrinthula Monitoring	FMRI	unavailable
Artificial Reef Program	EPCHC	$90,000.00+
Benthic Quality (depth, temperature, salinity, dissolved oxygen, %silt/clay, contaminants)	HCEPC, SWFWMD	see above
Dredged Material Management – Habitat Restoration	USACE	unavailable

Living Resources

Program	Agency	Budget
Marine mammals, fisheries, sea turtle nesting	FMRI	unavailable
Mussel Watch and Oyster projects	NOAA	unavailable
Bird populations coastal colonies census	National Audubon Society	unavailable
Bird Sanctuary Program	National Audubon Society	unavailable
Oyster reef creation and monitoring	Tampa Bay Watch	unavailable
Scallop abundance	FMRI, Mote Marine, UNC Wilmington	unavailable
Reef fish, sessile invertebrates (Artifical Reef Program)	EPCHC	see above
Benthic taxa (abundance, diversity, evenness, dominant taxa)	EPCHC, SWFWMD	see above
Florida Marine Fisheries Monitoring (fisheries Dependent and independent)	FMRI	$600,000.00+
Manatee carcass recovery, necroscopy 1974-1985	USGS/USFWS Sirenia Project	unavailable
Manatee monitoring	FMRI	
Marine Mammal Pathology Laboratory	Eckerd College/USFWS	unavailable
Dolphin Biology Research Institute (photo i.d., community structure) 1988-1993	Chicago Zoological Society/NMFS	unavailable
Dolphin research and monitoring	Mote Marine Laboratory	unavailable
Biology and habitat use of bottlenose dolphins	Eckerd College Dolphin Project	unavailable
Dolphin rescue, rehabilitation, mortality studies	Clearwater Marine Aquarium, Marine Mammal Pathology Lab, Mote Marine Lab, Tampa Bay Marine Animal Stranding Team	unavailable
Hydrobiological Monitoring (hydrology, water quality, benthic invertebrates, zooplankton/ fish larvae, adult and juvenile fish, water dependent birds, habitat/vegetation indices)	Tampa Bay Water, EPCHC, SWFWMD, FMRI	$950,000.00

Habitat Restoration Projects Since 1995 – Non-inclusive

Program	Agency	Budget
Lake Maggiore Restoration	SWFWMD	$5,000,000.00*
Cockroach Bay Aquatic Preserve Restoration	FDEP, EPCHC, HCC	$90,000.00+
Cypress Point Restoration	FDEP, ELAPP, SWFWMD-SWIM, City of Tampa et al.	$45,000.00
South Parcel Restoration	SWIM, FDEP, EPCHC, Cargill	$800,000.00*
General Habitat Restoration (numerous locations)	SWFWMD-SWIM	$1,473,600.00*
Wetland Preservation and Restoration	EPCHC	$840,000.00
Terra Ceia Aquatic Preserve and Buffer	FDEP, SWFWMD	$5,000,000.00*

**denotes total budget rather than annual budget.*

Sources:
Pribble et al. 1999, Hazen and Sawyer 1996, H. Greening pers. comm. Appendix 1 -- Non-inclusive list of monitoring, restoration, and research programs in Tampa Bay and estimated budgets.
http://gulfsci.er.usgs.gov/tampabay/reports/5yr_plan/index.html

Pribble R.J., Janicki A.J., Greening H. (eds.). 1999. Baywide Environmental Monitoring Report 1993-1998. Tampa Bay Estuary Program Technical Publication #07-99

Hazen and Sawyer (eds.). 1996. Funding Source Inventory for Comprehensive Conservation and Management Action Plans, Tampa Bay Estuary Program Technical Publication #14-95

ECOLOGICAL THREATS AND PROBLEMS

The following are considered to be critical needs and priority action recommendations for the three Tampa Bay Refuges (Kleen and Hunter, USFWS, June 2006):

(1) Control of predators, including raccoons, rats, and fish crows, is necessary to protect nesting birds. Colonies have been devastated by raccoon predation and predation by fish crows has increased in the recent past. Nesting colonies of birds on Pinellas NWR, particularly Tarpon, Indian, and Little Bird Keys, have been devastated by raccoons. More recently, depredation from fish crows is considered an increasingly serious problem. Rats have become a significant issue on Egmont Key NWR. Predator control on these islands is imperative.

(2) Beach (Egmont Key NWR) and mangrove (Pinellas NWR) habitat must be protected and restored, where appropriate, to provide habitat for threatened loggerhead turtles, beach-nesting birds, and mangrove-nesting birds. Loss of habitat caused by severe erosion along the west beach of Egmont Key NWR is affecting the loggerhead sea turtle populations. An assessment and decision regarding beach renourishment for Egmont Key NWR (and possibly Passage Key NWR) are needed. An assessment and decision regarding a buffer establishment around all three refuges are needed.

(3) Habitat restoration, including controlling exotic plants and planting native plants, is needed to maintain wildlife diversity. Control of exotics, including Brazilian pepper and Australian pine, needs to be continued.

Egmont Key NWR – Erosion is the foremost problem for Egmont Key and Passage Key NWRs. Alterations of the smooth, natural bottom topography near the mouth of Tampa Bay in the last century, including enlargement of natural channels and creation of new channels, spoil areas, turning basins, and causeways, have resulted in much scouring of Egmont Channel and Key (USFWS, "An Ecological Characterization of the Tampa Bay Watershed," 1990).

There is an immediate need to manage the dynamics of offshore sand transport to achieve sand accretion results and to begin to expand the key back to its original size. Egmont Key NWR has lost nearly half its acreage since 1877, and has lost nearly a third since 1969. In 1877, Egmont Key was 539 acres. In 1974, when the island was designated a national wildlife refuge, it was 392 acres. Presently the island is approximately 275 acres. Several historic structures are now covered by the encroaching sea, with others soon to follow (Florida Department of Environmental Protection, November 1996). The periodic dredging of nearby Egmont Channel is thought to have changed the transport of sand from the north thereby depriving the island of sediments that once maintained its larger size. Restoring Egmont Key NWR may require that the dredging practices in Egmont Channel be modified.

Two beach renourishment projects were operated by the USACE on the island. Presently, most of the southwest beach is gone and some upland area and historic structures are beginning to erode. Tampa Bay harbor navigation and maintenance includes removal of 250,000 cubic yards of material every 5 years just north of Egmont Key NWR in the Egmont Channel. The USACE has the option of using this dredged material either to renourish the west beach or dispose of it out at sea. The dredging of the channel may be accelerating erosion problems on the west shore more rapidly than anticipated, and as a result the upland areas of the island are eroding as well. This will likely have a major impact to visitation of Egmont Key NWR if beach goers no longer have a beach at which to recreate (USFWS, "Visitor Services Report," March 2004).

If it is decided to regularly renourish beaches on Egmont Key and Passage Key NWRs, the refuge staff would need to pay particular attention to type and quality of beach sand being used. Guidelines have been established with respect to sea turtle nesting beaches. In addition, very frequent renourishment may lead to depletion of invertebrates in the substrate that may not be able to recover from the last event and therefore impacting foraging shorebirds.

Eradication measures for two exotic plants (e.g., Brazilian pepper and Australian pine) are now successfully in progress on Egmont Key NWR. Both plants have become pervasive and have altered and replaced the natural hammock community habitats. The coastal berm supports the island's native box turtle populations. Eradication of predators, namely rats, should be addressed in a more comprehensive manner.

The bird sanctuary area at the southern end of Egmont Key NWR is closed to all public use, year-round, and a vessel exclusion zone has been established around the seagrass beds on the east side of the island to protect them from propeller damage. Egmont Key NWR is designated as a critical habitat for piping plovers; however, public beach use may be interfering with foraging and roosting of these birds.

Egmont Key NWR is located within the undisputed lightning capital of the North America. The coastal scrub that was the original habitat land cover on the island is very pyrogenic and undoubtedly burned frequently. Fires, both natural and human caused, were rampant on the island during settlement years. A large fire was recorded in September 1891, when a coal shed spontaneously combusted near the lighthouse. The Keeper and his family had to flee to the mainland until fire suppression support arrived 3 days later.

Since the abandonment of Fort Dade in 1923, wildfires from arson and lightning have swept the island on a few occasions. A large fire occurred on April 25, 1925, when federal agents started grass fires to smoke out smugglers and illegal immigrants. This fire destroyed eight homes, a coal storage facility, and the large ice house/ power plant. In 1975, a lightning-caused fire swept across most of the island and consumed the remaining combustible materials left from Fort Dade. The fire destroyed much of the lower shrub understory and killed several palm trees. In recent years, there have been several small wildfires. Three of them were on southern end of the refuge in the vicinity of the pilot compound and may have posed a serious threat to the facilities there. An arson fire in 1995 destroyed the tile roof and consumed all flammable materials from the Egmont Key Guard House, which was the last intact structure from that period.

Fire has played a key role in the island's history, and controlled fire can be used to manage the island's habitats to benefit wildlife and to protect island facilities. A system of regularly scheduled prescribed burns every 5 to 10 years will control natural succession to maintain sea oats. Also, upland habitats infested with exotic plant species will be prescribed burned as needed to control plant regeneration and remove dead biomass.

Pinellas NWR – The seven mangrove islands comprising the Pinellas NWR total about 394 acres. The Pinellas NWR islands are closed to the public due to their small size and critical importance to coastal bird species; however, illegal access by the public still occurs and causes birds to abandon their nests or flush from their nests allowing predators (raccoons, fish crows, etc.) to move in. Also, offshore fishing is allowed and as such, birds nesting near shore may be disturbed by boaters.

Raccoons may be the sole factor for breeding bird failures on Tarpon Key and other keys, although fish crows and rats have contributed by depredating tree-nesting birds on Tarpon and Indian Keys. Some mangrove habitat has been lost due to erosion from boat wakes, storm tides, tropical storms, and hurricanes. Renourishment with oyster shells and planting of Spartina are recommended on Tarpon and Little Bird Keys to prevent further erosion and allow mangrove seedlings to take hold. Fishing line and other trash entangle birds, manatees, fish, turtles, and other wildlife and is a serious problem at Pinellas NWR – killing hundreds of animals each year.

The two main short-term management issues identified effecting mangrove-nesting species are (1) depredation which within recent years (when predator control has slacked off) has led to near complete abandonment of Tarpon and Whale Keys (among other islands on the refuge) and (2) through law enforcement presence the need to ensure that human disturbance is not a factor where and when waterbirds are nesting on the refuge.

In addition to the above two major issues, three other long-term issues need to be considered: (1) island stabilization through renourishment, (2) removal of exotic vegetation, and (3) reduction of monofilament lines causing mortaility (Kleen and Hunter, USFWS, June 2006).

Passage Key NWR – Passage Key NWR is closed to the public and represents one of the last remaining nesting site for laughing gulls, black skimmers, and royal terns in Tampa Bay. Easily accessible by boat from the Tampa/St. Petersburg Metropolitan area, Passage Key NWR has been inundated with humans to the point where the island had to be closed to all visitors. Currently, you must observe the key from a distance of at least 300 feet.

Restoring Passage Key NWR would require analysis under the Wilderness Act to determine the "minimum tool necessary" to accomplish the task. Renourishment at Passage Key NWR should be considered. A decision needs to be made whether to take an active role in curbing erosion on Passage Key NWR or allow erosion to continue (not likely a natural process given potential connection to Tampa Bay dredging). If Passage Key NWR remains submerged for extended periods of time, it may no longer serve the purpose of a nesting island for migratory birds.

Common Concerns

Each year, an average 4 billion gallons of oil and other hazardous substances pass through Tampa Bay and Egmont Channel. These vessels, bound predominantly for one of the bay's three deepwater ports or its many industrial facilities, are joined by a variety of other cargo carriers as well as a rapidly expanding cruise ship fleet. The potential for a catastrophic spill of petroleum or other toxic substances necessitates improving the region's overall emergency response readiness to avoid another a major spill similar in nature to the 300,000 gallons of oil that were released following a dramatic three-way ship collision at the mouth of the bay in August 1993. The heavy recreational and commercial traffic in Tampa Bay and Egmont Channel has the potential to adversely impact the natural resources of Egmont Key, Passage Key, and Pinellas NWRs if a spill occurs. Emergency response and agency coordination plans are needed (Tampa Bay Estuary Program, http://www.tbep.org/baystate/spillprevention.html). Presently, the Service has coordinated with Hillsborough County and is a part of its oil spill response plan.

Illegal public access to all three refuges causes birds to abandon their nests or flush from their nests, allowing predators to move in. A law enforcement presence is needed to discourage unauthorized human disturbances to nesting areas.

Small numbers of West Indian manatees are observed in the seagrass beds along the east side of Egmont Key NWR and occasionally around Passage Key and Pinellas NWRs during the spring and summer. All habitats are outside refuge jurisdiction, but some foraging habitats (seagrass beds) are directly adjacent to the refuges. These foraging areas need to be protected from recreational/boating disturbances. A 30- to 300-foot submerged land buffer zone to protect bird nesting and seagrass foraging areas is needed, particularly around Egmont and Whale Keys.

Physical Resources

CLIMATE

(Source: Natural Resources Conservation Service, National Weather and Climate Center, Climate Reports, ftp://ftp.wcc.nrcs.usda.gov/support/climate/soil-nar/fl/pinellas.doc)

The Tampa Bay Refuges experience a subtropical climate, characterized by generally mild winters and hot, humid summers.

The average relative humidity in mid-afternoon is about 50 percent in April and May, and about 60-65 percent from July to September. Humidity is higher at night, and the average at dawn is about 90 percent in all months. The sun shines 60 percent of the time in summer and 63 percent in winter. The sunniest months are April and May, with 75 percent of possible sunshine. The prevailing wind is from the east in most months. Average wind speed is highest, between 9 and 10 miles per hour, from February to April.

Table 4 gives data on temperature and precipitation and degree data for growing days for the survey area as recorded at St. Petersburg in the period 1971 to 2000.

In winter, the average temperature is 63.4 degrees and the average daily minimum temperature is 55.6 degrees. The lowest temperature on record, which occurred at St. Petersburg on December 13, 1962, was 22 degrees. In summer, the average temperature is 83.1 degrees and the average daily maximum temperature is 90.1 degrees. The highest temperature, which occurred at St. Petersburg on July 5, 1995, was 100 degrees. Actual temperatures on the refuges are moderated due to the coastal influence, which results in lower daytime highs and higher nighttime lows.

The average annual total precipitation is about 49.58 inches. The heaviest 1-day rainfall during the period of record was 12.20 inches at St. Petersburg on October 27, 1986. Thunderstorms occur on about 86 days each year, and most occur from June through September. Florida can receive a major portion of its yearly rainfall from hurricanes and tropical storms, usually in the summer and early fall. Florida had its worst drought in history between 1998 and 2000.

Measurable snowfall has never been recorded since records have been kept at St. Petersburg, beginning in 1948.

CLIMATE CHANGE AND GLOBAL WARMING

According to NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2ºF to 1.4ºF since 1900. The ten warmest years in the 20th century have all occurred within the past 15 years, with the warmest two years being 1998 and 2005. Some climate models, based on emissions of greenhouse gases, primarily carbon dioxide, methane, and nitrous oxide, predict that average surface temperatures could increase from 2.5 ^{o}F to 10.4^{o}F by the end of this century (US Environmental Protection Agency, “Climate Change,” http://www.epa.gov/climatechange/).

Effects of climate change and global warming will be changes in weather/rainfall patterns, decreases in snow and ice cover, rising sea levels, and stressed ecosystems. For the southeastern U.S. and Gulf Coast this can mean increased loss of barrier islands and wetlands; increased risk of shoreline flooding due to sea level rise, storm surge, and extreme precipitation events; greater likelihood of warmer/dryer summers and wetter/reduced winter cold; and, alterations of ecosystems and habitats due to these changes in weather patterns – to name but a few possibilities.

Global warming, resulting in melting of glaciers and ice sheets, will cause sea levels to rise. NASA estimates that yearly, 50 billion tons of ice is melting from the Greenland ice sheet. NASA aerial surveys show that more than 11 cubic miles of ice is disappearing from the ice sheet annually (Krabill, July 2000). Considering that land less than 10 meters above sea level contains 2 percent of the world's land surface but 10 percent of its population, in the U.S.major impacts will be felt by large numbers of people living on the low-lying coastlands, particularly the Gulf and East Coast states.

Globally, sea level has risen 4–10 inches during the past century. The effects of rising sea levels are even more dramatic in Florida. Because of Florida's natural subsidence, south Florida's sea level has risen about 12 inches since 1846. It is still rising today, at a rate that is equivalent to 8-16 inches per century. That rate is 6-10 times faster than the average rate of sea level rise along the south Florida coast during the past 3,000 years. If the current trend continues without any additional global warming, the sea along the south Florida coast would climb another 3 inches by 2025 and 10 inches by 2100. Global warming is expected to accelerate this sea level rise. During the next 25 years, the sea is likely to rise 5 inches rather than 3. By 2100, the best available science indicates that south Florida seas will be approximately 20 inches higher than they were in 1990 (U.S. Environmental Protection Agency, "Climate Change," http://www.epa.gov/climatechange/).

In addition to the rising seas, changes in temperature and precipitation will affect plants and wildlife. A warmer climate could allow heat-loving pest species, such as the invasive Australian pine tree, to expand their range. However, warmer winters lead to fewer frosts, consequently, tropical plants and trees that are vulnerable to cold temperatures may benefit. Rapid sea level rise could harm low-lying mangrove communities. Florida's mangrove forests also provide food, nesting, and nursery areas for many animals—including more than 220 fish species, 24 reptile and amphibian species, 18 mammal species, and 181 bird species. In general, the response of mangroves to sea level rise depends on the type of mangroves, their environmental setting, the amount of freshwater available to maintain root growth, and the sediment supply. Mangrove communities in south Florida already are affected by a number of stresses, including invasive Brazilian pepper plants, hurricanes, agricultural runoff, and human development. Climate change and a rise in sea level pose new stresses to an ecosystem already in danger (U.S. Environmental Protection Agency, "Climate Change," http://www.epa.gov/climatechange/).

A recent study of the effects of climate change on eastern U.S. bird species concluded that as many as 78 bird species could decrease by at least 25 percent; while as many as 33 species could increase in abundance by at least 25 percent due to climate and habitat changes (Mathews et al. 2004).

Table 4. Temperature and Precipitation

(Recorded in the period 1971-2000 at ST PETERSBURG, FL7886)

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Average	Average number of growing degree days*	Average	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	Units	In		In
January-----	70.1	54.5	62.3	389	2.76	4	0.0
February----	71.6	55.8	63.7	390	2.87	4	0.0
March-------	76.1	60.5	68.3	568	3.29	4	0.0
April-------	80.7	65.1	72.9	686	1.92	2	0.0
May---------	86.2	71.1	78.6	888	2.80	3	0.0
June--------	89.5	75.3	82.4	972	6.09	7	0.0
July--------	90.6	76.6	83.6	1040	6.72	10	0.0
August------	90.2	76.6	83.4	1035	8.26	11	0.0
September---	88.6	75.5	82.1	962	7.59	9	0.0
October-----	83.5	69.9	76.7	828	2.64	3	0.0
November----	77.2	63.0	70.1	604	2.04	3	0.0
December----	71.8	56.6	64.2	447	2.60	3	0.0
Yearly:							
Average---	81.3	66.7	74.0	---	---	---	---
Extreme---	100	24	---	---	---	---	---
Total-----	---	---	---	8810	49.58	63	0.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees. F)

GEOLOGY AND TOPOGRAPHY

The Tampa Bay area is a product of the fluctuations in sea level caused by Pleistocene and earlier glaciation. During times of lowered sea level, the river valley of Tampa Bay was cut into underlying limestones by the paleo-Hillsborough, Manatee, and Alafia Rivers. As sea level rose during glacial retreat (beginning 6,000 to 8,000 years ago and ending between 3,000 and 5,000 years ago), the area was flooded and became Tampa Bay (Doyle 1985). Prior to this flooding, the sea level was 100 meters lower than present and land extended 160 kilometers farther west.

Rock formations in the region are Tertiary marine carbonates that are thousands of feet thick deposited over millions of years of geologic time. Geologic formations comprising the upper 1,000-1,500 feet of this carbonate platform are most important in terms of groundwater development and ecological watershed management. Underlying Tampa Bay are limestones and dolomites of Oligocene age and older. The Miocene St. Marks/Tampa formation, which consists of dolomitic limestones interbedded with terrigenous clastics, directly underlies the unconsolidated surface sediments in the northern portion of the Bay. The Hawthorn Formation is absent in the northern portions of Tampa Bay but is present at the surface throughout the lower two-thirds of the bay. The Hawthorn Formation also outcrops along portions of eastern Tampa Bay (Doyle 1985; Southwest Florida Water Management District 2002). In the vicinity of Egmont Key NWR, the Hawthorne Group sediments are approximately 325-feet thick and are found about 50-60 feet below MSL. St. Mark's/Tampa Formation (a remnant layer of the Hawthorn Formation contiguous throughout central Florida), is composed of sandy, chalky limestone. In some locations, the upper portion of the deposit is composed of calcareous sands and clays graduating downward into unconsolidated or loosely cemented lime mud. The base of this formation is typically marked by beds of clayey sand (Tampa City Council – Hillsborough County City-County Planning Commission, January 1998).

The stratigraphy of this section, in descending order, includes: the Miocene age Arcadia Formation (Tampa Member) of the Hawthorn Group; the Oligocene Suwannee Limestone; the upper Eocene Ocala Limestone; and, limestones and dolostones of the middle Eocene Avon Park Formation. Composition of these formations range from a sandy, phosphatic, dolomitic limestone of the Tampa Member, to relatively pure calcium carbonates limestones of the Suwannee and Ocala Limestones. The Avon Park Formation is composed of both limestone and thick units of recrystallized dolomite, forming highly permeable beds of dolostone (Southwest Florida Water Management District 2002).

In the deeper water portions of Tampa Bay, the Pleistocene river valley has down cut as much as 90 feet (30 meters) into the underlying limestones. This archaic bed has filled in with unconsolidated estuarine and fluvial sediments. Recently deposited sediments are quartzitic with carbonate mixtures. Bay sediments are derived from reworked terrace deposits, transport of suspended loads from rivers, in situ production and weathering of shell, and inshore movement and deposition of sediment from the Gulf of Mexico. Immense deposits of marine mollusk shells are found in many areas of Tampa Bay and are mined for use as fill. Very recent fine-grained silts and mud deposits may also be present in part of the bay, especially near river mouths and tidal creeks. There are up to 20 meters of unconsolidated sediments in parts of Tampa Bay (Southwest Florida Water Management District 2002).

The alternating high and low sea levels during the Pleistocene and Holocene shaped the land surface of the Tampa Bay region. The region is low in elevation, with elevations ranging from a depth of 94 feet below sea level at the mouth of the Bay up to a height of 105 feet above sea level in Clearwater. The Tampa Bay watershed area consists of mostly flat plains with little relief. It is a heterogeneous region containing barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic Coasts. Tampa Bay is the most prominent geographic feature in the region. The dominant landforms are

marine terrace deposits, representing former sea level positions over recent geologic time. These marine terraces have been modified over time by wind, erosion, and sinkholes resulting in the present day topography and land cover.

The Gulf Coastal Lowlands, the dominant landform in the western area of the basin, adjoin Tampa Bay. These relict marine terraces (ancient shorelines) have low relief over broad plains bordered by slopes. Major municipalities such as the cities of Tampa and St. Petersburg are located in the Lowlands.

To the east, Florida's Central Highlands is an area of discontinuous highlands, containing numerous lakes, characterized by many ridges and depressions without any well-defined system of surface streams or outlets, and with elevations up to 300' MSL (Florida Department of Environmental Protection, "Basin Status Report," November 2001).

Karst features exist throughout the Tampa Bay area, the sinkholes that develop in this porous limestone terrain typically result in shallow, bowl-shaped depressions and a generally rolling topography (Florida Department of Environmental Protection, "Basin Status Report," November 2001).

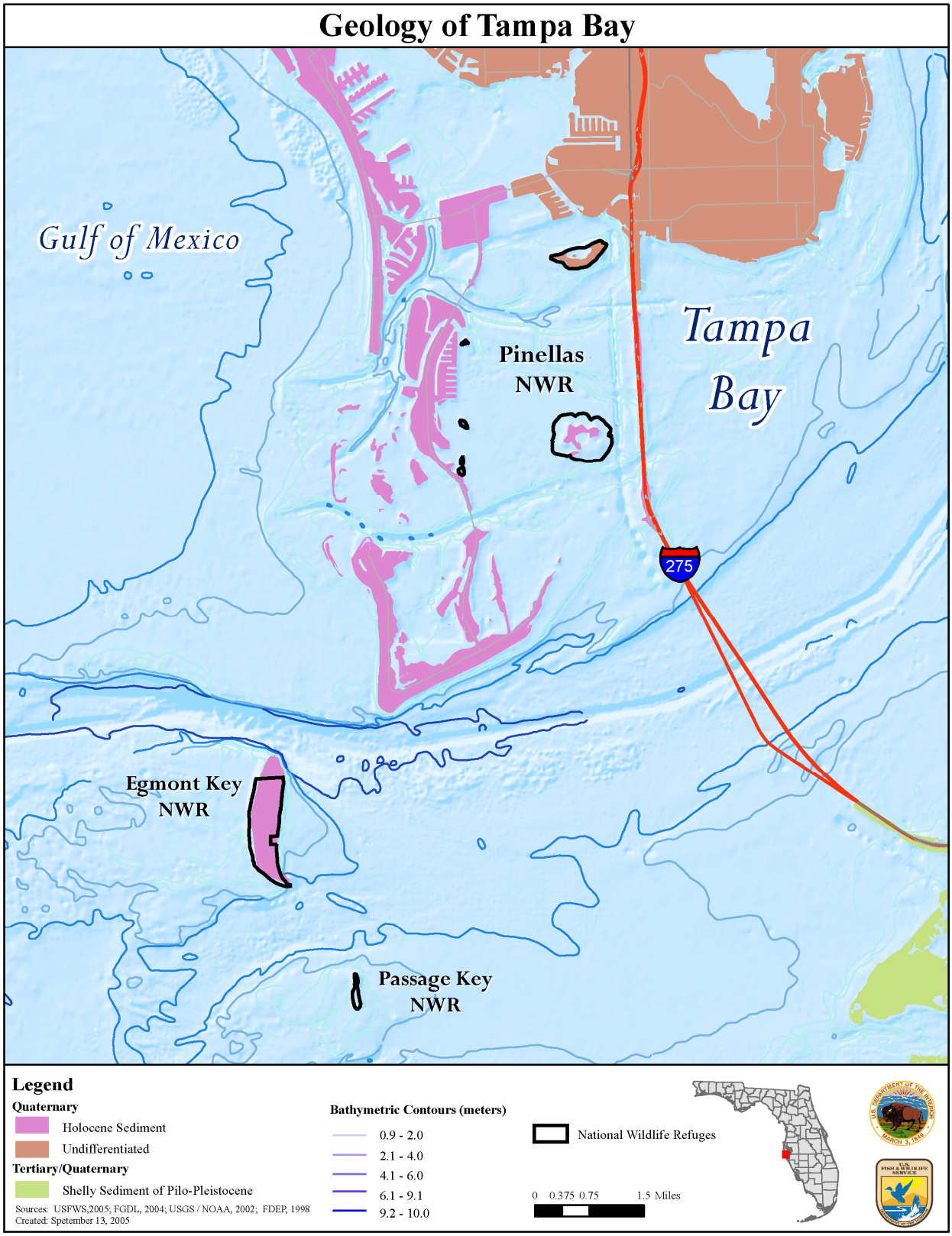
Egmont Key NWR is nearly 2 miles long of relatively uniform width, and is approximately 2,250 feet across at its widest point. It is not considered a barrier island. The key has little topographic relief, and its average elevation is about 5 feet above MSL. Complete inundation of the island has occurred in the past during hurricanes and tropical storms. Topographic features are continuously changing, influenced by wind, surf, tides, coastal currents, and storms. These forces constantly alter the distribution and elevation of marine-derived sediments which comprise the island. In 1875, Egmont Key was approximately 50 percent larger than it is today (Florida Division of Recreation and Parks, February 1998).

A general depiction of the geology in the Tampa Bay area is presented in Figure 13.

SOILS

In central and south Florida, the soils or uppermost sediments are geologically young and are surficial; that is, the soil profiles reflect changes in sediment types rather than development of chemically or mechanically produced horizons. For example, one is likely to observe sands layered over marsh-produced calcareous marl, particularly in coastal areas. Each soil is an indicator of preexisting conditions (i.e., parent materials). Soils are organized into a taxonomic classification system by the U.S. Department of Agriculture, Natural Resources Conservation Service, in which each soil is categorized by order, suborder, great group, subgroup, family, and soil series. Nationwide, there are 10 orders of soil, four of which (*Entisols, Spodosols, Ultisols,* and *Histosols*) dominate Florida's landscape. *Spodosols* are the dominant soil order in the Tampa Bay area; of which of Aquods (a suborder of *Spodosols*) has the largest total acreage. Aquods are acidic, wet, poorly drained, sandy soils overlying an organic stained subsoil layer, of which the Myakka series is the most common and well known. Myakka fine sand is the official state soil of Florida, is the most extensive soil in the state, and does not occur in any other state. Pine flatwoods are well suited for this type of soil, and it is also found in flats, depressional, tidal, and floodplain landforms ((USFWS, "An Ecological Characterization of the Tampa Bay Watershed," 1990; USDA Natural Resources Conservation Service, http://soils.usda.gov/survey/online_surveys/florida/; http://www.mo15.nrcs.usda.gov/news/state_soils/fl_ss.html).

Figure 13. Geology of Tampa Bay



Soils of the Tampa Bay area are derived from marine deposits known as the Suwannee, Tampa, Hawthorn and Bone Valley formation, laid down during the late Oligocene and lower and middle Miocene periods. These geologic formations were further modified by the marine environment and fluctuating sea levels during Pleistocene and recent times (Southwest Florida Water Management District SWIM Section, February 1999).

Soils associated with the barrier islands of the Tampa Bay watershed are dominated by the sandy *Entisols* soil order, of which Quartzpsamments (a great group of *Entisols*) is the most abundant. Quartzpsamments are extremely sandy soils with little or no soil profile, of which the Canaveral Fine series is the most common. Canaveral Fine is characterized as a moist mineral soil, with sand and shell fragments and a thin accumulation of organic material at or near the surface. These tan-colored, well-oxidized soils are composed of mixed carbonate shell material and fine to medium-grained quartz sand (USFWS, "An Ecological Characterization of the Tampa Bay Watershed," 1990).

Surficial sediments of Egmont Key (and presumably Passage Key) are comprised of post-Pleistocene undifferentiated sand and shells. The entire Egmont Key (and presumably Passage Key) is classified under a single soil type, St. Augustine Fine Sand. St. Augustine fine sand is nearly level and somewhat poorly drained and is found on flats and ridges bordering Tampa Bay (USDA Soil Conservation Service et.al. 1989, "Soil Survey of Hillborough County, Florida). Typically, this soil has a surface of dark gray sand, underlain to a depth of about 12 inches with light brownish gray fine sand. The middle part, to a depth of about 30 inches, is light gray, mottled fine sand containing ball of sandy clay. The lower part, to a depth of about 80 inches, is gray fine sand. Beach and dune sand and shell normally prevail on the western side of the keys, where greater tidal, wind, and current forces are exerted.

HYDROLOGY

Groundwater – Groundwater is the largest and most readily available source of potable water in Florida. Three different aquifer systems can be found in the parts of Florida where springs are common. They are the shallow Surficial Aquifer, the Intermediate Aquifer, and the limestone Floridan Aquifer. In some areas, all three aquifers may exist in sequence, separated by impermeable layers. In other areas, only the Floridan Aquifer may be present, and it may be exposed to the surface waters by sinkholes and other karst features. Karst topography in the Tampa Bay region interconnects groundwater and surface water. Spring flow and seepage constitute the base flow of many streams; freshwater wetlands retard and store floodwaters and enhance infiltration to groundwater; and stream discharges to estuaries are critical for maintenance of salinity regimes. These interrelationships are the basis of the state's and this region's ecological systems (Southwest Florida Water Management District, July 2005). This characteristic also leaves the underlying Floridan aquifer vulnerable to pollution infiltration.

In general, the Floridian aquifer acts as a single, interconnected hydrologic unit, with large quantities of water found within openings along faults, joints, bedding planes, and other fractures. The Floridan aquifer system is the principal source of groundwater production in the Tampa Bay region, and is capable of yielding greater than 5,000 gallons per minute (GPM) from fully penetrating wells. Water produced from the Floridan is primarily used for industrial and domestic purposes (Tampa City Council – Hillsborough County City-County Planning Commission, January 1998).

Egmont Key is underlain by the Floridan Aquifer. There are no public wells on Egmont Key and available water capacity is low. The key may lie in a zone where no potable water is available from the Floridan Aquifer. U.S. Geological Survey potentiometric surface data suggests Egmont Key is in an area of zero recharge to the Floridan aquifer system. In the transition zone which separates fresh and saltwater, south and southwest of Tampa Bay, relatively high concentrations of sulfate and chloride make the groundwater non-potable. On Egmont Key, a reverse osmosis treatment system is located and operated by the Tampa Bay Pilots. This system converts readily available saltwater into non-potable water used primarily for cleaning and bathing. All drinking water must be brought in from the mainland. Treated water from the pilot's water system must be trailered up to the park manager's residence on a weekly basis. In most years, the water table at Egmont Key ranges from 3 to 4 feet below land surface (Fernandez, 1996). Seasonally, the high water table is at a depth of 20-30 inches for 2 to 6 months and recedes to a depth of about 50 inches during prolonged dry periods. Prior to the Colonial era, freshwater on Egmont Key probably consisted only of rainwater pools and puddles. The presence of at least two species of frogs suggests temporary pond formation occurred often enough for reproductive success. There are now several cisterns and old foundations which also trap and hold rain water (Florida Division of Recreation and Parks, February 1998).

Surface Water -- The west-central coast of Florida bordering the Gulf of Mexico is a low-energy, microtidal (less than 0.5 m tidal amplitude) region that is constantly changing as a result of active coastal processes that are directly linked to meteorological events. Wind-driven waves and tidal currents are the most important geological agents controlling sediment transport and evolution of the Gulf and bay shores. Astronomical tides in the Gulf of Mexico are mixed and typically have a range of less than 1 m. Water levels vary only about 0.5 m between high and low tides during a normal tidal cycle. Non-storm waves in the eastern Gulf of Mexico are normally less than 0.3 m high, and wave energy decreases to the north where the Gulf shore consists of marsh (USGS Coastal and Marine Geology Program, "Coastal Classification Atlas, West-Central Florida Coastal Classification Maps – Anclote Key to Venice Inlet," http://pubs.usgs.gov/of/2003/of03-227/process.html).

More specifically, tides in Tampa Bay are a mixture of lunar (semidiurnal) and solar (diurnal) gravitational effects. Two unequal high and low tides occur daily, with an average range of about 2.3 feet. Tides produce currents of about 6 feet per second during ebb tide and about 4 feet per second during flood tide in Egmont Channel at the mouth of the bay. During hurricanes and tropical storms, the associated storm surge from high winds and low barometric pressure also affects water movement in the bay. The highest recorded storm tide was 15 feet in 1848 (Tampa Bay Estuary Program, "Baywide Environmental Monitoring Report, 2002-2005," December 2006).

Groundwater discharges to the bay are seasonal and greatest during and after the wet season. The roles of groundwater discharge in bay ecology are poorly understood, but can be postulated as: (a) reducing peak runoff rates and constituent loads; (b) prolonging estuarine conditions along shorelines and in marshes or mangrove forests; and (c) creating favorable refugia and nursery areas for marine life in tidal creeks. Drainage of uplands around the bay has concentrated the different flows of surficial groundwater discharge, routed it to major stormwater outlets, and altered the hydrology and constituent loads of manmade tributaries so that many of the benefits of diffuse flows have probably been lost (Southwest Florida Water Management District, February 1999).

Surface water flows are not only a product of runoff, but also include a groundwater baseflow component. In fact, many surface water systems in west-central Florida are closely interconnected with the underlying ground-water system through springs and sinkholes. In accordance with hydrologic conditions, these natural interconnections may augment flow, reduce flow, or perform both functions intermittently. Because this region manifests annual wet and dry seasons with significant variations in precipitation frequency and intensity, the contribution of surface runoff and groundwater

baseflow to streams varies. This cyclic pattern of changing baseflow conditions results in variable surface water quantity and quality. Rain and thus stream flows are generally lowest during April and May. Unfortunately, high municipal water demands historically occur during this same seasonal time period, primarily due to corresponding increased outdoor irrigation. The low monthly minimum flows during peak consumptive periods have required the development of a large storage reservoir on the Hillsborough River in order to ensure an adequate supply (Tampa City Council – Hillsborough County City-County Planning Commission, January 1998).

Tampa's surface water system includes three major drainage basins, all of which ultimately discharge into either Old Tampa Bay or Hillsborough Bay, sub-sections of Tampa Bay. These basins are the Hillsborough River basin, the Palm River/Tampa Bypass Canal basin, and the upper Tampa Bay/Northwest Hillsborough basin. These drainage systems transport an average of more than 400 million gallons per day of freshwater from uplands in Hillsborough County and adjacent areas to the Tampa Bay estuary (Tampa City Council – Hillsborough County City-County Planning Commission, January 1998).

AIR QUALITY

The Clean Air Act (CAA) of 1970 (as amended in 1990 and 1997), required the U.S. Environmental Protection Agency (EPA) to implement air quality standards to protect public health and welfare. National Ambient Air Quality Standards (NAAQS) were set for six pollutants commonly found throughout the United States: lead, ozone, nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$).

The Florida Division of Air Resource Management operates National Ambient Monitoring Stations (NAMS) and State and Local Ambient Monitoring Stations (SLAMS) to measure ambient concentrations of these pollutants. Ambient air data are collected by over 200 monitors in 34 counties throughout the state (Florida Department of Environmental Protection, Division of Air Resource Management, "Florida Air Monitoring Report, 2004," http://www.dep.state.fl.us/Air/publications/techrpt/amr.htm). Areas that meet the NAAQS standards are designated "attainment areas", while areas not meeting the standards are termed "non-attainment" areas. While no pollutant monitoring data are available for the three Tampa Bay Refuges, per se, air quality is monitored on a regular basis by over 60 monitors in the 4-county region (Hillsborough, Manatee, Pasco, and Pinellas). The 2005 monitoring results indicate that all of the Tampa Bay area qualifies as an attainment area for all monitored pollutants, and that improvement is being noted, see Tables 5 and 6. "Maintenance areas" are areas previously classified as non-attainment areas, which have successfully reduced air pollutant concentrations to below NAAQS standards. As a result of improved air quality, in 1996, Hillsborough and Pinellas Counties were designated as maintenance areas for ozone; and, Hillsborough County a maintenance area for lead (Florida Department of Environmental Protection, Division of Air Resource Management, "Florida Air Monitoring Report, 2004," http://www.dep.state.fl.us/Air/publications/techrpt/amr.htm).

The Air Quality Index (AQI) is a summary index for reporting daily air quality. It tells how clean or polluted the air is, and what associated health effects might be concerns. The AQI focuses on health effects that may be experienced within a few hours or days after breathing polluted air. EPA calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. (Note: Lead is also considered a major air pollutant under the Clean Air Act. However, because all areas of the United States are currently attaining the NAAQS for lead, the AQI does not specifically address lead). For each of these pollutants, EPA has established national air quality standards to protect public health (U.S. Environmental Protection Agency,

"AirNow," http://www.airnow.gov/). Compared to other metropolitan areas in Florida, the Tampa Bay region has had the least number of good days for air quality. But overall, the average air quality has been improving (Tampa Bay Regional Planning Council, September 2005).

WATER QUALITY

Salinity in lower Tampa Bay, in Egmont Channel, generally ranges over 25-38 ppt. Surface salinities are normally 1-2 ppt (parts per thousand) less than those near the bottom. Minimum salinities occur in September of each year, with maximum salinities in June. Like salinity patterns, temperature patterns in Tampa Bay show little variation with water depth. The annual average water temperature differs by less than 1º C (1.8º F) from the surface to the bottom. Between June and August, maximum water temperatures are 28º to 30º C (82º to 86º F), with minimum temperatures of 15º to 18º C (59º to 64º F) from December through February. Seasonal temperature patterns are similar throughout the bay (Tampa Bay Estuary Program, December 2006).

Based on information collected in 2000, EPA's National Estuary Program Coastal Condition Report rated the overall water quality of Tampa Bay as fair. Using information collected by the Tampa Bay's Estuary Program, the rating used five component indicators: nitrogen, phosphorous, chlorophyll-a, water clarity, and dissolved oxygen conditions in Tampa Bay. All indicators rated good or fair, with the exception of water clarity, which rated poor. Expectations for water clarity were higher because of efforts to re-establish seagrasses in Tampa Bay (Tampa Bay Estuary Program, June 2007).

Although nitrogen is an essential plant nutrient, excess amounts of nitrogen can cause algae blooms and reduced oxygen levels in the bay, resulting in turbid water, fish kills and loss of seagrass when the water becomes so cloudy that sunlight cannot reach grass blades. Stormwater accounts for about 63 percent of total nitrogen loadings to Tampa Bay and about 21 percent comes from atmospheric deposition (air pollution) directly to the bay's surface, either with rainfall or dry deposition. Nitrogen load reductions to Tampa Bay since the late 1970s have resulted in improvements in both water clarity and quality. These improvements are believed to have led to an increase of seagrass acreage that began in the early 1980s, averaging about 250 acres per year, over the past two decades (Tampa Bay Estuary Program, "Baywide Environmental Monitoring Report, 2002-2005," December 2006; Tampa Bay Estuary Program, http://www.tbep.org/baystate/waterquality.html).

Table 5. Air Quality Statistics City and County

Air Quality Statistics by City, 2005[a,b]

Metropolitan Statistical Area	2000 Population	CO 8-hr (ppm)	Pb Qmax (µg/m^3)	NO_2 AM (ppm)	O_3 1-hr (ppm)	O_3 8-hr (ppm)	PM_{10} Wtd AM (µg/m^3)	PM_{10} 24-hr (µg/m^3)	$PM_{2.5}$ Wtd AM (µg/m^3)	$PM_{2.5}$ 24-hr (µg/m^3)	SO_2 AM (ppm)	SO_2 24-hr (ppm)
Tampa--St. Petersburg--Clearwater, FL MSA[c]	2395997	3	1.12 [d]	0.008	0.110	0.083	29	78	11.1	26	0.004	0.033
National Ambient Air Quality Standards --		**9**	**1.50**	**0.053**	**0.125**	**0.085**	**50**	**150**	**15**	**65**	**0.030**	**0.140**

Air Quality Statistics by County, 2005[a,b]

Parish/County	2000 Population	CO 8-hr (ppm)	Pb Qmax (µg/m^3)	NO_2 AM (ppm)	O_3 1-hr (ppm)	O_3 8-hr (ppm)	PM_{10} Wtd AM (µg/m^3)	PM_{10} 24-hr (µg/m^3)	$PM_{2.5}$ Wtd AM (µg/m^3)	$PM_{2.5}$ 24-hr (µg/m^3)	SO_2 AM (ppm)	SO_2 24-hr (ppm)
Hillsborough County	998948	3	1.12 [d]	0.008	0.110	0.083	29	78	11.1	26	0.004	0.033
Manatee County	264002	ND	ND	0.005	0.102	0.077	27	99	8.9	21	0.002	0.007
Pasco County	344765	ND	ND	ND	0.093	0.077	ND	ND	ND	ND	ND	ND
Pinellas County	921482	2	0.01	0.008	0.090	0.074	23	54	10.4	25	0.003	0.024
National Ambient Air Quality Standards --		**9**	**1.50**	**0.053**	**0.125**	**0.085**	**50**	**150**	**15**	**65**	**0.030**	**0.140**

CO - Highest second maximum non-overlapping 8-hour concentration (applicable NAAQS is 9 ppm)
Pb - Highest quarterly maximum concentration (applicable NAAQS is 1.5 µg/m^3)
NO_2 - Highest arithmetic mean concentration (applicable NAAQS is 0.053 ppm)
O_3 (1-hour) - Highest second daily maximum 1-hour concentration (applicable NAAQS is 0.125 ppm)
O_3 (8-hour) - Highest fourth daily maximum 8-hour concentration (applicable NAAQS is 0.085 ppm)
PM_{10} - Highest weighted annual mean concentration (applicable NAAQS is 50 µg/m^3)
- Highest second maximum 24-hour concentration (applicable NAAQS is 150 µg/m^3)
$PM_{2.5}$ - Highest weighted annual mean concentration (applicable NAAQS is 15 µg/m^3)
- Highest 98th percentile 24-hour concentration (applicable NAAQS is 65 µg/m^3)
SO_2 - Highest annual mean concentration (applicable NAAQS is 0.03 ppm)
- Highest second maximum 24-hour concentration (applicable NAAQS is 0.14 ppm)

ND - Indicates data not available
AM - Annual mean
Qmax - Quarterly maximum
IN - Indicates insufficient data to calculate summary statistic
µg/m^3 - Units are micrograms per cubic meter
ppm - Units are parts per million

Notes: Data from exceptional events are not included. The monitoring data represent the quality of air in the vicinity of the monitoring site and, for some pollutants, may not necessarily represent urban-wide or parish/county-wide air quality.

[a] U.S. Environmental Protection Agency, http://www.epa.gov/airtrends/factbook.html
[b] "Florida Air Monitoring Report, 2004", State of Florida, Department of Environmental Protection, Division of Air Resource Management, Tallahassee, FL, http://www.dep.state.fl.us/Air/publications/techrpt/amr.htm
[c] The Tampa-St.Petersburg-Clearwater Metropolotian Statistical Area (MSA) is comprised of four counties: Pinellas, Hillsborough, Pasco, and Hernando
[d] Localized impact from an industrial source in Tampa, FL. Concentration from highest nonpoint source site is 0.01 µg/m3 in Pinellas County, FL.

Table 6. Air Quality Trends

Air Quality Trends - Tampa - St. Petersburg - Clearwater MSA, 1990-2005[a]

Pollutant	Trend Statistic	Number of Trend sites	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
CO	2nd Max	2	4.5	3.2	3.3	2.4	2.4	3.1	2.5	2.7	3.0	2.3	2.1	2.3	2.2	1.8	1.5	1.5
NO_2	Annual Mean	2	0.013	0.012	0.011	0.011	0.010	0.011	0.011	0.011	0.011	0.013	0.012	0.011	0.011	0.010	0.009	0.008
O_3	4th Max	7	0.080	0.070	0.074	0.071	0.075	0.075	0.074	0.080	0.089	0.084	0.081	0.081	0.069	0.077	0.074	0.075
O_3	2nd Max	7	0.106	0.097	0.094	0.093	0.093	0.096	0.098	0.099	0.111	0.108	0.100	0.104	0.086	0.101	0.090	0.093
$PM_{2.5}$	Weighted Annual Mean	5	27.2	27.4	25.9	27.0	25.6	24.8	26.4	26.9	26.8	26.0	26.6	25.6	22.2	23.0	22.4	22.9
SO_2	Weighted Annual Mean	2										12.3	12.9	11.5	10.5	9.9	10.5	10.7
SO_2	Annual Mean	7	0.0066	0.0058	0.0052	0.0059	0.0055	0.0046	0.0046	0.0048	0.0048	0.0051	0.0041	0.0041	0.0042	0.0036	0.0028	0.0025

Note: Data from exceptional events are not included. These trends are based on sites having an adequate record of monitoring data during the trend period.

The values shown are the composite averages among these trend sites.

Units for CO, NO_2, O_3, and SO_2 are ppm. Units for $PM_{2.5}$ are ug/m^3.

The 4th max for ozone is based on 8-hour data. The 2nd max for ozone is based on 1-hour data.

[a] U.S. Environmental Protection Agency, http://www.epa.gov/airtrends/factbook.html

Despite improvements in water quality in Tampa Bay, most of the bay is closed to shellfish harvesting because of the risk of bacterial contamination from pollutants carried in runoff from the land. Consuming shellfish from such waters could result in a variety of illnesses, ranging from diarrhea to infectious hepatitis. To protect public health, it is actually against the law to possess shellfish such as oysters or clams taken from waters that are closed to shellfish harvesting. Two areas of Tampa Bay, near Fort DeSoto in Pinellas County and in portions of Tampa Bay in Manatee County, are conditionally approved for shellfish harvesting; however, these areas are typically closed to harvesting following heavy rains, which wash bacteria-laden pollutants into the water. Information about the status of these two conditionally approved harvesting areas is available by calling the state's regional aquaculture, http://www.floridaaquaculture.com (Tampa Bay Estuary Program, http://www.tbep.org/eyesonthebay/greenmussels.html).

Red tides occur in the Gulf of Mexico almost every year, generally in the late summer or early fall. They are most common off the central and southwestern coasts of Florida. The Florida red tide organism, *Karenia brevis*, produces a toxin that can kill marine animals and affect humans. Scientists have studied this organism for more than 50 years. The Florida red tide organism was identified in 1947, but anecdotal reports of the effects of red tide in the Gulf of Mexico date back to the 1530s. Most blooms last 3 to 5 months and may affect hundreds of square miles. Occasionally, however, blooms continue sporadically for as long as 18 months and may affect thousands of square miles. Red tides can kill fish, birds, and marine mammals; cause health problems for humans; and adversely affect local economies. When *Karenia brevis* reaches cell counts of 5,000 cells per liter of seawater, shellfish beds in the area are closed, sometimes for months at a time, until it was safe to harvest again. A protracted and intense red tide (*Karenia brevis*) bloom affected Tampa Bay and surrounding waters during 2005. Originating south of Tampa Bay, the bloom was first detected at medium to high levels at the mouth of the bay on June 10, 2005, moving into the lower bay by July 6. The medium to high levels as indicated by pink and red dots correspond to cell counts greater than 100,000 cells per liter, levels consistently associated with fish mortalities. These elevated cell counts persisted within Tampa Bay through the beginning of October 2005 (Florida Fish and Wildlife Conservation Commission, "2005 Red Tide Impacts on Fish Spawning in Tampa Bay," http://research.myfwc.com/features/view_article.asp?id=27503 and "Red Tides in Florida," http://research.myfwc.com/features/view_article.asp?id=24936).

Excessive concentrations of mercury have been found in Tampa Bay (and in fact all of Florida's coastal waters), affecting commercial and sport-fishing interests. A much better understanding of local, regional, and global sources, amounts, and effects of mercury on Florida waters and fisheries is needed. Most Florida seafood contains low to medium levels of mercury. As a result, the State of Florida has issued human health advisories regarding consumption of fish for several species. "Do not eat" advisories have been issued for all of Florida coastal and marine waters for king mackerel, shark, blackfin tuna, cobia, and little tunny. Moderate risk and low risk fish consumption advisories have also been issued for a number of other marine and estuarine fish species (Florida Department of Health, Division of Environmental Health, "Your Guide to Eating Fish Caught in Florida," http://doh.state.fl.us/floridafishadvice/; and National Science and Technology Council, June 2004).

A potential groundwater contaminants site at the base of the lighthouse on Egmont Key was investigated and was determined not to be significant. The USCG supposedly had dumped the old batteries from the lighthouse at its base. Additional surveys were conducted within Fort Dade at some potential sites for oil contamination (oil house for the train), and no oil was found (Kleen and Hunter, USFWS, June 2006).

BIOLOGICAL RESOURCES

HABITAT

Egmont Key NWR is an offshore island, not a true barrier island. It provides nesting, feeding, and resting habitat for brown pelicans, terns, and other colonial nesting waterbirds. It also provides habitat and protection for endangered species such as manatees, sea turtles and others. Egmont Key has a long history of human habitation (Section A, Chapter II), and its habitats are highly modified by both exotic plants and past human habitation. The primary vegetation types include sea oat (*Uniola paniculata*) meadows, Australian pine (*Casuarina equisetifolia*) groves, and extensive forests with a mixed cabbage palm (*Sabal palmetto*) – Australian pine-Brazilian pepper (*Schinus terebinthifolius*) overstory (Dodd, March 1998). Brazilian pepper and Australian pine occur throughout the interior of the key, interspersed with cabbage palms, sea grapes, red cedar, wax myrtle, and strangler fig.

Egmont Key contains five distinct natural communities (plus ruderal and developed areas) (Florida Division of Recreation and Parks, February 1998):

- Coastal berm – storm-deposited sand and shell berms which develop ridges paralleling the shoreline. Dominant plant species on Egmont are cabbage palm, strangler fig, poison, ivy, Spanish stopper, saw palmetto, sea grape and Florida privet. A small number of southern red cedars also occur. Gopher tortoise burrows are frequent in the coastal berm community. This community is extensively and heavily infested with the exotic Brazilian pepper.

- Beach dune – dunes are formed by wind and wave action and are characterized by low-growing pioneer plants. Sea oats, sand spur, railroad vine and hairy beach sunflower are found here.

- Marine unconsolidated substrate – sandy beaches are best developed on the western shore of the Egmont Key, where Gulf waves strike the shoreline. This natural community supports marine invertebrates, amphipods, shrimp, and crabs, which in turn, support vertebrates such as redfish and flounder. This sandy beach community provides essential habitat for shorebirds such as terns, skimmers, oyster catchers, plovers and sandpipers.

- Coastal grassland – the coastal grassland community is found on the west-central part of the island. It is transitional between coastal berm and dune, lacking the woody species of the coastal berm – trees and shrubs are few. Common plants include sea oats, tall threeawn grass, muhly grass, beach panicum, sand spurs, and seaside gentian.

- Marine grass beds – Seagrass beds are just beyond the sheltered, eastern shore. Three species of seagrass (shoal grass, turtle grass, and manatee grass) are found.

A summary depiction of the habitats found on Egmont Key is presented in Figure 14.

Seagrass beds are important habitat in Tampa Bay and are identified in Figure 15. The seagrass area on the east of Egmont Key (about 29 acres) is protected. Both manatees and sea turtles are observed in the Tampa Bay vicinity waters (Figure 16), and, in particular, manatees are occasionally seen in the proximity of the seagrass beds along the eastern shore of Egmont Key. Approximately 20-70 endangered Atlantic loggerhead turtles nest from May to October along the island's shoreline and would benefit from removal of Australian pine whose shallow root system interferes with nest

Figure 14. Vegetation types of Egmont Key National Wildlife Refuge

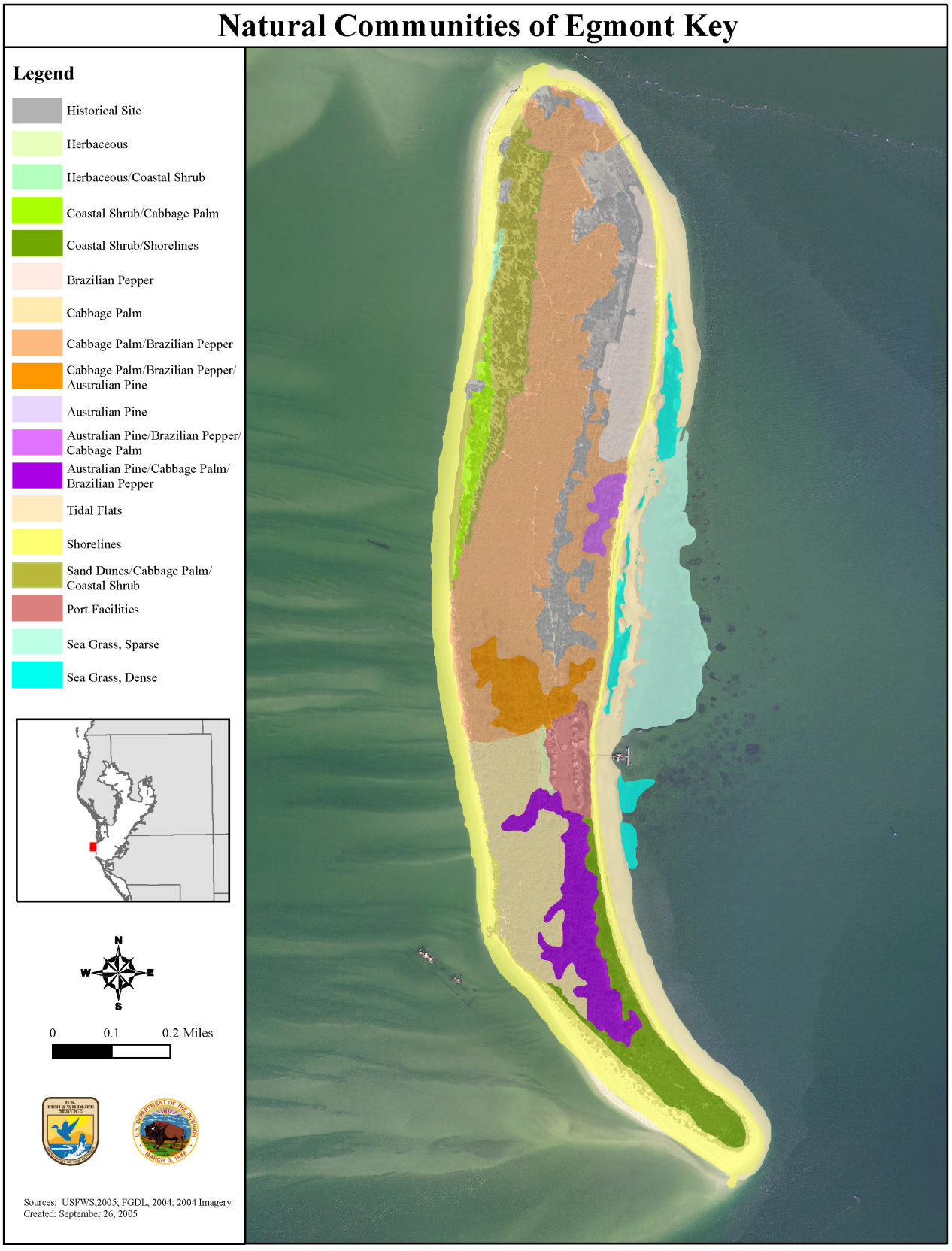
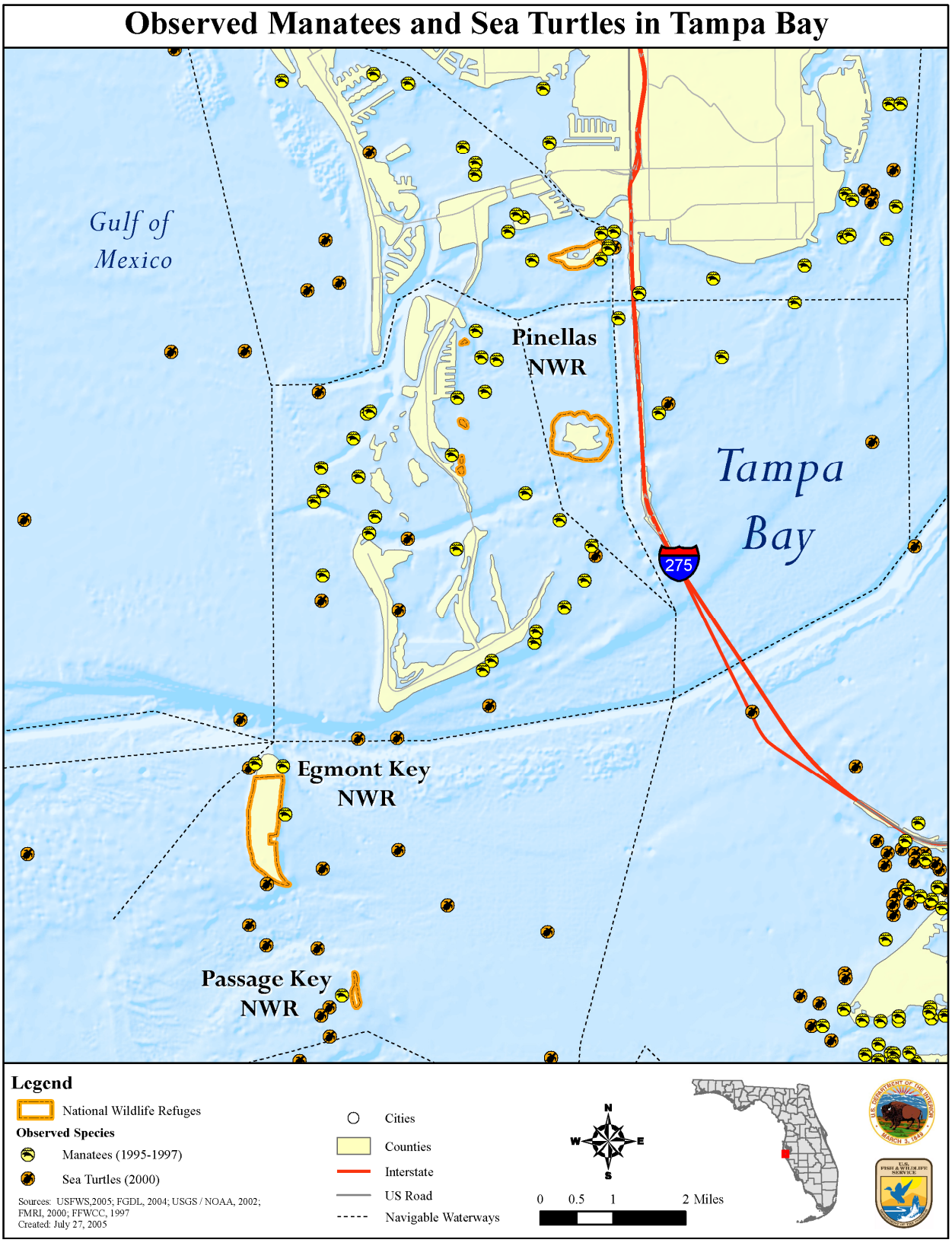


Figure 15. Seagrass beds in Tampa Bay

Figure 16. Observed manatees and sea turtles in Tampa Bay



building. Controlling Brazilian pepper and Australian pine restores natural habitat and also enhances nesting habitat for least terns, a state-listed threatened species. Both exotic plants have become pervasive and have altered the native hammock community habitats, which support the island's large native box turtle populations. There is an ongoing control program for the exotics Brazilian pepper and Australian pine. Garlon 4 herbicide has been applied directly to exotics, Australian pines have been girdled, and much Brazilian pepper has been cut. The south end of Egmont Key (about 97 acres) is a protected wildlife sanctuary. The south end wildlife sanctuary provides the most important resting and nesting site for plovers, terns, and other shorebirds.

Pinellas NWR contains 7 mangrove islands encompassing about 394 acres. The refuge is comprised of Little Bird, Mule, Jackass, Listen, Whale, Tarpon and Indian Keys. The submerged lands in the area of the refuge include hard- and soft-bottom habitats, seagrass beds, and oyster reefs. The shoreline is protected by mangroves. Mangrove areas and scattered openings within the mangrove provide excellent foraging and resting habitat for herons, ibis, wood storks, and waterfowl. The mangrove islands are used as rookeries by the larger wading birds, (herons, ibis, and egrets) and also for nesting by vireos, warblers, and mangrove cuckoos (Pinellas County Department of Engineering and the Department of Environmental Management, August 1987). In the last few years, mangrove habitat has been lost due to erosion from boat wakes, storm tides, tropical storms, and hurricanes.

Three species of mangroves occur within the refuge: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemosa*). The predominant salt marsh plant is black needlerush (*Juncus roemerianus*). The zoneation of the salt marsh normally starts with smooth cordgrass (Spartina alterniflora) occurring at the shoreline or behind a fringe of mangrove. Landward of the smooth cordgrass, black rush is usually found. Further landward of the black rush is vegetation such as seashore saltgrass (*Distichlis spicata*), glasswort (*Salicornia perennis*), and saltwort (*Batis maritima*). Five species of marine grasses are found in the refuge area: turtle grass (*Thallassia testudinum*), manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), widgeon grass (*Ruppia maritima*), and *Halophila baillonis* (Caribbean Halophila) (Pinellas County Department of Engineering and the Department of Environmental Management, August 1987). A seagrass sanctuary is located around Tarpon and Indian Keys.

Hundreds of brown pelicans and double-crested cormorants and dozens of herons, egrets, and roseate spoonbills nest within Tarpon and Little Bird Keys. Pinellas provides important mangrove habitat for most long-legged wading species, especially for reddish egrets. The islands and shorelines are subject to erosion and invasion by exotic species, such as Brazilian pepper and Australian pine. All of the mangrove islands of Pinellas NWR are closed to all public use year-round to protect the migratory birds (Kleen and Hunter, June 2006; Florida Department of Environmental Protection, http://www.dep.state.fl.us/coastal/sites/bocaciega-pinellas/info.htm.

Passage Key NWR is now a meandering sand bar varying is size from less than 0.5 to 10 acres, depending on meteorologic and hydrologic conditions (USFWS, http://www.fws.gov/southeast/pubs/PassageFactSheet.pdf; and USFWS Tampa Bay Refuges Visitor Services Review Report, March 2004). In 1970, Passage Key NWR was designated a Wilderness Area and because of its fragility and small size, it is now closed to all public use. The refuge's objectives are to provide habitat for colonial waterbirds. Hundreds of brown pelicans, laughing gulls, black skimmers, and royal terns nested annually. The small sand bar represented one of the last remaining nesting sites for laughing gulls, black skimmers, and royal terns in Tampa Bay. The key hosted the largest royal tern and sandwich tern nesting colonies in the State of Florida. Small numbers of herons and egrets also nested on the key. Passage Key NWR is closed to public use year-round to protect the migratory birds that use the island.

WILDLIFE

The Tampa Bay area contains more than 200 fish species, including popular species such as snook, redfish, and spotted sea trout. The bay's mangrove-blanketed islands support the most diverse colonial waterbird nesting colonies in North America, annually hosting 40,000 pairs of 25 different species, ranging from the familiar white ibis and great blue heron to the reddish egret—the rarest heron in the nation. Tables 7 and 8 list protected animal and plant species and those species of special concern, respectively, in the Tampa Bay region (Florida Department of Environmental Protection, "Basin Status Report," November 2001).

Egmont Key NWR – More than 375 different species of birds have been reported in the Tampa Bay area. Bird checklists for Egmont Key list over 110 species of birds (USGS Northern Prairie Wildlife Research Center, "Bird Checklists of the United States, Egmont Key State Park and National Wildlife Refuge" http://www.npwrc.usgs.gov/resource/birds/chekbird/r4/egmont.htm). Approximately 38,000 pairs of birds nested on Egmont's beaches in 2007. In past years, instances of human disturbance have caused total failure of all nesting colonies.

In addition to numerous birds, presently, at least 12 reptiles and 4 amphibians are reported on Egmont Key (U.S. Geological Survey, "National Treasures: The Box Turtles of Egmont Key," http://cars.er.usgs.gov/Education/Egmont_for_PDF.pdf). Tables 9 and 10 are listings of birds, amphibians, reptiles, fish and mammals observed on Egmont Key. Several of these species are non-resident, no longer present, or present on the key for only a part of their life cycle. Formerly, there were deer, raccoons, marsh rabbits, rats, and eastern diamondback rattlesnakes on Egmont Key, but there are no plans to return these species to the refuge. Atlantic loggerhead turtles nest on the island; and large populations of box turtles are resident on the island (due to lack of predators and an abundance of cockroaches as a food source). In addition, gopher tortoises are abundant and conspicuous on Egmont Key. Egmont Key has the highest density populations of gopher tortoises in the state. Observations of black racers and mole skinks suggest behavioral and physiological distinctions that indicate these populations developed in isolation from mainland species, and consequently they are regarded as special natural features of Egmont Key. Several species of wildlife have been reported from the island in the past, yet recent documentation is lacking. Species requiring verification include marsh rabbits, native and/or exotic mice, diamondback terrapins, raccoons and bats. Three species of lizards exist as museum records but have not been recently observed. The presence of feral cats on the island may have contributed to the apparent elimination of several small vertebrate species (Florida Division of Recreation and Parks, February 1998).

Surveys of the flora and fauna of Egmont Key were conducted in 1990. From this and other studies, a list of "designated species" was compiled for Egmont Key. This list of designated species consists of the following (Florida Division of Recreation and Parks, February 1998) (Note: Designated species are those which are listed by the Florida Natural Areas Inventory--FNAI, USFWS, Florida Game and Fresh Water Fish Commission—FGFWFC (currently FWC), and the Florida Department of Agriculture and Consumer Services--FDA as endangered, threatened, or of special concern. Designated species also include those which are under review for inclusion in one of the above categories and those species which are regulated by the Convention on International Trade in Endangered Species--CITES):

- two plant species - Hairy beach sunflower (*Helianthus debilis ssp. vestitus*), and Shell mound pricky-pear cactus (*Opuntia stricta*));
- one fish - Common Snook;
- three reptiles - Atlantic loggerhead turtle, Atlantic green turtle, and gopher tortoise;

- seven birds - Brown pelican, Snowy egret, Reddish egret, Wood stork, Bald eagle, American oystercatcher, and Least tern; and
- one mammal - West Indian manatee.

The State of Florida lists six plant species on Egmont Key NWR as threatened (T) or endangered (E): Inkberry (*Scaevola plumieri*)-T, and Prickly pear cactus (*Opuntia stricta*)-T. A seventh species, the Hairy beach sunflower (*Helianthus debilis ssp. vestitus*), is proposed for listing (Kleen and Hunter, USFWS, June 2006). Live oaks (*Quercus virginiana* and/or *Q. geminata*) are now absent, but were apparently present on the island in the last century (Florida Department of Environmental Protection, November 1996).

Tables 7 and 8 list plants and animals which are classified as protected or species of special concern in the Tampa Bay area. Those species shown in blue have been observed at Egmont Key NWR. A complete listing of the plants found on Egmont Key NWR is given in "*Egmont Key Unit Management Plan (Review Draft),*" Division of Recreation and Parks, Department of Environmental Protection, State of Florida, February 13, 1998; of which 14 species are thought to be exotic.

In 2007, 550 pairs of black skimmers have nested on Egmont Key NWR, the greatest number to date, due to beach renourishment and nest protection from law enforcement and volunteers. Poor success in the past has been cause by beach erosion and disturbance by humans. Annually, 2,500-5,000 pairs of royal and sandwich terns nest on Egmont Key NWR. Adult and recently fledged royal and sandwich terns regularly rest and feed on the island.

About 150 piping plovers are found in the Tampa Bay area during the non-breeding season (fall, winter, and spring). The island is listed as critical habitat for endangered piping plovers; however, they are only viewed infrequently on Egmont Key NWR usually in the fall or early winter. Least tern populations have been declining and they have been nesting only sporadically on Egmont Key NWR with 135 pairs recorded in 2007. The Tampa Bay area has a population of 100-125 pairs of American oystercatchers. Two to four of these pairs nest on Egmont Key NWR annually. A few pairs (less than 30) of snowy plovers nest in the Tampa Bay area. Currently, none are nesting on Egmont, but they have been observed feeding and resting on the island. More recently, 10-200 pairs of white ibis nested on Egmont Key NWR from 2004 to 2008.

A discussion of the concerns for nesting waterbirds and shorebirds, and transient and wintering shorebirds on Egmont Key NWR are included with the Passage Key NWR discussion, below. Likewise, a discussion of the transient Neartic-neotropical migratory species breeding, migrating through, or wintering on Egmont Key NWR is included in the Pinellas NWR discussion, below.

Pinellas NWR – Pinellas NWR was established as a breeding ground for colonial bird species. Species nesting in the refuge include brown pelicans, herons, egrets, and cormorants. Pinellas NWR hosted the largest brown pelican rookery in the state. Animal and plant species in the Tampa Bay area, which are protected or of special concern are shown in Tables 7 and 8. FWC has listed animals which are rare, endangered, or species of special concern for the Boca Ciega Bay and Pinellas County Aquatic Preserves, in which Pinellas NWR is located. These are shown in Table 11 (Florida Department of Environmental Protection, http://www.dep.state.fl.us/coastal/sites/bocaciega-pinellas/info.htm).

The bird species nesting on Pinellas NWR do so mostly in mangrove woodlands, today mostly on Little Bird Key. Formerly, nesting occurred widely on other keys, especially on Tarpon and Whale Keys but do so today at greatly reduced levels. Tarpon Key, one of the islands within Pinellas NWR, was a significant nesting, resting, and feeding area for a variety of colonially nesting waterbirds

including white ibis, reddish egrets, and roseate spoonbills. Very little nesting has been documented in the last few years, when predator control efforts were reduced and this colony succumbed to the predation of raccoons and possibly fish crows.

- The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicated the following species nesting in Tampa Bay should be considered as in need of conservation attention in refuge planning. The mangrove nesting and roosting waterbirds of specific conservation concern in the Pinellas NWR are (Kleen and Hunter, USFWS, June 2006):

Mangrove nesting and roosting waterbirds

Critical Recovery	Management Attention
Wood Stork	Brown Pelican
	Tricolored Heron
Immediate Management	White Ibis
Reddish Egret	Glossy Ibis
Roseate Spoonbill	Little Blue Heron
	Great Egret
Conservation Stewardship	Anhinga
Double-crested Cormorant	Great Blue Heron
Snowy Egret	Green Heron
	Yellow-crowned Night-Heron
Other species	
Cattle Egret	
Black-crowned Night-Heron	

Regionally, the reddish egret is the highest priority species among long-legged waders found nesting in Tampa Bay. They have not increased overall since the stoppage of the millinery trade. The Tampa Bay area supports the northernmost breeding population along Florida's Gulf Coast and includes at present between 60 and 85 pairs. This population has stabilized in the last few years.

The federally endangered wood storks are not nesting on any refuge lands in the Tampa Bay area, but they do nest in Tampa Bay. The tricolored heron is of increasing concern regionally and in Florida. Because this species is most numerous in coastal habitats, Tampa Bay Refuges provide significant potential for foraging and nesting habitat.

Roseate spoonbills regionally appear to be doing well, but there is concern for the species in Peninsular Florida (especially south Florida). Tampa Bay populations may be important as the northernmost breeding population along Florida's Gulf Coast.

Brown pelicans seem to be doing well elsewhere in the southeast, with the exception of some areas in Florida (and South Carolina). Florida populations are apparently undergoing declines. Brown pelicans are susceptible to entanglement in monofilament line. Pelicans may be attempting to gather monofilament as fine material for nests, thus either getting entangled, or distributing monofilament throughout nesting areas.

White ibis are also of some regional concern, but while the species does breed in Tampa Bay, none are presently nesting on Pinellas NWR proper. This is a wandering species where numbers can fluctuate greatly locally depending on water conditions throughout the state/region. This area can provide important nesting sites when conditions inland are poor. For example, in 2003, 18,000 pairs nested in Tampa Bay due to poor conditions at historical colonies in the Everglades. More recently,

white ibis actually nested on Egmont Key NWR in 2004, for the first time known to the present refuge staff (i.e., during the last 18 years) and again from 2006-2008.

Yellow-crowned night herons nest at edges and are vulnerable to fish crows. They are crustacean specialists and have limited foraging areas. Black-crowned night herons are more widespread and not of much concern overall, but colonies don't exist in the thousands like they used to. Both species have nested on Tarpon and Little Bird Keys, Pinellas NWR.

Although not breeding in Tampa Bay, the keys in Pinellas NWR may represent important post-breeding roost sites for the magnificent frigatebird.

- Mangroves also support a number of landbirds, principal among these are mangrove cuckoo, black-whiskered vireo, and Florida prairie warbler. Landbirds of conservation interest on Tampa Bay Refuges include mangrove breeding species and transient Neartic-neotropical migratory species. The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicated the following species breeding, migrating through or wintering in Tampa Bay (specifically Pinellas and Egmont Key NWRs) should be considered as in need of conservation attention in refuge planning (Kleen and Hunter, USFWS, June 2006). (Note - there is very little active management intended for landbird habitat, other than exotic vegetation control where needed.)

Mangrove breeding species and transient Neartic-neotropical migratory species

Immediate Management	Management Attention
Prairie Warbler	Mangrove Cuckoo
Loggerhead Shrike	Black-whiskered Vireo
Painted Bunting	Common Ground-Dove
	Eastern Towhee
Conservation Stewardship	Common Nighthawk
Gray kingbird	Chuck-will's-widow
White-eyed Vireo	Eastern Meadowlark
Sedge Wren	Northern Flicker
Cape May Warbler	Northern Harrier
Black-throated Blue Warbler	Purple Martin
Connecticut Warbler	Vesper Sparrow
Bobolink	
Other species	
Peregrine Falcon	

Passage Key NWR – Passage Key NWR was originally a mangrove island with a freshwater lake, but over the past 100 years, this island refuge has been reduced from 36 acres to a meandering sandbar of .5-10 acres due to the effects of high tides, tropical storms, and hurricanes. Since this refuge is designated wilderness, any attempts to restore it through beach renourishment require additional considerations on impacts to wilderness character (Kleen and Hunter, USFWS, June 2006).

Passage Key NWR was the most important colony for both royal terns and sandwich terns in the State of Florida at one time. Approximately 1,000-2,000 birds including brown pelicans, laughing gulls, royal terns, and black skimmers nested on Passage Key NWR. Among nesting shorebirds, plovers and oystercatcher are the highest priority species, but presently only the American oystercatcher is known to nest here. Wilson's plovers are not nesting on Passage Key NWR, but the potential exists. Snowy plovers also are not nesting here, but do occur elsewhere in Tampa Bay.

Among the colonial nesting species, black skimmers and least terns are the highest priority species nesting on Passage Key NWR and was the most secure nesting site in Tampa Bay. This island is closed to the public year-round to protect nesting, resting, and migrating birds, but illegal access by the public cause birds to abandon their nests.

Large and important colonies of brown pelican, laughing gull, royal and sandwich terns occurred on Passage Key NWR. However, human disturbance of nesting shorebirds and depredation by fish crows have resulted in poor reproductive success. Currently, no nesting is occurring since the island is submerged at high tide.

- The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicates the following beach nesting waterbird and shorebird species in Tampa Bay (viz. Passage Key and Egmont Key NWRs) should be considered as in need of conservation attention in refuge planning ((Kleen and Hunter, USFWS, June 2006):

Beach nesting waterbird and shorebird species

Critical Recovery	Management Attention
Snowy Plover	Wilson's Plover
	American Oystercatcher
Conservation Stewardship	Brown Pelican
Willet	Least Tern
Royal Tern	Sandwich Tern
	Laughing Gull
Other species	Gull-billed Tern
Black-necked Stilt	Black Skimmer
Caspian Tern	

- Passage Key and Egmont Key NWRs also provide important foraging and roosting habitat for transient and wintering shorebirds. The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicates the following migrating or wintering species in Tampa Bay should be considered as in need of conservation attention in refuge planning (Kleen and Hunter, USFWS, June 2006):

Transient and wintering shorebirds

Critical Recovery	Management Attention
Piping plover	Marbled Godwit
Long-billed Curlew	Semipalmated Sandpiper
	Short-billed Dowitcher
Conservation Stewardship	Least Sandpiper
Willet	Stilt Sandpiper
Black-bellied Plover	Red Knot
Semipalmated Plover	Sanderling
	Western Sandpiper
	Dunlin
	Whimbrel
	Ruddy Turnstone

Table 7. Protected animal and plant species in the Tampa Bay Basin

Scientific Name*	Common Name	Federal Protection Status	State Protection Status	FNAI Global Rank	FNAI State Rank
AMPHIBIANS AND REPTILES					
Alligator mississippiensis	**American alligator**	T(S/A)	LS	G5	S4
Caretta caretta	**Loggerhead turtle**	LT	LT	G3	S3
Chelonia mydas	**Green turtle**	LE	LE	G3	S2
Drymarchon corais couperi	**Eastern indigo snake**	LT	LT	G4T3	S3
Eretmochelys imbricata	**Hawksbill turtle**	LE	LE	G3	S1
Gopherus polyphemus	**Gopher tortoise**	N	LT	G3	S3
Lepidochelys kempii	**Kemp's Ridley turtle**	LE	LE	G1	S1
BIRDS					
Ajaia ajaja	**Roseate spoonbill**	N	LS	G5	S2 S3
Aramus guarauna	**Limpkin**	N	LS	G5	S3
Charadrius melodus	**Piping plover**	LT	LT	G3	S2
Egretta caerulea	**Little blue heron**	N	LS	G5	S4
Egretta rufescens	**Reddish egret**	N	LS	G4	S2
Egretta thula	**Snowy egret**	N	LS	G5	S4
Egretta tricolor	**Tricolored heron**	N	LS	G5	S4
Eudocimus albus	**White ibis**	N	LS	G5	S4
Haliaeetus leucocephalus**	**Bald eagle**	LT	LT	G4	S3
Grus Canadensis pratensis	**Florida sandhill crane**	N	LT	G5T2T3	S2 S3
Haematopus palliatus	**American oystercatcher**	N	LS	G5	S3
Mycteria americana	**Wood stork**	LE	LE	G4	S2
Pelecanus occidentalis	**Brown pelican**	N	LS	G4	S3
Rynchops niger	**Black skimmer**	N	LS	G5	S3
Sterna antillarum	**Least tern**	N	LT	G4	S3
MAMMALS					
Podomys floridanus	Florida mouse	N	LS	G3	S3
Sciurus niger shermani	Sherman's fox squirrel	N	LS	G5T2	S2
Trichechus manatus	**Manatee**	LE	LE	G2	S2
PLANTS					
Asclepias curtissii	Curtiss' milkweed	N	LE	G3	S3
Bigelowia nuttalli	Nuttall's rayless goldenrod	N	LE	G3g4	S1
Chrysopsis floridana	Florida golden aster	LE	LE	G1	S1
Glandularia tampensis	**Tampa vervain**	N	LE	G1	S1
Gossypium hirsutum	Wild cotton	N	LE	G4G5	S3
Opuntia stricta	Prickly pear cactus		T		
Scaevola plumier	Inkberry		T		
Pteroglossaspis ecristata	Giant orchid	N	LT	G2	S2

* Species listed in boldface type use or live in freshwater, saltwater, and/or wetland communities.
** Proposed for federal delisting because of the species' recovery.
Species shown in blue have been observed at Egmont Key NWR.

Note: The Federal Protection Status column indicates the official federal endangerment status or level of legal protection, under the U.S. Endangered Species Act Classification, for the plant or animal species, subspecies, or variety as proposed or determined by the U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration (marine species). The classifications are as follows:
LE = Listed as Endangered.
LT = Listed as Threatened.
T(S/A) = Threatened due to similarity of appearance.
N = Not currently listed, nor currently being considered for listing.

The State Protection Status column shows the official state endangerment status or level of legal protection, as follows:
Animals listed by Florida Fish and Wildlife Conservation Commission:
LE = Listed as Endangered.
LT = Listed as Threatened.
LS = Listed as Species of Special Concern.
N = Not currently listed, nor currently being considered for listing.

Plants listed by Florida Department of Agriculture and Consumer Services (FDACS):
LE = Listed as Endangered.
LT = Listed as Threatened.
N = Not currently listed, nor currently being considered for listing.

Table 8. Non-listed animal and plant species of special concern in the Tampa Bay Basin

Scientific Name*	Common Name	FNAI Global Rank	FNAI State Rank
FISH			
Microphis brachyurus	**Opossum pipefish**	G4G5	S2
AMPHIBIANS AND REPTILES			
Crotalus adamanteus	**Eastern diamondback rattlesnake**	G4	S3
BIRDS			
Casmerodius albus	**Great egret**	G5	S4
Ixobrychus exilis	**Least bittern**	G5	S4
Nycticorax nycticorax	**Black-crowned night-heron**	G5	S3
Nyctanassa violacea	**Yellow-crowned night-heron**	G5	S3
Plegadis falcinellus	**Glossy ibis**	G5	S2
Rallus longirostris scottii	**Florida clapper rail**	G5T3	S2
Sterna caspia	**Caspian tern**	G5	S2
Sterna maxima	**Royal tern**	G5	S3
Sterna sandvicensis	**Sandwich tern**	G5	S2
PLANTS			
Helianthus debilis spp. vestitus	**Hairy beach sunflower**	G5T2	S2
Rhynchospora culixa	Georgia beakrush	G1	SH

* Species listed in boldface type use or live in freshwater, saltwater, and/or wetland communities.
Species shown in blue have been observed at Egmont Key NWR.

Note:
The Florida Natural Areas Inventory Global Rank characterizes relative rarity or endangerment worldwide, with G1 being critically imperiled globally because of extreme rarity or because of extreme vulnerability to extinction, and G5 being demonstrably secure globally. Similarly, the State Rank of S1 through S5 characterizes relative rarity or endangerment in Florida. The rankings are based on many factors, the most important being the estimated number of occurrences, estimated abundance (number of individuals), range, estimated adequately protected occurrences, relative threat of destruction, and ecological fragility.

Sources:
Florida Fish and Wildlife Conservation Commission. 2006. *Florida's Endangered Species, Threatened Species, and Species of Special Concern, Official Lists.* Tallahassee, Florida. Available at http://myfwc.com/imperiledspecies/pdf/Threatened-and-Endangered-Species-2006.pdf
Marois, Katherine C. June 1999. *Tracking List of Rare, Threatened, and Endangered Plants and Animals and Natural Communities of Florida.* Tallahassee, Florida: Florida Natural Areas Inventory.
Ashton, Ray E., Ed. 1992. *Rare and Endangered Biota of Florida.* Gainesville, Florida: University Press of Florida.
Wunderlin, Richard P. 1998. *Guide to the Vascular Plants of Florida*. Gainesville, Florida: University Press of Florida.

Table 9. Birds observed at Egmont Key National Wildlife Refuge

Common Name	Scientific Name
Mottled Duck	*Anas fulvigula*
Blue-winged Teal	*Anas discors*
Ring-necked Duck	*Aythya collaris*
Lesser Scaup	*Aythya affinis*
Red-breasted Merganser	*Mergus serrator*
Common Loon	*Gavia immer*
Horned Grebe	*Podiceps auritus*
Northern Gannet	*Morus bassanus*
American White Pelican	*Pelecanus erythrorhynchos*
Brown Pelican	*Pelecanus occidentalis*
Double-crested Cormorant	*Phalacrocorax auritus*
Anhinga	*Anhinga anhinga*
Magnificent Frigatebird	*Fregata magnificens*
Great Blue Heron	*Ardea herodias*
Great Egret	*Casmerodius albus*
Snowy Egret	*Egretta thula*
Little Blue Heron	*Egretta caerulea*
Tricolored Heron	*Egretta tricolor*
Reddish Egret	*Egretta rufescens*
Cattle Egret (e)	*Bubulcus ibis*
Green Heron	*Butorides striatus*
Black-crowned Night-Heron	*Nycticorax nycticorax*
Yellow-crowned Night-Heron	*Nyctanassa violacea*
White Ibis	*Eudocimus albus*
Glossy Ibis	*Plegadis falcinellus*
Roseate Spoonbill	*Ajaia ajaja*
Wood Stork	*Mycteria americana*
Black Vulture	*Coragyps atratus*
Turkey Vulture	*Cathartes aura*

Common Name	Scientific Name
Osprey	*Pandion haliaetus*
Swallow-tailed Kite	*Elanoides forficatus*
Bald Eagle	*Haliaeetus leucocephalus*
Red-shouldered Hawk	*Buteo lineatus*
Northern Harrier	*Circus cyaneus*
American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Purple Gallinule	*Porphyrula martinica*
Common Moorhen	*Gallinula chloropus*
Black-bellied Plover	*Pluvialis squatarola*
Semipalmated Plover	*Charadrius semipalmatus*
Piping Plover	*Charadrius melodus*
Wilson's Plover	*Charadrius wilsonia*
Killdeer	*Charadrius vociferus*
Snowy Plover	*Charadrius alexandrinus*
American Oystercatcher	*Haematopus palliatus*
Black-necked Stilt	*Himantopus mexicanus*
Solitary Sandpiper	*Tringa solitaria*
Willet	*Catoptrophorus semipalmatus*
Whimbrel	*Numenius phaeopus*
Long-billed Curlew	*Numenius americanus*
Marbled Godwit	*Limosa fedoa*
Ruddy Turnstone	*Arenaria interpres*
Red Knot	*Calidris canutus*
Sanderling	*Calidris alba*
Western Sandpiper	*Calidris mauri*
Least Sandpiper	*Calidris minutilla*
Dunlin	*Calidris alpina*
Stilt Sandpiper	*Calidris himantopus*
Semipalmated Sandpiper	*Calidris pusilla*
Short-billed Dowitcher	*Limnodromus griseus*
Laughing Gull	*Larus atricilla*
Ring-billed Gull	*Larus delawarensis*

Common Name	Scientific Name
Herring Gull	*Larus argentatus*
Great Black-backed Gull	*Larus marinus*
Least Tern	*Sterna antillarum*
Gull-billed Tern	*Sterna nilotica*
Forster's Tern	*Sterna forsteri*
Royal Tern	*Sterna maxima*
Sandwich Tern	*Sterna sandvicensis*
Black Skimmer	*Rynchops niger*
Caspian Tern	*Sterna caspia*
Common Tern	*Sterna hirundo*
Rock Dove (Pigeon) (e)	*Columba livia*
Mourning Dove	*Zenaida macroura*
Common Ground-Dove	*Columbina passerina*
Mangrove Cuckoo	*Coccyzus minor*
Black-billed Cuckoo	*Coccyzus erythropthalmus*
Barn Owl	*Tyto alba*
Eastern Screech-Owl	*Otus asio*
Common Nighthawk	*Chordeiles minor*
Chuck-will's-widow	*Caprimulgus carolinensis*
Ruby-throated Hummingbird	*Archilochus colubris*
Belted Kingfisher	*Ceryle alcyon*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Northern Flicker	*Colaptes auratus*
Eastern Wood-Pewee	*Contopus virens*
Acadian Flycatcher	*Empidonax virescens*
Eastern Phoebe	*Sayornis phoebe*
Gray Kingbird	*Tyrannus dominicensis*
White-eyed Vireo	*Vireo griseus*
Black-whiskered Vireo	*Vireo altiloquus*
American Crow	*Corvus brachyrhynchos*
Fish Crow	*Corvus ossifragus*

Common Name	Scientific Name
Carolina Wren	*Thryothorus ludovicianus*
Sedge Wren	*Cistothorus platensis*
Barn Swallow	*Hirundo rustica*
Purple Martin	*Progne subis*
Tree Swallow	*Tachycineta bicolor*
Blue-gray Gnatcatcher	*Polioptila caerulea*
American Robin	*Turdus migratorius*
Gray Catbird	*Dumetella carolinensis*
Northern Mockingbird	*Mimus polyglottos*
Brown Thrasher	*Toxostoma rufum*
European Starling (e)	*Sturnus vulgaris*
Northern Parula Warbler	*Parula americana*
Magnolia Warbler	*Dendroica magnolia*
Cape May Warbler	*Dendroica tigrina*
Black-throated Blue Warbler	*Dendroica caerulescens*
Yellow-rumped Warbler	*Dendroica coronata*
Black-throated Green Warbler	*Dendroica virens*
Prairie Warbler	*Dendroica discolor*
Palm Warbler	*Dendroica palmarum*
Ovenbird	*Seiurus aurocapillus*
Common Yellowthroat	*Geothlypis trichas*
Hooded Warbler	*Wilsonia citrina*
Blackburnian Warbler	*Dendroica fusca*
Blackpoll Warbler	*Dendroica striata*
American Redstart	*Setophaga ruticilla*
Prothonotary Warbler	*Protonotaria citrea*
Connecticut Warbler	*Oporornis agilis*
Scarlet Tanager	*Piranga olivacea*
Rufous-sided (Eastern) Towhee	*Pipilo erythrophthalmus*
Vesper Sparrow	*Pooecetes gramineus*
Northern Cardinal	*Cardinalis cardinalis*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Indigo Bunting	*Passerina cyanea*

Common Name	Scientific Name
Painted Bunting	*Passerina ciris*
Blue Grosbeak	*Guiraca caerulea*
Bobolink	*Dolichonyx oryzivorus*
Eastern Meadowlark	*Sturnella magna*
Red-winged Blackbird	*Agelaius phoeniceus*
Boat-tailed Grackle	*Quiscalus major*
Brown-headed Cowbird	*Molothrus ater*
Common Grackle	*Quiscalus quiscula*
House Sparrow (e)	*Passer domesticus*

(e) – *exotic, non-native*

Sources:

"Egmont Key Unit Management Plan (Review Draft)," Division of Recreation and Parks, Department of Environmental Protection, State of Florida, Feb 1998.

"Bird Checklists Of The United States, Egmont Key State Park And National Wildlife Refuge," Northern Prairie Wildlife Research Center, USGS, http://www.npwrc.usgs.gov/resource/birds/chekbird/r4/egmont.htm

"Official State List Of The Birds Of Florida," Florida Ornithological Society Records Committee, http://www.fosbirds.org/recordcommittee/statelistfebruary2005.htm

"Tampa Bay Refuges, St. Petersburg, FL – Egmont Key Refuge, Pinellas Refuge, Passage Key Refuge," (draft) Biological Review Report, by J. Kleen and C. Hunter, U.S. Fish & Wildlife Service, June, 2006.

Table 10. Amphibians, reptiles, fish and mammals observed at Tampa Bay Refuges

FROGS AND TOADS

Common Name	Scientific Name
Eastern Narrow-mouthed Toad	*Gastrophryne carolinesis*
Squirrel Treefrog	*Hyla squirella*

SNAKES

Common Name	Scientific Name
Southern Black Racer	*Coluber constrictor priapus*
Eastern Diamondback	*Crotalus adamanteus*
Corn Snake	*Elaphe guttata guttata*
Yellow Rat Snake	*Elaphe obsoleta quadrivittata*
Eastern Kingsnake	*Lampropeltis getula getula*
Florida Kingsnake	*Lampropeltis getula floridana*

LIZARDS

Common Name	Scientific Name
Green Anole	*Anolis carolinensis*
Brown Anole (e)	*Anolis sagrei*
Six-lined Racerunner	*Cnemidophorus sexlineatus sexlineatus*
Mole Skink	*Eumeces egregius*
Southeastern Five-lined Skink	*Eumeces inexpectatus*

TURTLES

Common Name	Scientific Name
Atlantic Loggerhead	*Caretta caretta*
Gopher Tortoise	*Gopherus polyphemus*
Florida Box Turtle	*Terrepene carolina bauri*
Atlantic Green Turtle	*Chelonia mydas mydas*

FISH

Common Name	Scientific Name
Speckled Worm Eel	*Myrophis punctatus*
Spotted Seatrout	*Cynoscion nebulosus*
Spotted Moray	*Gymnothorax moringa*
Tarpon	*Megalops atlanticus*
Common Snook	*Centropomus undecimalis*
Mosquitofish	*Gambusia* sp.
Striped Mullet	*Mugil cephalus*

Redfish	*Sciaenops ocellatus*
Barracuda	*Sphyraena barracuda*
Atlantic Spadefish	*Chaetodipterus faber*
Blacktip Shark	*Carcharhinus limbatus*
Bonnethead Shark	*Sphyrna tiburo*
Bull Shark	*Carcharhinus leucas*
Burrfish	*Chilomycterus* sp.
Pigmy File Fish	*Monacanthus setifer*
Florida Pompano	*Trachinotus carolinus*
Gafftopsail Catfish	*Bagre marinus*
Nassau Grouper	*Epinephelus striatus*
Nurse Shark	*Ginglymostoma cirratum*
Pinfish	*Lagodon rhomboides*
Scrawled Cowfish	*Lactophrys quadricornis*
Sharksucker	*Echeneis naucrates*
Sheepshead	*Archosargus probatocephalus*
Gray Snapper	*Lutjanus griseus*

MAMMALS

Common Name	Scientific Name
Common pilot whale	*Globicephala melaena*
Short-finned pilot whale	*Glogicephala macrorhynchus*
Bottle-nosed dolphin	*Tursiops truncatus*
Risso's dolphin	*Grampus griseus*
West Indian manatee	*Manatus trichechus latirostris*
Feral cat (e)	*Felis domesticus*
Roof rat (e)	*Rattus rattus*

(e) – exotic, non-native

Sources:

"Egmont Key Unit Management Plan (Review Draft)," Division of Recreation and Parks, Department of Environmental Protection, State of Florida, February 13, 1998.

"Fish Checklists of the United States Egmont Key State Park and National Wildlife Refuge," Northern Prairie Wildlife Research Center, USGS, http://www.npwrc.usgs.gov/resource/birds/chekbird/r4/fislist.htm

"Amphibian and Reptile Checklists of the United States, Egmont Key State Park and National Wildlife Refuge," Northern Prairie Wildlife Research Center, USGS, http://www.npwrc.usgs.gov/resource/birds/chekbird/r4/egmamp.htm

Table 11. Rare, endangered and species of special concern at the Tampa Bay Refuges

Common Name	*Scientific Name*	*State*	*Federal*
Reptiles			
American alligator	*Alligator mississipiensis*	SSC	T (s/a)
Atlantic loggerhead	*Caretta caretta*	T	T
Green sea turtle	*Chelonia mydas*	E	E
Leatherback sea turtle	*Dermochelys coriacea*	E	E
Eastern indigo snake	*Drymarchon corais couperi*	T	T
Birds			
Roseate spoonbill	*Ajaia ajaja*	SSC	n/a
Little blue heron	*Egretta caerulea*	SSC	n/a
Snowy egret	*Egretta thula*	SSC	n/a
Tricolor heron	*Egretta tricolor*	SSC	n/a
Bald eagle	*Haliaeetus leucocephalus*	T	T
Wood stork	*Mycteria americana*	E	E
Brown pelican	*Pelecanus occidentalis*	SSC	n/a
Mammals			
Florida manatee	*Trichechus manatus latirostris*	E	E

State listings are taken from the Florida Fish and Wildlife Conservation Commission. Federal listings are taken from the United States Fish and Wildlife Service. E= Endangered; T= Threatened; T (s/a)= Threatened due to similarity in appearance; SSC= Species of Special Concern; n/a= information not available or no designation listed

Source: Tampa Bay Aquatic Preserves Information Page, Florida Department of Environmental Protection, http://www.dep.state.fl.us/coastal/sites/bocaciega-pinellas/info.htm

CULTURAL RESOURCES

The vast majority of cultural resource information available for the Tampa Bay Refuges focuses on Egmont Key NWR. Cultural resource information is very limited for Passage Key NWR. Hurricanes and erosion have reduced the 60-acre island with a freshwater lake and lush vegetation to its present state of a less than a 5-acre shallow, sandy shoal (Section A, Chapter II). Cultural resource information is unknown (and most likely nonexistent) for the islands comprising the Pinellas NWR due to their nature as low-lying mangrove islands. Passage Key was an important navigational landmark for early Spanish and British sailors. The island was first identified on nautical charts as “Isla de San Francisco y Leon,” then “Burnaby Island,” and later “Cayo del Pasaje,” or Passage Key.

Archaeological

An archaeological survey (for aboriginal resources) was conducted on Egmont Key NWR in the 1970s (Florida Department of Environmental Protection, November 1996; Grange, 1977). Although no sites were recorded, pre-Columbian use/occupancy of the island by Native Americans may have occurred. A pottery shard was found and authenticated by Walt Marder, Florida's Department of Historical Resources, to be the same type that was manufactured for 2,000 years until the first contact with Europeans (Florida Department of Environmental Protection, February 1998). The primary cultural resources on Egmont Key NWR are the lighthouse (8 HI 117A) and the resources of the Fort Dade sites (8 HI 117), shown in Figure 17. The following is a quotation taken from “Resource Management Audit, Egmont Key,” by the Florida Division of Recreation and Parks, District 4, November 4, 1996:

> "The cultural resources of Egmont Key are the derelict remains of an abandoned U.S. Army post (Fort Dade). Most structures were built for limited life spans, due in part to the Army's understandings of changing ordnance technologies and defensive philosophies of the period from 1898 through 1945. Support structures, such as workshops and garages, were built to be short-lived. Indeed, none exists as more than a floor. The historical structures on the island have been variously impacted by shoreline erosion, arson fires, vandalism, and the passage of time. While the lighthouse is in good condition, meaning it is structurally sound, it is not in pristine condition—the cupola is missing, railings are rusted, etc. The conditions of the concrete or masonry structures associated with Fort Dade range from fair (batteries Mellon and McIntosh) to poor (those that have lost structural integrity (batteries Page and Burchsted; now rubble in the Gulf of Mexico). Unless the erosion of the island is halted, structures including the remaining batteries and possibly the icehouse/dining hall are also likely to be lost in the next few years. Battery Howard suffered significant damage within the last year and during a storm event, and batteries Mellon and McIntosh could be seriously impacted during a significant storm. Storms surge into the power plant/dining hall (only ~60 feet from surf); vandals are literally knocking holes through the walls. Sections of an extensive brick road system are in fair-good condition, although previous managing agencies are said to have mined the roadway for brick in the past. The storm water drainage system associated with the roads and other semi-permanent elements of Fort Dade are clogged. Some are partially collapsed. Wood-frame structures associated with the Fort lost structural integrity long ago."

Historical

The following discussion is largely taken from “Egmont Key Unit Management Plan (Review Draft),” by the Florida Division of Recreation and Parks, February 1998):

Situated at the mouth of Tampa Bay, Egmont Key has long been recognized for its strategic military location. Egmont Key may have been first visited in 1757 by Francisco Maria Celi, pilot of the Spanish Fleet, who named it "Isla de San Blas y Barreda". At that time, Celi reported finding a canoe on the island. This may be the only historical evidence that Indians visited the site. Since there is no freshwater source, and travel to the island entailed crossing open, often rough water, it is likely that Egmont Key was only used periodically by Indians for hunting, crabbing, and shellfishing.

After the United States obtained control of Florida in 1821 with the signing of the Adams-Onis Treaty, several unsuccessful attempts were made at homesteading the island. Probably the same factors which discouraged the Indians from settling Egmont Key also made life very difficult for other would-be settlers.

In 1846, Congress authorized the construction of the Egmont Key lighthouse at the northern end of the island. It was completed in May 1848 and was partially destroyed by two hurricanes in September of that year. During the first hurricane in September of 1848, Marvel Edwards, Egmont Key's first lighthouse tender, placed his family in a boat during the hurricane and waded out to the highest point of the island in the center of the key where there were some large cabbage palms. Edwards tied the boat to the palms and during the night, rode out the violence of the storm, his bobbing craft rising with the high water almost to the top of the palms. By morning, though exhausted by the ordeal, the family had survived. Returning to the lighthouse, they found it badly damaged and all their possessions destroyed. When the keeper saw the damage to the lighthouse, he rowed off to Tampa and never returned. Tides 15 feet above normal washed over the island and damaged the light. Another storm in 1852 did additional damage and prompted Congress to appropriate funds to rebuild the lighthouse and lightkeeper’s residence (Florida Division of Recreation and Parks, “Egmont Key State Park History,” http://www.floridastateparks.org/egmontkey/History.cfm). A second lighthouse designed to "withstand any storm", was completed in 1858. The new tower was 87 feet high and was fitted with an Argard kerosene lamp and fixed Fresnel lens. The lighthouse, still in service today, is situated at latitude 27 degrees, 36 minutes, 4 seconds N and longitude 82 degrees, 45 minutes, 40 seconds W.

At the end of the third Seminole War in 1858, Egmont Key was used by the U.S. Army to detain Seminole prisoners until they could be transported to Arkansas Territory (Florida Division of Recreation and Parks, “Egmont Key State Park History,” http://www.floridastateparks.org/egmontkey/History.cfm). One of the most dramatic scenes took place on Egmont Key in 1858 at the conclusion of the Billy Bowlegs War, the final Indian War in Florida. Billy Bowlegs was the last Seminole Indian chief remaining in South Florida. He surrendered with his weary band of 138 followers in Fort Myers on May 4, 1858. The tribesmen were transported to Egmont Key for their final Florida rendezvous before being shipped across the Gulf of Mexico to a reservation in Arkansas. One proud Seminole warrior - Tiger Tail - could not endure the humility of being taken from his native Florida. In the morning, the Indians were to leave Egmont Key, Tiger Tail ground up a quantity of finely ground glass and swallowed it with a glass of water. Tiger Tail's suicide tragically ended the era of Florida Indians (Florida Vacation and Travel Guide, “History of Anna Maria Island,” http://www.2fla.com/history.htm).

In February 1849, Colonel Robert E. Lee visited the area and recommended that Egmont Key and neighboring Mullet Key be reserved by the government for military purposes. Before the Civil War the area was a haven for runaway slaves. At the onset of the Civil War, Confederate troops who had occupied Egmont Key, removed the lighthouse's Fresnel lens to deny the Union Navy the use of the beacon. The island was captured by Union forces in 1861 and held until 1865 as the blockade headquarters for the Tampa Bay area, during which time it was also a military prison and a refuge for southern pro-Union sympathizers. From here Union troops sailed up the Manatee River and destroyed the sugar mills of the Gamble and Braden plantations (Florida Vacation and Travel Guide, "History of Anna Maria Island," http://www.2fla.com/history.htm). In 1864, the city of Tampa was captured by the Union troops, and an unsuccessful attempt was made to recover the Fresnel lens. The lens was returned at the end of the Civil War, and the lighthouse resumed normal operations in 1866. A cemetery for Union and Confederate soldiers was opened on the island in 1864. The cemetery was closed in 1909 and the bodies were moved to military cemeteries at other locations.

In 1898, the Spanish-American War broke out, and Fort Dade was established on Egmont Key with temporary gun batteries. Later, the actual construction of Fort Dade began and continued until 1916. During this time period, over 70 buildings were constructed, including a bakery, a movie theater, a post office, a morgue, a 13-bed hospital, a gymnasium with a bowling alley, a stable, a guard house, and a tennis court. In addition, brick streets were laid and five gun emplacements were constructed. The Spanish never attacked Florida and the guns were never fired in defense of the coast.

The hospital at Fort Dade was used to quarantine all American soldiers returning from Cuba for ten days. During World War I, Fort Dade was used as a training center for National Guard Coast Artillery Units. Fort Dade was deactivated in 1923, although the military still utilized the island for coastal submarine watch and aerial exercises in World War II. A summary of the Military history of Egmont Key was prepared by Roger T. Grange.

In 1928, the Tampa Bay Pilots Association (TBPA), which guides ships through Tampa Bay, was granted a 99-year lease to five acres on Egmont Key, to serve as their base of operations.

The U.S. Lighthouse Service was transferred in 1939 to the U.S. Coast Guard (USCG) which has maintained a light station on Egmont Key ever since. In the 1940's, the USCG replaced the existing lighthouse lens with a double aviation beacon. With the advent of radio communications, they also set up a radio direction finder (RDF), which is used extensively for air and sea navigation. This transmitter now serves as part of the Differential Global Positioning System (DGPS) and is used for surveying, research and transportation. Egmont Key was put to military use again during World War II, as a harbor patrol station and an ammunition storage facility.

In the 1970's, Egmont Key was recognized as valuable wildlife habitat for nesting shorebirds and sea turtles, and on July 10, 1974, it became a National Wildlife Refuge, managed by the USFWS. In December of 1978, Egmont Key was entered on the National Register of Historic Places.

In July, 1990, the USCG replaced the lighthouse's double aviation beacon with a single beacon, which increased the light's range from 28 to 32 miles. Presently, it is one of the brightest lighthouses in Florida.

Due to staffing limitations and increased public visits, the USFWS was unable to protect the resources of the island on its own. The Florida Park Service began operations at Egmont Key on October 1, 1989, as part of a cooperative agreement with the USFWS.

SOCIOECONOMIC ENVIRONMENT

Regional Demographics and Economy

The Tampa Bay Refuges (Pinellas, Egmont Key, and Passage Key) all lie within the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area (MSA). According to the 2005 American Community Survey (U.S. Census Bureau 2005), the population of the Tampa-St. Petersburg-Clearwater MSA was almost 2.6 million – the largest metro area in Florida, and the second largest in the southeastern U.S. (Table 12). The population of the Tampa-St. Petersburg-Clearwater MSA has more than doubled since 1970, when the population was 1,105,553. In the last 5 years, the population of the MSA has increased by about 8.5 percent (Table 12). The Tampa Bay area (and Hillsborough County in particular) has a diverse mix of different cultures and it also has a large community of Latin Americans, the largest minority in the Tampa Bay region. The Tampa Bay region ranks second in the state in terms of homelessness (Tampa Bay Regional Planning Council, September 2005).

The per-capita income of the Tampa-St. Petersburg-Clearwater MSA is comparable with the national average. Given the growth, proximity, and the socioeconomic pressures of the MSA, development impacts are likely to be felt on Egmont Key NWR. (Because of their small size and importance as nesting and breeding grounds for brown pelicans and colonial waterbirds, the public is not allowed entry to Pinellas and Passage Key NWRs.) Egmont Key NWR is the only island open to the public in Tampa Bay and has been traditionally visited for many years as a primary recreation destination (USFWS, “Visitor Services Review Report (draft),” March 2004). In recent years, Egmont Key NWR has drawn approximately 130,000-170,000 visitors annually, with many of these being local citizens, bird watchers, beach combers, and school children. The MSA’s elementary and high school enrollment was estimated to be about 396,000 students in 2005.

The Tampa Bay area is a center for shipping, business, industry, and tourism. Three seaports now flourish along the bay’s borders, in Tampa, St. Petersburg, and in northern Manatee County. The largest of these, the Port of Tampa, consistently ranks among the busiest ports in the nation. Combined, the three ports contribute an estimated $15 billion to the local economy and support 130,000 jobs (Tampa Bay Estuary Program, May 2006). The Port of Tampa handles nearly half of all seaborne commerce passing through the state (and almost as much cargo as all Florida’s other deepwater ports combined), and it is home to a rapidly growing cruise ship industry. The Tampa Port is the nation's seventh largest port. Because it is the closest deep-water port to the Panama Canal, the port is home to a diverse traffic base with terminal facilities encompassing container, bulk, break bulk, ro-ro (role-on roll-off), and project cargoes. It is North America's largest dockside cold storage terminal and home to numerous cruise lines. The Tampa Bay area’s main industries include citrus canning (it's the citrus canning capitol of the world), shrimping, fabricated steel, electronic equipment, cigars, beer, paint, and fertilizers. More than 4 billion gallons of oil, fertilizer products, and other potentially hazardous materials pass through Tampa Bay each year.

Services and retail trade dominate the economy of the MSA. Tampa is not as heavily dependent on tourism as other major cities in Florida. The combination of shipping, tourism, a large retirement community, and a strong manufacturing base contributed to the Bay area’s insulation against adverse changes in the economy.

Figure 17. Cultural resources of Egmont Key National Wildlife Refuge

Outdoor Recreational Economics

The wildlife resources of the three Tampa Bay Refuges are economically important. In addition to the commercial and recreational fishing, ecotourism, including wildlife viewing and photography, and environmental interpretation are increasingly being seen as economically important to local businesses. As the population increases and the number of places left to enjoy wildlife decreases, the refuges may become even more important to the local community. It benefits the community directly by providing recreational and employment opportunities for the local population and indirectly by attracting tourists from outside the area to generate additional income to the local economy. Table 13 presents information summarizing the economic value of wildlife watching in Florida by U.S. residents.

REFUGE ADMINISTRATION AND MANAGEMENT

LAND PROTECTION AND CONSERVATION

Erosion is a significant issue for all three refuges in the Tampa Bay area. One of the objectives for Egmont Key NWR is to conserve and protect the barrier island habitat and preserve historical structures of national significance that are located on the refuge. In 1877, Egmont Key was 539 acres. By 1969, the island was reduced to 405 acres, and in 1974, the year it was designated a national wildlife refuge, the island was 392 acres. Today, the island is approximately 275 acres. The result of this loss has been a serious degradation of the island's natural areas and cultural resources. Beach habitat has been lost, and structures associated with Fort Dade have also been impacted—two of the gun batteries are now in the Gulf of Mexico and other structures (three other gun batteries and the icehouse/mess hall) are in danger of being lost in the near future. In 1999-2000, and again in 2006, the northwest beach area has been renourished as part of a project operated by the USACE.

Pinellas NWR is made up of several mangrove islands and totals 394 acres. One of the objectives for Pinellas NWR is to conserve and protect the mangrove island habitat. Erosion on these islands is being addressed by vegetative plantings and placement of oyster domes and oyster shell bags along the shorelines by volunteers.

Passage Key NWR, when established, was a 60-acre mangrove island with a freshwater lake. A 1921 hurricane destroyed the island. Today, it is a 0.5 to 10-acre meandering sand bar and submerged lands, and is managed as an intermittent island.

VISITOR SERVICES

Egmont Key NWR is the only island that is open to the public within the Tampa Bay Refuges. The island is accessed by boat and receives about 130,000 to 170,000 visitors annually. If not managed properly, increasing visitor use and non-related wildlife-dependent recreation brings increasing risks to fragile fish and wildlife resources and other natural, cultural, and historical resources associated with the refuges.

Table 12. Demographics of the Tampa Bay Region

Characteristic	Tampa St.Petersburg Clearwater MSA[b]	Pinellas County	Hillsborough County	Pasco County	Manatee County	United States
Demographic						
Population (number)	2,596,556	905,158	1,111,717	423,356	300,828	288,378,137
Total Land Area (sq. miles)	2,554.0	280.0	1,051.0	745.0	741.0	3,537,438.0
Population Density (pop./sq. mile)	1,017	3,233	1,058	568	406	82
Race/Ethnicity (% of Population)						
White	81.4	84.1	74.1	91.8	84.1	74.4
Black/African American	11.1	9.9	16.0	2.9	8.2	12.1
Hispanic/Latino (of any race)	13.2	6.3	21.4	8.4	11.4	14.5
Asian	2.5	2.8	3.0	1.5	1.4	4.3
Education (% of population over 25)						
High School degree	85.5	87.3	84.1	85.8	85.1	84.2
College degree	24.5	26.2	27.2	17.7	26.0	27.2
Economic						
Median Household Income	$ 41,852	$ 40,694	$ 45,129	$ 39,562	$ 44,414	$ 46,242
Per capita Income	$ 25,020	$ 27,137	$ 25,086	$ 22,108	$ 25,925	$ 25,035
Families below poverty level (%)	9.3%	8.6%	10.2%	8.7%	6.7%	10.2%
Individuals below poverty level (%)	12.0%	11.1%	13.0%	11.3%	10.0%	13.3%

[a] U.S. Department of Commerce, U.S. Census Bureau, 2005 American Community Survey

[b] The Tampa-St.Petersburg-Clearwater Metropolotian Statistical Area (MSA) is comprised of four counties: Pinellas, Hillsborough, Pasco, and Hernando

Table 13. Activities in Florida by U.S. residents

Wildlife Watching (observing, photographing, or feeding wildlife)

Total wildlife-watching participants	3,240,000
Nonresidential (away from home)	1,503,000
Residential (at home)	2,635,000
Total expenditures	$1,575,481,000
Trip-related	$675,384,000
Equipment and other	$900,097,000
Average per participant	$486
Trip and equipment expenditures by nonresidents in Florida	$401,128,000

Source:

"2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, U.S. Department of the Interior, Fish and Wildlife Service, and U.s. Department of Commerce, U.S. Census Bureau, revised March 2003, http://www.census.gov/prod/www/abs/fishing.html

For the most part, none of the priority public uses are actively promoted by the Service at the Tampa Bay Refuges and their surrounding access sites (boat ramps and fishing piers). There are excellent opportunities for wildlife observation, wildlife photography, environmental education and interpretation, and outreach. Fishing is a primary public use off-shore, with the state and local governments providing primary enforcement oversight for the waterways.

The Tampa Bay Refuges currently do not have a Visitor Services Plan. Egmont Key NWR has beach access on the north section of the island and a small access area on the eastern side of the island where visitors can observe and photograph the refuge wildlife, particularly shorebirds. There is a small trail system and other areas on the northern portion of the island which provide other opportunities for wildlife observation, and one is almost certain to view a gopher tortoise among other wildlife species. Visitors can also view wildlife from boats at a more distant vantage at Passage Key and Pinellas NWRs. The Service currently provides no environmental education programs at the Tampa Bay Refuges. There are no interpretive panels related to the historic remains on the island and only a few related to the wildlife, and there is a limited outreach program.

There is some signage on the refuge islands, predominantly boundary signs identifying closed areas. On Egmont Key NWR there are a couple of signs indicating the Service and Florida State Park management partnership, and a few directional signs posted by the state park. Some of the Fort Dade building sites, remains, and the Guard House Building have identification signs posted, however these signs are not consistent—some were posted by the state, others by the Service, and volunteers have posted their own signs which are beginning to deteriorate. There is one restroom available at times to the public and no potable water available to the public.

PERSONNEL, OPERATIONS, AND MAINTENANCE

The Tampa Bay Refuges are administered by the Chassahowitzka National Wildlife Refuge Complex (NWR Complex) in Crystal River, Florida, with one refuge operations specialist assigned to the Tampa Bay Refuges. The 10-person staff is responsible for the Chassahowitzka NWR Complex and

the Tampa Bay Refuges. The staff includes the refuge manager, GS-485-13; deputy refuge manager, GS-485-11/12; office assistant, GS-303-07; wildlife biologist, GS-486-11; visitor services specialist, GS-025-09/11; (2) park ranger/LE, GS-025-07/09; refuge operations specialist/LE, GS-485-09/11 (assistant refuge manager); small craft operator, WG-5786-08; and maintenance mechanic, WG-4749-07/08.

Egmont Key NWR has been cooperatively managed with the FPS through a cooperative agreement signed in 1989. Under the terms of this agreement, the FPS would manage public use activities and natural and cultural resources, and the Service would continue to manage the wildlife resources on the island and review the FPS resource management and land use. There is one full-time state park manager assigned to Egmont Key NWR. The USCG owns 55 acres at the north end of the island which includes the lighthouse. The Tampa Bay Pilots Association leases a 10-acre tract of land along the east side of the island, 5 acres of which is leased from the Service.

The refuge has boats, vehicles, ATVs, and other equipment vital to pursuing its purpose. The boats are stored at the Eckerd College boat yard in south St. Petersburg. Most of the staff works out of the offices at the Chassahowitzka NWR Complex, which is about 100 miles driving distance from the Tampa/St. Petersburg metro area. However, a small office in the St. Petersburg area is being leased. The refurbished guard house building on Egmont Key NWR is also the property of the Service. Under an agreement with the Tampa Bay Pilots Association, the refuge staff has use of one of the Pilots' cabins. The refuge installed a storage shed and carport which houses refuge vehicles including ATVs and a mule. The refuge staff may also use the Pilots' dock. The Pilots Association also assists refuge staff with transportation of equipment, supplies, and/or people as needed.

Access to the refuge islands is by boat only. Egmont Key NWR is the only island that allows public access, and it has some trails that need to be maintained to allow access to different areas of the refuge. Passage Key and Pinellas NWRs have no trails or roadways.

III. Plan Development

SUMMARY OF ISSUES, CONCERNS, AND OPPORTUNITIES

The planning team identified a number of issues, concerns, and opportunities related to fish and wildlife protection, habitat restoration, recreation, and management of threatened and endangered species. Additionally, the planning team considered federal and state mandates, as well as applicable local ordinances, regulations, and plans. An initial planning meeting for the Draft CCP/EA was held October 12, 2005, which included representatives from the FWC and the FDEP, among other agencies. The team also directed the process of obtaining public input by holding three public scoping meetings for the Tampa Bay Refuges. The meetings were held in Hillsborough, Pinellas, and Manatee Counties in February 2006. Comment forms were available at these meetings and at headquarters for submittal via mail or e-mail. The refuge staff also held two public meetings to solicit public reaction to the proposed alternatives in the Draft CCP/EA. A 30-day public review and comment period of the Draft CCP/EA was provided. Oral comments made at the meetings were duly noted. All public and advisory team comments were considered; however, some issues important to the public fall outside the scope of the decision to be made within this planning process. The team considered all issues that were raised throughout the planning process, and has developed a plan that attempts to balance the competing opinions regarding important issues. The team identified those issues that, in the team's best professional judgment, are most critical to the refuges. A summary of these issues follows. Appendix D addresses both scoping and Draft CCP/EA public comments.

FISH AND WILDLIFE POPULATION MANAGEMENT

Threatened and Endangered Species

Recovery and protection of threatened and endangered plants and animals are important responsibilities delegated to the Service and its national wildlife refuges. The Tampa Bay Refuges provide habitat and protection for the threatened piping plover and Atlantic loggerhead turtle, and for the endangered manatee.

One or two piping plovers have been observed on Egmont Key NWR from September to December each year. Egmont Key NWR is designated as critical habitat for the piping plover. Passage Key NWR could also be used as wintering habitat by piping plovers. Erosion of beach habitat is a serious problem on Egmont Key and Passage Key NWRs.

Approximately 20 to 60 Atlantic loggerhead sea turtles nests have been recorded annually on Egmont Key NWR. Egmont Key is listed as an "index nesting beach" by FWC. This designation means that it is an important site for determining an index of sea turtle population status and trends along the Atlantic (and Gulf) Coast of the United States to determine progress towards recovery. Passage Key NWR has also been used by loggerhead sea turtles for nesting.

The number of loggerhead turtle nests may be declining due to loss of habitat caused by severe erosion occurring along the west beach of Egmont Key NWR. The greatest threat to sea turtle nests is severe beach erosion caused by high tides, storm tides, tropical storms, and hurricanes. Fire ants and ghost crabs occasionally invade sea turtle nests and destroy the eggs.

Small numbers of West Indian manatees have been observed in the seagrass beds along the east side of Egmont Key NWR and occasionally around Passage Key and Pinellas NWRs during the spring and summer. These areas are outside refuge jurisdiction; however, efforts need to be made to protect the manatees and their habitats near refuge lands.

State-Listed Species

Gopher tortoises are listed as a threatened species in Florida. Approximately 1,300 to 1,700 gopher tortoises live on Egmont Key NWR. Illegal poaching, recreational collecting, and malicious harming of gopher tortoises have been documented.

Two plant species, inkberry and prickly pear cactus, and one other species that is proposed for listing, the hairy beach sunflower, grow on Egmont Key NWR. Active management, in cooperation with the FPS, would be required to protect these plants from invasive exotic species and human activity.

Mangrove-Nesting and Roosting Waterbirds

The current mangrove nesting areas in the Tampa Bay Refuges are on Pinellas NWR, with some nesting occurring in the mangroves on Egmont Key NWR. The bird species nesting on Pinellas NWR do so mostly in mangroves, predominantly on Little Bird Key. In years past, nesting occurred widely on other keys, especially on Tarpon Key and Whale Key.

Mangrove nesting and roosting waterbirds are in need of protection and include many species of concern. The long-legged wader, the reddish egret, a Florida State-Listed Species of Special Concern, is found nesting in the Tampa Bay area. Its population has stabilized in the last few years after the stoppage of the millinery trade. The roseate spoonbill, brown pelican, tricolored heron, and white ibis, four other State-Listed Species of Special Concern, as well as the yellow-crowned night heron and black-crowned night heron are some of the other species found nesting on the refuge. Although not breeding in Tampa Bay, the keys in Pinellas NWR may represent important post-breeding roost sites for the magnificent frigatebird.

Tarpon Key was an important nesting, resting, and feeding area for a variety of colonially nesting waterbirds including the white ibis, reddish egret, and roseate spoonbill. Very little nesting has been documented since 2002 when consistent predator control efforts ceased and this colony succumbed to raccoons and possibly fish crows. In addition, some of the mangrove habitat has been lost due to erosion from boat wakes and storm surges. Exotic vegetation, particularly the Brazilian pepper and the Australian pine, is spreading on the islands replacing the native vegetation and habitat. Although all the islands in the Pinellas NWR are closed to all public use, illegal access by the public still occurs and causes birds to abandon their nests or flushes the birds from their nests, allowing predators to invade. Improper disposal of monofilament fishing line and trash, and oil spills have caused mortalities among the birds.

Beach-Nesting Waterbirds and Shorebird Species

Optimal beach habitat for birds is becoming scarce as private land is being developed. Egmont Key NWR has two wildlife sanctuaries totaling 97 acres on the south end and the east side of the island to protect nesting, resting, and feeding birds. These sanctuaries are closed to the public year-round. The northwest beach is closed seasonally to protect black skimmer and least tern nesting colonies. Passage Key NWR is a wilderness area which is closed to the public year-round. Approximately 38,000 pairs of birds nested on Egmont's beaches in 2007, up from 50 pairs in 1998. Approximately 3000 pairs of birds including brown pelicans, laughing gulls, royal terns, and black skimmers nested

on Passage Key NWR in 2003. However, Passage Key NWR became an intermittent island in 2005, sometimes becoming almost completely submerged.

Large and important colonies of brown pelican, laughing gull, and royal and sandwich terns occur on Egmont Key NWR and historically on Passage Key NWR. The sandwich tern, in particular, has a strong presence on Egmont Key NWR and historically on Passage Key NWR. Ninety percent of sandwich tern pairs in peninsular Florida reside in the Tampa Bay area, 66 percent of those are on Egmont and Passage Key NWRs. Laughing gulls have shown a 60 percent decline in the past 25 years in Florida. Among nesting shorebirds, plovers and the oystercatcher are the highest priority species. Among the colonial nesting species, black skimmers and least terns are the highest priority species.

Similar to the mangrove-nesting and roosting waterbirds, the major issues that threaten the beach-nesting waterbirds and shorebird species populations are predators (dogs, rats and fish crows), human disturbance both inside and outside of the closed areas, erosion of beach habitat, invasive plant species (Brazilian pepper and Australian pine) and other native plants (sea oats and low herbaceous plants), reducing nesting habitat for terns and skimmers. Improper disposal of monofilament lines and trash poses threats. Also, oil spills pose threats.

Landbirds

Landbirds of conservation interest on Tampa Bay Refuges include mangrove breeding species on Pinellas NWR, and transient neartic-neotropical migratory species on Pinellas and Egmont Key NWRs. Mangroves support a number of landbirds of continental and regional concern, specifically, the mangrove cuckoo, black-whiskered vireo, and the Florida prairie warbler. The gray kingbird is a species of local interest. Dozens of nearctic-neotropical migratory species regularly pass through Tampa Bay and are priorities on the national level or within specific physiographic regions. Availability of extensive and diverse mangrove and hardwood hammock habitats would accommodate the invertebrate, fruit, and nectar demands of most in-transit forest-dwelling species.

Mosquito control on adjacent lands may indirectly affect insectivore food supplies for both breeding and migratory landbirds. Currently, the status and trends of Florida's mangrove-associated landbird species is undetermined, particularly in the Tampa Bay region.

Reptiles

Gopher tortoises were addressed under state-listed species. Egmont Key NWR also supports very high densities of Florida box turtles. The exotic Brazilian pepper thickets on Egmont Key NWR create a microclimate conducive to box turtles and their favorite food, cockroaches. Attempts to eliminate exotic plant species from the refuges would reduce the Brazilian pepper thickets. Use of prescribed fire to restore habitat conditions could also negatively affect box turtle densities. Like the gopher tortoise, the box turtle is threatened by illegal poaching, recreational collecting, and malicious harming of the animals.

Diamondback terrapins nest in the uplands of Tarpon Key, Pinellas NWR. This species is considered to be in decline through much of their distribution because of habitat loss and from drowning due to being caught in crab traps.

A male specimen of the mole skink was identified on Egmont Key NWR among sea oats and Australian pine. The specimen found was thought to have unique features suggesting that the island's population could represent an undescribed subspecies. More information is required. Like the box turtle, reduction of exotic plant species and sea oats could compromise the mole skink's habitat.

HABITAT MANAGEMENT

Erosion

Erosion on the Tampa Bay Refuges is a major habitat management concern. Beach erosion management has included beach renourishment on Egmont Key NWR. However, beach renourishment done too frequently could lead to depletion of invertebrates in the substrate that may not be able to recover from the last event. Depletion of the invertebrates would temporarily impact foraging shorebirds. Managing Passage Key NWR by use of beach renourishment may be in conflict with its wilderness area designation. Maintenance of the wilderness character of this refuge requires minimum active management of the land, allowing natural process to control the conditions. However, if erosion of Passage Key NWR continues, the island may become submerged for extended periods of time and may no longer serve the purpose of a nesting island for migratory birds. Stabilization of beach and mangrove habitats with native vegetation, such as Spartina alterniflora, or by use of oyster shells is also important.

Native Habitat Conditions and Exotic Plant Species

Returning the refuges to their likely native habitat conditions prior to European settlement of the island is a goal of the Service. A decision must be made regarding what type of native habitat would be most suitable today. The control and/or removal of exotic plant species, particularly Brazilian pepper and Australian pine, are required to protect native habitat for priority species on the refuges. Prescribed burning is one method that could help eliminate exotic plants, however, the fire could negatively impact wildlife populations if improperly managed. The removal of exotic plant species could also disturb nesting birds if done during certain times of the year or by certain means. Removal of Brazilian pepper and sea oats from the refuges could reduce habitat for the box turtle and mole skink respectively; however, these are not the priority species.

Sea Grasses

Sea grasses surrounding the refuge islands are important foraging area for manatees, and habitat for other wildlife. Protection of these areas is important, but is outside the jurisdiction of the Service.

Global Warming and Sea Level Rise

Florida's coasts and coastal national wildlife refuges are expected to be negatively impacted by sea level rise in the next century. Some species may initially gain more access to habitat as sea level rises and certain habitats advance while other habitats deteriorate and recede. Despite an apparent initial benefit to some species in the short term, the long-term impacts of sea level rise are expected to be primarily negative for most species. Changes to Florida's coastal habitats would alter habitats including sea grasses, salt marsh, freshwater marsh, mangroves, hardwood swamp, cypress swamp, tidal flats, and beaches. Changes to Florida's coastal habitats would impact Florida's wildlife including gamefish species and shorebirds (McMahon 2006).

Global warming can lead to other stressors besides sea level rise which could also threaten coastal refuges. Global warming will result in altered precipitation patterns such as more intense hurricanes and more extreme rainfalls and droughts. Global warming will also result in higher average air and water temperatures that foster increased algal blooms and hypoxic conditions that are damaging to fish and other aquatic species, coral bleaching, and marine diseases (McMahon 2006).

Sea Level Affecting Marshes Model (SLAMM) analysis was run for Egmont Key and Pinellas NWRs using SLAMM versions 4.1 for Egmont Key NWR and SLAMM version 5.0 for Pinellas NWR. Egmont Key NWR is projected to experience a loss of coastal habitats including dry land, tidal flats, and salt marsh in the next century, as well as a slight decrease in estuarine open water. The refuge would experience a considerable increase in open-ocean (McMahon 2006). The area around Pinellas NWR is predicted to lose tidal flats due to inundation and erosion. According to the SLAMM simulations run, the primary dynamic affecting mangrove abundance at Pinellas NWR is the rate of mangrove accretion as compared to the rate of sea level rise. Because mangroves generally accrete at a high rate, they are more resilient to sea level rise. However, once sea level rise exceeds mangrove accretion rates, all mangroves are predicted to quickly disappear (Clough 2008).

Passage Key NWR is an intermittent island and much or all of its land mass could be lost because of sea level rise. As the sea level rises and changes occur, adaptive management of the changing habitat would be required, and the Service would consider acquiring new lands to provide habitat for priority species.

See Clough 2008 and McMahon 2006, listed in Appendix B.

RESOURCE PROTECTION

Because of their small size and importance to nesting, migrating, and roosting shorebirds and other waterbirds, Pinellas and Passage Key NWRs are closed to all public use year-round. Two wildlife sanctuaries on Egmont Key NWR, one located on the south end and the other located on the east or bay side of the island, are closed to the public year-round to protect the birds and the sea grass beds. The northwest beach of Egmont Key NWR is closed seasonally to protect black skimmer and least tern nesting colonies. Illegal access to these areas threatens the wildlife and habitat. The sea grass habitat is outside the Service's jurisdiction. Generally, urban development and its associated recreational encroachment and potential water and air contamination threaten all refuge resources.

Overflights from recreational ultralights, small planes, and news aircraft during oil spills or other events can disturb the birds. Flushed birds leave their nests making the eggs and chicks vulnerable to predators and the elements. FAA navigation charts show "recommendations" to fly above 2,000 feet over national wildlife refuges and other special areas, but it is not enforced. If harassment (flushing a bird off of a nest) occurs to an endangered or threatened species, aircraft operators would be in violation of the Endangered Species Act. If a bird is killed or "take" occurs, they may be violating the Migratory Bird Treaty Act.

On Egmont Key NWR, there are historical structures of national significance, including remnants of Fort Dade and the lighthouse. Erosion at the shoreline and mistreatment by the public are compromising the structures. Some of the fort structures are now surrounded by water and swimmers dive to explore them. In addition, accumulation of fuel loads on Egmont Key NWR has increased the risk of wildfires on the island. Fire management, including suppression of fires or removal of the fuel loads, would be required to prevent property and cultural resources damages due to uncontrolled fire.

VISITOR SERVICES

There is a general lack of awareness regarding the Service's mission, purpose, and management objectives, particularly as it relates to the Tampa Bay Refuges. Minimal outreach is being conducted, and environmental education and interpretation opportunities are lacking at the refuges.

Tampa Bay Refuges staff has not promoted wildlife-dependent recreation at the three refuges. Passage Key and Pinellas NWRs are closed for public use; however, there are still opportunities for

wildlife observation and photography from the water. Egmont Key NWR has very good vantage points for wildlife observation and photography, and the Service could provide good opportunities for environmental education and interpretation. However, lack of facilities at the refuge and staff located off-site and outside the Tampa Bay/St. Petersburg vicinity undermines these opportunities. Currently, there is an informational sea turtle panel on Egmont Key NWR's west beach. Fishing is allowed in the waters surrounding Pinellas NWR and fishing from shore is allowed on Egmont Key NWR. Off-shore fishing around Pinellas NWR may disturb the birds nesting near shore.

Problems are occurring on Egmont Key NWR due to overcrowding and overuse. Unregulated commercial tours bring over 70,000 visitors to Egmont Key NWR annually. Boaters, anglers, swimmers, and sunbathers gather at Egmont Key NWR where there is no available freshwater for public consumption and sanitation facilities are sparse or unavailable.

REFUGE ADMINISTRATION

The Tampa Bay Refuges are administered by the staff headquartered at Chassahowitzka NWR Complex. One refuge operations specialist is assigned to the Tampa Bay Refuges. Limited staff assigned specifically to the Tampa Bay Refuges and the lack of facilities (office, freshwater, and sanitation facilities) located at the refuges has prevented the refuges from realizing their full potential. Environmental education and interpretation opportunities have not been realized and Service refuge regulations have not been adequately enforced.

Overcrowding and overuse of Egmont Key NWR has become an issue. Lack of a controlled access point to the island and unregulated commercial tours have contributed to the problem. In addition, the carrying capacity of the island has not been determined, which would be required to manage the refuge and park properly.

Jurisdictional issues exist regarding the management and operation of the refuges and the cooperative agreement with FPS for Egmont Key NWR. The Service and the FPS, who jointly manage Egmont Key NWR and State Park, have conflicting missions, purposes, and management objectives for Egmont Key. The Service's main priority is to protect the fish and wildlife and their respective habitats. The FPS manages the public use activities at the State Park which allows for recreation unrelated to wildlife. The FPS also assists the Service in resource management. Common and consistent rules and regulations need to be adopted for the refuge and park for effective, coordinated management.

USCG property (55 acres) at the north end of Egmont Key is currently controlled by the Bureau of Land Management. The Tampa Bay Pilots Association leases a 5-acre tract of land from Hillsborough County on the eastern edge of the island, about mid-island and it leases another 5 acres from the Service. These lands are not being managed in a manner consistent with the Service land on the island. Exotic vegetation control, fire management planning, and signage are fairly non-existent for the combined 60 acres which compromise the Service's goals and objectives for Egmont Key NWR.

Wilderness Review

Refuge planning policy requires a wilderness review as part of the comprehensive conservation planning process. The Service inventoried other refuge lands within the planning area and found no areas that meet the eligibility criteria for a wilderness study area as defined by the Wilderness Act. Therefore, the suitability of refuge lands for wilderness designation was not further analyzed in the Draft CCP/EA. The results of the wilderness review are included in Appendix H.

IV. Management Direction

INTRODUCTION

The Service manages fish and wildlife habitats considering the needs of all resources in decision-making. But first and foremost, fish and wildlife conservation assumes priority in refuge management. A requirement of the Improvement Act is for the Service to maintain the ecological health, diversity, and integrity of refuges. Public uses are allowed if they are appropriate and compatible with wildlife and habitat conservation.

Described below is the comprehensive conservation plan for managing the refuge over the next 15 years. This management direction contains the goals, objectives, and strategies that will be used to achieve the refuge vision.

Three alternatives for managing the refuge were considered: Alternatives A – Current Management – No Action, B – Moderately Expanded Program, and C – USFWS Manages all of Egmont Key and Expands Programs. Each of these alternatives was described in the Environmental Assessment, which was Section B of the Draft Comprehensive Conservation Plan for the Tampa Bay Refuges. The Service chose Alternative B, Moderately Expanded Programs, as the preferred management direction.

Implementing the preferred alternative will result in the Service directing and coordinating more of the activities that affect the refuges such as wildlife surveying and research, and habitat conservation. Wildlife surveying will be expanded and the Service will initiate research related to the gopher tortoises, sea turtles, migratory birds, and other species. Greater predator control and greater regulation of illegal access to closed areas will be accomplished by hiring a biological technician and a full-time law enforcement officer for the Tampa Bay Refuges. A visitor services center with restroom facilities will be developed at the Egmont Key NWR guard house, providing educational opportunities related to the wildlife and cultural resources. Wildlife photography and observation opportunities will also be enhanced by allowing limited access to closed areas and by the construction of an observation tower on Egmont Key NWR for better viewing of the wildlife. Increased public use opportunities including outreach and interpretation will be accomplished with the addition of a public use specialist.

VISION

The Tampa Bay Refuges provide essential wildlife habitat with opportunities for research, the protection of cultural resources, and quality environmental and outdoor recreation. Egmont Key, Pinellas, and Passage Key NWRs are a vital link in the Tampa Bay area for nesting, resting, and wintering migratory birds, threatened and endangered species, and resident wildlife. Protecting these refuges with their diverse, but declining habitats and abundant wildlife and cultural resources is critical for ensuring the enjoyment and use of the islands by future generations.

GOALS, OBJECTIVES, AND STRATEGIES

The goals, objectives, and strategies presented are the Service's response to the issues, concerns, and needs expressed by the planning team, the refuge staff and partners, and the public. Chapter V, Plan Implementation, identifies the projects associated with the various strategies.

These goals, objectives, and strategies reflect the Service's commitment to achieve the mandates of the Improvement Act, the mission of the Refuge System, and the purposes and vision of the Tampa Bay Refuges. The Service intends to accomplish these goals, objectives, and strategies within the next 15 years.

Goal 1 – Provide Habitat and Protection for Migratory Birds, Mangrove-Nesting and Roosting Waterbirds, and Beach-Nesting Waterbird and Shorebird Species.

Discussion: The purposes of the refuges are to protect and provide habitat for nesting, feeding, and resting migratory birds, colonial-nesting waterbirds, and native birds; to conserve and protect the barrier island habitat; and to provide critical habitat for trust species.

Erosion is the foremost problem for Egmont Key and Passage Key NWRs, and is an issue for Pinellas NWR as well. Exotic and invasive vegetation, particularly Brazilian pepper and Australian pine, have altered natural habitats which support the trust species on the refuges. In addition, a hazardous substance spill from the heavy recreational and commercial traffic in Tampa Bay and the Egmont Channel has the potential to adversely impact the refuges.

Objective 1: Within 5 years of reaching staffing goals, develop baseline data and monitoring programs to evaluate the status and trends of migratory and resident bird species on the refuge to support healthy populations in the region.

Discussion: The Service conducts bird surveys on a monthly basis when able, and peak nesting surveys are also conducted by the Service staff with partners. The surveys all need to be lead and coordinated by the Service to ensure standardized monitoring techniques are utilized and the data is compiled and assessed comprehensively. Additional surveys and increased frequency of some current surveying is required to accurately determine the status and trends of the bird populations.

Strategies:

- Service leads the bird surveys. The surveying is done on a monthly basis and includes data on counts, species, and distribution per island and zone.
- Service continues to conduct annual peak nesting bird surveys with partners.
- Service leads and coordinates additional surveys with partners such as the International Shorebird Survey, Audubon Christmas Bird Count, and the International Piping Plover Survey.
- Existing data is summarized/analyzed to compare historical data with current data, especially where declines are noted.

Objective 2: Restore Egmont Key NWR to a 300-acre island and maintain the island with no net loss within the 15-year life of this CCP.

Discussion: Egmont Key NWR has lost nearly half of its acreage since 1877, and has lost nearly one third since 1969. In 1877, Egmont Key was 539 acres, and in 1974, when it was designated a national wildlife refuge, it was 392 acres. Now the refuge portion of the island is 240-250 acres. Current beach renourishment activities on Egmont Key NWR are facilitated on irregular intervals through other organizations that coordinate with the USACE. The renourishment efforts have focused primarily on the northwest end of the island where the cultural and historical resources are located and the beach is open to the public. The beach is eroding along the entire west side of the island. A more comprehensive approach is needed to mitigate the loss of beach and to maintain the

island. The environmental impacts of long-term beach renourishment would be evaluated and addressed prior to implementing routine beach renourishment at the refuge.

Strategies:

- Service continually encourages involvement of the Friends Group and wildlife-oriented non-governmental organizations to support continued beach renourishment on Egmont Key NWR.
- Service monitors the effects of current and future beach renourishment on invertebrates and wildlife.
- Develop a long-term beach renourishment plan for all of Egmont Key NWR which would determine the location, frequency, quantity of material, etc., for routine beach renourishment on the island. Service would routinely coordinate directly with the USACE for implementation.
- Explore possibility of restoring the natural sand drift to the island.
- Explore possibility of hard armoring (installation of rock jetties, rip rap) to prevent erosion of the island.

Objective 3: Maintain Pinellas Refuge islands at current acreage with no net loss.

Discussion: Some mangrove habitat has been lost due to erosion from boat wakes, storm tides, tropical storms, and hurricanes. Renourishment to prevent further erosion and to allow mangrove seedlings to be established is recommended.

Strategies:

- Service and partners install oyster shell bars as needed near the edge of islands to aid in shoreline stabilization.
- Service and partners plant smooth cordgrass (*Spartina alterniflora*) as needed near the shoreline of the islands to allow mangrove seeds to take root.
- Coordinate with the state to create an idle speed zone between Little Bird Key and the nearby sea wall to reduce the impact of boat wakes.

Objective 4: Restore Passage Key NWR to 36 acres and maintain with no net loss within the 15-year life of this CCP.

Discussion: Restoring Passage Key NWR would require some interpretation of the Wilderness Act to determine the “minimum tool necessary” to accomplish the task. The erosion of Passage Key NWR is caused in some part by human activity in the Tampa Bay (heavy boat traffic and dredging), as well as by storms. Currently, the island ranges in size from 0.5-10 acres, and can be virtually submerged for periods of time. If Passage Key NWR becomes submerged for extended periods of time, it would no longer serve the purpose of providing habitat for colonial waterbirds.

Strategies:

- Service continually encourages involvement of the Friends Group and wildlife-oriented non-governmental organizations to support beach renourishment on Passage Key NWR, as allowed by wilderness designation.

- Service routinely coordinates directly with the USACE and includes Passage Key NWR as part of the long-term beach renourishment plan for Egmont Key NWR, as allowed by wilderness designation.
- Explore the possibility of installing oyster domes to reduce wave action that causes erosion of Passage Key NWR.

Objective 5: Complete eradication of exotic and invasive vegetation on all refuge islands within 5 years of the date of this CCP.

Discussion: To maintain the natural diversity of wildlife and habitat, pervasive exotic and invasive species must be controlled.

Strategies:

- Increase Service exotic control efforts by hiring one biological technician.
- Service staff, partners, and contractors use mechanical, chemical, and/or manual means to remove exotic and invasive vegetation from the refuges.
- After the initial removal of exotic and invasive vegetation, utilize prescribed fire approximately every 3 years on Egmont Key NWR.
- Monitor the effects of prescribed fire on wildlife and vegetation.
- Restore habitat, especially on Egmont Key NWR where Brazilian pepper has been removed, with native plants.
- Continue to monitor refuges for reinfestation and treat as needed.

Objective 6: Maintain 15 acres of nesting tern and skimmer habitat on Egmont Key NWR within 5 years of the date of this CCP. Increase acreage as tern and skimmer populations increase.

Discussion: Terns typically nest in open areas with sparse, short vegetation. Their nests consist of depressions in the sand or eggs are merely laid on the surface of more solid substrates such as rocks, crushed shells, or gravel. Areas where terns typically nest on Egmont Key NWR are being overgrown with native plants, reducing the size of the area suitable for nesting. Skimmers nest on sandy or gravelly bars and beaches at the refuge.

Strategies:

- Remove or reduce native plants in and around tern and skimmer nesting habitat manually, mechanically, or by the use of prescribed fire.
- Seasonally close beach habitat within the public use areas on the island with twine and flagging to encourage beach-nesting birds.

Objective 7: Within 1 year of becoming a member of the Tampa Bay Refuges staff, ensure personnel are familiar with the County Spill Response Plans, and, in the event of a spill, know how to react to protect the refuges' wildlife and habitat.

Discussion: Vessels containing billions of gallons of oil and other hazardous substances pass through Tampa Bay and Egmont Channel annually. Cargo ships, cruise ships, and recreational boats add to the heavy traffic. In 1993, a 3-way ship collision at the mouth of Tampa Bay caused 300,000 gallons of oil to be released. Service personnel should be prepared in case there is another spill.

Strategies:

- Service supports the County Spill Response Plans.
- Service coordinates with partners to respond to spills.

Objective 8: Eradicate raccoons and rats from refuge islands within 2 years of the date of this CCP and remove predatory fish crows on a continual basis.

Discussion: Colonies of birds have been devastated by raccoon predation, in particular, nesting birds on Tarpon Key. Predation by fish crows has increased recently and rats have become a serious issue on Egmont Key NWR. Predator control on the refuge islands is critical to protect wildlife.

Strategies:

- Hire one biological technician to live trap raccoons and rats.
- Use Service personnel and/or contractors as needed.
- Continue to monitor refuges for reinfestations and remove predators as needed.

Objective 9: Reduce the occurrences of refuge violations on an on-going basis.

Discussion: The southern end and an eastern portion of Egmont Key NWR are closed to all public use year-round to protect the birds, and a vessel exclusion zone has been established around the seagrass beds on the east side of the island to protect them from propeller damage. Small areas of the public beach can be closed seasonally to protect certain bird populations or buried turtle eggs. Pinellas and Passage Key NWRs are closed to the public year-round to protect wildlife and critical habitat. Illegal access to closed areas or human disturbance even outside of the closed areas can cause birds to abandon their nests or flush from their nests allowing predators to move in. Bird nests on the ground are often hard to detect as the nest and eggs visually blend into their surroundings. Access to closed areas could inadvertently destroy these eggs and buried turtle eggs by trampling.

Strategies:

- Increase Service law enforcement presence by hiring one full-time law enforcement officer.
- Improve, maintain, and increase the number of signs designating closed areas, and those prohibiting dogs on Egmont Key NWR.
- Install barriers to prevent entry to closed areas.
- In coordination with FPS, determine the public use capacity of Egmont Key NWR and manage visitation, overcrowding, and commercial tours within 5 years of reaching staffing goals.
- Explore the possibility of extending the Service's law enforcement jurisdiction around the islands beyond mean high tide through an agreement with the state or port authority, a submerged land lease, changing the acquisition boundary of the refuges, or other means.
- Improve awareness of the role of the Service, the purposes of the refuges, and the reason for closed areas through educational opportunities.

Objective 10: Continue routine removal of improperly disposed monofilament fishing line and other waste from refuge islands and beaches.

Discussion: Fishing line and other trash entangle birds, manatees, fish, turtles, and other wildlife, and causes death to the animal entangled.

Strategies:

- Continue to work with partners to remove improperly disposed material.
- Educate and improve public awareness of the hazards caused by improper disposal of material to help reduce the amount.
- Rescue entangled, oiled, and injured animals when possible.

Objective 11: Establish a fire management program on Egmont Key to reduce hazardous fuel loads and to protect wildlife and island facilities from catastrophic wildfire events.

Discussion: Large amounts of vegetative biomass from exotic species control efforts and tree die-offs from tropical storm events cover most of the island of Egmont Key NWR. A prescribed fire would drastically reduce the threat of a catastrophic wildfire event and would improve nesting and foraging habitat for most refuge species including gopher tortoise and beach-nesting birds.

Strategies:

- Service completes a fire management plan within 1 year of date of this CCP.
- Service fire management office conducts prescribed burns as needed to reduce hazardous fuel loads and to improve habitat.
- Service and partners educate and improve public awareness of the benefits of controlled burning and the hazards of increasing fuel loads.
- Service maintains fire-breaks around island facilities and cultural resources.

Goal 2 – Provide Habitat and Protection for Threatened and Endangered Species and State-Listed Species.

Discussion: Another purpose of the refuge is to provide habitat and protection for threatened and endangered species and species of special concern, which include federal, state, and internationally listed species.

Objective 1: Protect and conserve sea turtle nesting habitat on Egmont Key and Passage Key NWR beaches.

Discussion: The Atlantic loggerhead sea turtle is a threatened species located in the Tampa Bay area. Threats to adult loggerheads include being trapped in fishing nets and being injured by boat propellers. Commercial, residential, and recreational development has decreased the amount of coastal habitat available for nesting sea turtles. Female sea turtles nest on Egmont NWR beaches. Egmont Key NWR is an Index Beach Site for the Atlantic loggerhead sea turtle. Erosion of the refuge *beaches and barriers to nesting areas, such as fallen palm trees, are reducing sea turtle habitat on* the refuge. Additional threats to sea turtles include nest predation by raccoons or poaching by humans.

Strategies:

- Develop and implement a long-term beach renourishment plan for Egmont Key and Passage Key NWRs. (See Goal 1, Objectives 2 and 4.)
- Control predators such as raccoons (see Goal 1, Objective 8), and continue to post sea turtle nests on the refuge to prevent disturbance by informing visitors that the nest is there.
- Hire one full-time Service law enforcement officer to enforce refuge regulations and prevent poaching of sea turtle eggs.
- Remove barriers to nesting by removing fallen palm trees as needed.
- Hire one biological technician to direct and lead monitoring efforts with partners.
- Continue Index Nesting Beach Surveys.
- Continue to support the Atlantic Loggerhead Sea Turtle Recovery Plan.
- Initiate sea turtle research to support sea turtle recovery.

Objective 2: Protect and conserve designated critical habitat for piping plovers on Egmont Key NWR beaches.

Discussion: Piping plovers are a threatened species that are found in Florida during the non-breeding season (fall, winter, and spring). Commercial, residential, and recreational development has decreased the amount of coastal habitat available for piping plovers. Egmont Key NWR has been designated as a critical habitat for piping plovers to feed and roost. However, erosion of the refuge beaches is reducing the piping plover critical habitat, and public beach use may be interfering with the foraging and roosting of these birds. Illegal access to closed areas disturbs wintering birds.

Strategies:

- Develop and implement a long-term beach renourishment plan for Egmont Key and Passage Key NWRs. (See Goal 1, Objectives 2 and 4.)
- Control predators such as raccoons (see Goal 1, Objective 8).
- Hire one full-time Service law enforcement officer to enforce refuge regulations.
- Service directs and leads monthly surveys and coordinates additional surveys with partners.
- Service participates in the International Piping Plover Survey that occurs every 5 years.

Objective 3: Protect and conserve manatee sea grass feeding habitat on east side of Egmont Key NWR.

Discussion: The West Indian manatee is an endangered species found primarily along the coast of Florida. The largest problems facing the manatee are caused by man. Speeding boats run over many manatees that are submerged just below the surface which either kills them or maims them. A vessel exclusion zone has been established around the sea grass beds on the east side of Egmont Key NWR to protect seagrass and manatees that feed on the vegetation.

Strategies:

- Service continues to cooperate with the state and other partners to enforce the vessel exclusion zone around the sea grass beds on the east side of Egmont Key NWR.
- Expand the vessel exclusion zone out from the shore, and clarify the boundary by creating a straight border.

Objective 4: Protect and conserve the Egmont Key NWR gopher tortoise population, increase their burrowing and foraging habitat from 50 acres to 100 acres or more, and maintain the habitat within the 15-year life of this CCP.

Discussion: The FWC has listed the gopher tortoise as a threatened species for the following reasons: (1) It has a significant vulnerability to habitat modification, environmental alteration, human disturbance, or human exploitation; (2) it may already meet certain criteria for designation as a threatened species; and (3) it may occupy such an unusually vital or essential ecological niche that should it decline significantly in numbers or distribution other species would be adversely affected to a significant degree. The Egmont Key NWR gopher tortoises are unique in having demonstrated adaptive behavior different from the mainland gopher tortoises by living three to four in a burrow instead of just one to a burrow. Poaching and collection of refuge gopher tortoises by humans is unlawful and threatens the species.

Strategies:

- Use mechanical, chemical, and/or manual means as needed, followed by prescribed fire to remove exotic and invasive vegetation from areas designated as gopher tortoise habitat.
- Hire one full-time Service law enforcement officer to enforce refuge regulations.
- Service initiates regular monitoring and research on the Egmont Key NWR gopher tortoises.

Objective 5: Protect and conserve state-listed vegetation on refuge lands.

Discussion: State-listed plants are known to grow on the refuges. Populations and locations of listed plants need to be identified and protected.

Strategies:

- Service with university and non-governmental organization partners survey the refuge lands to identify and map the location of each species.
- Use mechanical, chemical, and/or manual means as needed, followed by prescribed fire (Egmont Key NWR) to remove exotic and invasive vegetation from areas where state-listed plants are growing.
- Hire one full-time Service law enforcement officer to enforce refuge regulations.

Goal 3 – Provide quality wildlife-dependent recreation at Egmont Key NWR, and impart understanding of importance of the Service role in conservation and management of wildlife and their habitat.

Discussion: Over 25 commercial operators transport 70,000 visitors to Egmont Key NWR annually. One of the purposes of Egmont Key NWR is to provide wildlife-dependent recreation and environmental education for the public. Tampa Bay Refuges staff has not promoted wildlife-dependent recreation at the refuge due to lack of resources. The Service's priority public uses are hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. Hunting is not an appropriate use for the refuge.
Objective 1: Increase environmental education and interpretation opportunities for the public within the 15-year life of this CCP.

Strategies:

- Service, with partners, plan and open Egmont Key Guard House/Visitor Center and provide wildlife and cultural education exhibits and opportunities.
- Hire one full-time public use specialist.
- Establish an on-site and off-site environmental education program and provide regular public education events.
- Improve and increase the number of interpretive signs and kiosks.
- Update and distribute the Egmont Key/Tampa Bay Refuges brochure.
- Service provides occasional interpretive tours.
- Require tour operators to operate under Service special use permit. Tour operators would be required by the permit to provide refuge interpretation.
- Construct an ADA-compliant commercial dock near the new Visitor Center to safely disembark passengers and to improve management of public use.

Objective 2: Improve opportunities for wildlife photography and observation on Egmont Key NWR *within the 15-year life of this CCP.*

Strategies:

- Service provides access to a photography blind on Egmont Key NWR for wildlife photography and viewing.
- Service constructs a wildlife observation tower.
- Service provides opportunities for closed-circuit television viewing of wildlife (e.g., nesting birds in closed areas) at the Egmont Key NWR Guard House/Visitor Center.

Goal 4 – Protect and interpret cultural and historical resources for the benefit of future generations.

Discussion: Egmont Key has a long history of occupation. The late 19th to early 20th century Fort Dade located on Egmont Key and the mid-19th century Egmont Key Lighthouse were listed on the National Register of Historic Places in 1978. The Tampa Bay Refuges staff has not provided cultural resource educational opportunities on a regular basis due to lack of resources.

Objective 1: Increase awareness and opportunities for cultural resources interpretation.

Strategies:

- Service and FPS establish a visitor center at the Egmont Key NWR guard house which includes cultural resources exhibits.
- Remove vegetation on and around the historical structures on a regular basis.
- Improve historical interpretive signs within in 2 years of meeting staffing goals.
- Service, with partners, provides occasional interpretive tours for the public.

Goal 5 – Properly manage the refuges to meet refuge goals and objectives continuously.

Objective 1: Improve coordination and cooperation between the Service and the FPS for more efficient and effective management of Egmont Key NWR.

Discussion: Egmont Key NWR is managed by the Service and the FPS under a cooperative agreement. Generally, the state is responsible for public recreation and interpretation of natural and cultural resources located predominantly on the north end of the island. The Service is primarily responsible for the management of all wildlife and habitat on the refuge.

Strategies:

- Continue the Egmont Key NWR cooperative management agreement with FPS.
- Ensure the State Unit Management Plan and the CCP are consistent.
- Service and FPS conduct monthly teleconference calls and quarterly meetings to facilitate better communication, coordination, and cooperation.

Objective 2: Improve and enhance partnership opportunities and relationships.

Discussion: The Service has numerous partners that assist in meeting the goals and objectives of the Tampa Bay Refuges. The federal, state, and local governments, non-governmental organizations, universities, and local groups are all partners of the Service.

Strategies:

- Promote and support increasing “Friends” membership to 150+ members within 5 years of the date of this CCP.
- “Friends” Group shares office/storage space with Service once new office is leased.
- Hold an annual partnership meeting.

Objective 3: Incorporate all vacated non-refuge land on Egmont Key under the Service as it becomes available.

Discussion: For consistent management of wildlife and habitat on Egmont Key, consolidate the property under the Service ownership. One property owner, instead of three on the island, would be more efficient for management.

Strategies:

- Service facilitates the transfer of the USCG property (approximately 55 acres) to Service ownership.
- Within 1 year of the date of this CCP, establish Service’s interest in the Tampa Bay Pilot Compound property, to include acquisition of the 5-acre tract leased from Hillsborough County, in the event that occupancy changes within 1 year of the date of this CCP.

Goal 6 – Provide adequate staff and resources to meet refuge goals and objectives.

Discussion: Currently, there is 1 full-time position assigned to the Tampa Bay Refuges. To meet the proposed objectives, additional staff would need to be hired. A boat, vehicles, and heavy equipment would need to be purchased to allow the staff to access the refuges' lands and to complete its tasks. Facilities would need to be procured or constructed to accommodate the refuges' staff and equipment, and to accommodate the proposed visitor services needs.

Objective 1: Within 10 years of the date of this CCP, hire staff, purchase equipment, and construct facilities to support and accommodate the proposed visitor services objectives and biological objectives.

Strategies:

- Hire one full-time law enforcement officer to enforce refuge regulations for the protection of wildlife and habitat, and ensure the safety of visitors on a daily basis.
- Hire one full-time biological technician to support the proposed additional surveying and predator control.
- Hire one full-time public use specialist to provide the proposed environmental education and interpretation opportunities.
- Hire one part-time administrative office assistant to support the increased staff at the refuge.
- Purchase boats, vehicles, and heavy equipment needed for the refuge staff to meet the proposed objectives.
- Install a Service dock on Egmont Key NWR.
- Construct a visitor center and restrooms at the guard house building, and install a water treatment plant to accommodate these facilities.
- Pursue housing and office space at the Pilots' Compound on Egmont Key, and provide office space and storage space on the mainland to accommodate larger staff and new equipment.
- Construct a commercial dock near the new visitor center for transferring equipment on and off the island. The dock would also be used by commercial operators ferrying the public to and from the island.

V. Plan Implementation

INTRODUCTION

Refuge lands are managed as defined under the Improvement Act. Congress has distinguished a clear legislative mission of wildlife conservation for all national wildlife refuges. National wildlife refuges, unlike other public lands, are dedicated to the conservation of the Nation's fish and wildlife resources and wildlife-dependent recreational uses. Priority projects emphasize the protection and enhancement of fish and wildlife species first and foremost, but considerable emphasis is placed on balancing the needs and demands for wildlife-dependent recreation and environmental education.

To accomplish the purpose, vision, goals, and objectives contained in this CCP for the Tampa Bay Refuges, this section identifies projects, funding and personnel needs, volunteer and partnership opportunities, step-down management plans, a monitoring and adaptive management plan, and plan review and revision.

PROPOSED PROJECTS

Listed below are the proposed project summaries and their associated costs for fish and wildlife population management, habitat management, resource protection, visitor services, and refuge administration over the next 15 years. This proposed project list reflects the priority needs identified by the public, planning team, and refuge staff based upon available information. These projects were generated for the purpose of achieving the refuge's objectives and strategies. The primary linkages of these projects to those planning elements are identified in each summary.

FISH AND WILDLIFE POPULATION MANAGEMENT

Eradicate or Control Exotic and Invasive Predators
(First-year cost: $130,000; Recurring cost: $5,000)

Egmont Key NWR hosts some of the largest and most important bird nesting colonies in Florida. Egmont Key NWR is also a key loggerhead sea turtle index site since it is the only index beach on the entire Gulf Coast monitored by both state and federal wildlife agencies. Nest predation by invasive predators is a major concern for Egmont Key and Pinellas NWRs. The black rat was unintentionally introduced to Egmont Key NWR in 2006 and will likely have a severe impact on nesting success of all refuge wildlife. The islands of Pinellas NWR have already suffered a nearly total collapse in bird nest success largely due to raccoon predation. This project would allow the refuge to coordinate and contract with the U.S. Department of Agriculture, Wildlife Services, to implement current mammalian predator control techniques to accomplish total eradication of nest predators from refuge islands. (Linkages: Objectives 1.8)

Science-based Inventorying and Monitoring of Plant and Animal Populations
(First-year cost: $45,000; Recurring cost: $45,000)

Science-based inventorying and monitoring of plant and animal populations are critical to ensuring the biological integrity of the refuges. The information collected is used to make sound decisions concerning habitat management, predator control, location of closed areas, and to focus law enforcement efforts. Comprehensive inventories are needed for beach-nesting birds, colonial waterbirds, gopher tortoises, box turtles, diamondback terrapins, and state-listed plants found within the Tampa Bay Refuges. Daily

monitoring of sea turtle nesting activity is needed during the summer nesting season. Data collected will contribute to state, regional, and national databases and provide long-term contributions to national objectives for endangered and imperiled species including loggerhead turtles and piping plovers, shorebirds, wading birds, and neotropical migratory birds. This project will address comprehensive monitoring and data management with the addition of a biological technician.
(Linkages: Objectives 1.1, 1.5, 1.6, 1.7, 1.8, 1.10, 2.1, 2.2, 2.3, 2.4, 2.5, 6.1)

HABITAT MANAGEMENT

Eradicate or Control Exotic and Invasive Plants
(First-year cost: $100,000; Recurring costs: $15,000)

Exotic and invasive plant species are some of the greatest threats to habitat loss on Egmont Key and Pinellas NWRs. Large stands of exotic plants (Australian pine and Brazilian pepper) cover nearly 40 percent of Egmont Key NWR. Other invasive native plants like strangler fig and coin vine spread rapidly and benefit some wildlife as a food source and provide dune stabilization. Collectively, these nuisance plants displace lush forbs and grasses and significantly reduce nesting and foraging habitat for birds and reptiles. The proven method to eliminate each of these nuisance species requires costly herbicide applications, and remains difficult to accomplish with present staffing levels. Cooperation with partners, the use of volunteer labor, and grants have slowed the infestation of exotics on Egmont Key NWR to approximately 100 acres. Prescribed burning and mechanical treatments are needed to maximize attempts to control invasive plants and restore preferred habitat. This project will utilize contract labor to eradicate current acres infested by exotic plants. It will also secure adequate reserves of herbicide to control re-sprouts and new growth.
(Linkages: Objectives 1.5, 1.6, 2.4, 2.5, 3.2, 4.1)

Fire Management Program on Egmont Key NWR
(First-year cost: $70,000; Recurring cost: $15,000)

Fire is a natural part of the central Florida ecosystem and wildfires are an ever-present threat to plants, wildlife, and facilities on Egmont Key NWR. Prescribed fire can be used to minimize wildfire impacts by reducing accumulated fuel loads and to restore beneficial native vegetations like grasses and forbs from monoculture invasive plant stands. Implementation of prescribed fire on the refuge is reliant on fire crews and fire expertise from other refuges located several hours away in north Florida. Implementation of a prescribed fire program on Egmont Key NWR will require additional, in-house operational support, including fire training and personal protective equipment for refuge staff, and on-site fire equipment. This project will also enhance our partnerships with state and local partners willing to respond to refuge wildfires.
(Linkages: Objectives 1.5, 1.6, 1.8, 1.11, 2.4, 2.5, 3.2, 4.1, 5.1)

Erosion Monitoring and Beach Restoration
(First-year cost: $5,000; Recurring cost: $5,000)

The largest external threat to the Tampa Bay Refuges is erosion. Over 260 acres (50 percent) of Egmont Key NWR have been lost to erosion in the past 130 years. Passage Key NWR has eroded to a 0.5-acre sandbar only visible during low tides. In order to ensure continued habitat for beach-nesting birds and sea turtles, an active beach renourishment program needs to be implemented. Suitable sand dredged from nearby marinas and/or channels could be placed on the refuges instead of being dumped offshore. Two past beach renourishment projects have successfully restored beach habitat for nesting birds and sea turtles and have also protected cultural resources on Egmont Key NWR. Sand placements typically only lasts about 5 years before being eroded again by high tides

and severe tropical storms including hurricanes. This project consists of continuing to work with the USACE to divert sand from dredged projects to the refuges, and to use GIS mapping to monitor refuge acreages.
(Linkages: Objective 1.2, 1.4)

Mangrove Restoration for Pinellas NWR
(First-year cost: $5,000; Recurring cost: $5,000)

Several mangrove islands of Pinellas NWR have lost acres to erosion from storm events over the years. These islands once provided habitat for thousands of brown pelicans, double-crested cormorants, herons, egrets, and roseate spoonbills which nested annually. Habitat restoration projects coordinated by local partners (Tampa Bay Watch) have successfully limited further erosion by stabilizing sections of shoreline with the installation of oyster shell bars and saltmarsh grass plantings. This project will continue restoration efforts with Tampa Bay Watch and support new projects with other partners.
(Linkage: Objective 1.3)

Habitat Maintenance for Beach Nesters
(First-year cost: $5,000; Recurring cost: $5,000)

The majority of birds nesting on Egmont Key and Passage Key NWRs prefer open, sandy beaches for nesting. Currently, dense sea oats and other low herbaceous vegetation have invaded the open beach habitat, thus making the habitat unsuitable for beach-nesting birds. This vegetation must be removed or thinned manually (hand-pulling, raking), mechanically (plowed), or by conducting controlled burns. This project will support mechanical removal of encroaching vegetation.
(Linkages: Objectives 1.2, 1.4, 1.5, 1.6, 1.7, 1.10, 1.11, 2.1, 2.2).

RESOURCE PROTECTION

Protect Refuge Resources and Visitors
(First-year cost: $70,000; Recurring cost: $70,000)

More than 165,000 visitors recreationally use the Tampa Bay Refuges annually. Closed area trespass, illegal harvest of plants and animals, vandalism, littering, bird and turtle nest disturbance, and other illegal activities have increased due to lack of regular law enforcement patrols. In the past, one complex full-time officer would conduct weekend law enforcement during summer months. Currently, one collateral-duty officer is solely responsible for enforcement activities, but ever-increasing public use and other assigned duties limit the officer's ability to adequately address threats to refuge visitors and wildlife. Furthermore, the refuge system is gradually moving away from collateral-duty officers in favor of full-time officers. The addition of a full-time law enforcement officer would dramatically in improved visitor safety and resource protection.
(Linkages: Objectives 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 5.2, 6.1)

Cultural Resource Protection and Interpretation
(First-year cost: $30,000; Recurring cost: $5,000)

The 100-year old remnants of Fort Dade and 150-year old lighthouse located on Egmont Key were listed on the National Register of Historic Places in 1978. Cultural resources need to be protected from vandalism and need to be maintained from encroachment by native and exotic plants. Acquisition of the land off-refuge where these cultural resources are located would aid in the care, management, and interpretation of these exhibits. Through this project, access to resources will be

maintained and interpretive signs and regular tours of these resources will be established with the assistance of partners.
(Linkages: Objectives: 1.5, 3.1, 4.1, 5.1, 5.2, 5.3)

Land Acquisition
(First-year cost: $6,000,000; Recurring cost: $0)

A minor expansion plan will be completed for Egmont Key NWR. Two parcels are outside the current acquisition boundary. A 55-acre parcel at the north end of the island is officially owned by the U.S. Coast Guard, which discontinued operations on the island in 1995. The other parcel possibly available in the future is a 5-acre tract on the east side of the island and is currently occupied by the Tampa Bay Pilots Association (TBPA) under a 99-year lease with Hillsborough County. The TBPA is always actively looking for a more cost-effective site to base its operations. Acquisition of these two parcels of land would improve management of Egmont Key by streamlining coordination, facilities, and primary missions of the island. Land acquisition costs are estimates to purchase non-federal lands. Additional habitat for wildlife and important cultural resources would be acquired and managed by the Service instead of several different entities (FPS, USCG, TBPA).
(Linkages: Objectives 1.2, 1.5, 1.6, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2, 4.1, 5.3, 6)

Minimize Impacts of Trash, Marine Debris, and Oil Spills
(First-year cost: $20,000; Recurring cost: $5,000)

A substantial amount of litter, monofilament, and marine debris is regularly deposited onto refuge beaches and vegetation (mangroves) and can harm wildlife and injure visitors. This project would work with the partners to use signs, brochures, and other tools to educate the public about the harmful effects of marine debris and monofilament. This project would provide support for monthly refuge clean-up events with partners and the refuges' friends group. Refuge staff would support the Hillsborough County Oil Spill Response Plan and coordinate with partners to respond to oil spills.
(Linkages: Objectives 1.7, 1.10)

VISITOR SERVICES

Visitor Center and Environmental Education
(First-year cost: $565,000; Recurring cost: $100,000)

Approximately 165,000 visitors come to Egmont Key NWR annually. Currently, the Egmont Key Guard House building on Egmont Key NWR has been restored to function as a visitor center and island museum. Interactive exhibits need to be developed to highlight the natural and cultural resources of the island and the Tampa Bay Refuges. Environmental education and Interpretive programs (guided nature hikes and tours), can be conducted within and from the center. This project would include exhibit development/installation, and would purchase environmental education supplies and equipment for on- and off-site programs. This project also includes the addition of a park ranger to coordinate all aspects of visitor services including environmental education, outreach, recreation, visitor facilities, partnerships, visitor center operations, media, and the volunteer program.
(Linkages: Objectives 3.1, 3.2, 4.1, 6.1)

Improve Wildlife-dependent Recreation
(First-year cost: $75,000; Recurring cost: $5,000)

The Tampa Bay Refuges provide a diversity of wildlife observation and recreational opportunities. Fishing is permitted in waters around refuge islands. Abundant underwater wildlife can be viewed when swimming, snorkeling, and diving in the sea grass beds along the east side of Egmont Key NWR and near the submerged gun battery along the southeast side. These refuges are utilized year-round by migrating, wintering, feeding, and nesting birds. There are plenty of opportunities to view wildlife up-close on Egmont Key NWR. The public can watch beach-nesting birds outside of sanctuary areas, or resident gopher tortoises and box turtles as they wander throughout the island. This project involves providing interpretive kiosks which show the location of the areas accessible to the public and the permitted/prohibited activities. This project will also establish photo blinds to increase opportunities for wildlife photography and observation. A closed-circuit television in the visitor center could provide live video feed of birds nesting high in trees and closed areas. (Linkages: Objectives 3.1, 3.2, 4.1, 6.1)

REFUGE ADMINISTRATION

Construct New Refuge Dock
(First-year cost: $150,000; Recurring cost: $2,000)

There is a clear need for refuge docking facilities at Egmont Key NWR. Currently, refuge vessels are afforded limited docking space to the privately owned Pilot's dock. Privately owned pilot vessels receive priority access to the one available boat slip and mooring overnight puts refuge vessels at risk of damage or loss due to laterally impacting wave action during rough weather. This project will construct a 6-foot wide boardwalk in a "T" shaped dock 180 feet from the refuge shore. Two 13,000-pound boat lifts will be attached to each end of the dock. (Linkage: Objective 6.1)

Construct New Public Restroom Facility by Egmont Key Guard House
(First-year cost: $950,000; Recurring cost: $25,000)

Over 165,000 visitors come to the island of Egmont Key annually. The newly reconstructed Egmont Key Guard House will soon become the refuge visitor center with wildlife and cultural exhibits but the facility is in desperate need of an adjacent public restroom facility. This project will construct a self-contained restroom building that does not use freshwater and includes an extensive drain field or composting system. The facility will be able to handle high daily use.
(Linkage: Objectives 3.1, 6.1)

Construct New Shop/Bunk House Facility on Egmont Key NWR
(First-year cost: $750,000; Recurring cost: $15,000)

There is a glaring need for refuge-owned sleeping and equipment storage facilities on the remote island of Egmont Key. Currently, refuge staff and volunteers use a 500-square-foot historic cottage originally built in 1911. The cottage is located within the Tampa Bay Pilot Association's compound and is provided to refuge staff as per memorandum of understanding with the Pilots. Refuge vehicles (ATV, mule, carts), signs, and equipment are stored within a small tool shed or under an open-air vehicle shelter which offers poor protection from corrosion caused by salt air. This project would construct a facility capable of housing a dozen personnel overnight and include a full bathroom and kitchen. The facility will also provide a minimum of 1,500 square feet of enclosed storage for vehicles, supplies, and heavy equipment. The facility will be equipped with a reverse osmosis system to provide potable water.
(Linkage: Objective 6.1)

Construct New Commercial Docking Facility by Egmont Key Guard House
(First-year cost: $500,000; Recurring cost: $15,000)

Over 25 commercial operators transport 70,000 refuge visitors to the island annually. A large commercial dock adjacent to the refuge visitor center (Guard House) is needed to safely disembark passengers and to improve management of public use.
(Linkage: Objective 3.1, 6.1)

Meet/Fulfill Heavy Equipment Needs
(First-year cost: $75,000; Recurring cost: $10,000)

There is a strong need for a piece of heavy equipment on Egmont Key NWR. A small- to medium-sized 4-wheel drive tractor with a set of attachments (bucket, backhoe, root rake, and bushhog) or a 4-wheel drive backhoe loader is needed. Refuge staff could maintain established fire breaks, clear and level island trails used by visitors and staff, remove beach debris (palm trunks) impeding nesting sea turtles, maintain tern/skimmer beach nesting sites, and remove newly sprouting exotic plants. A tractor could also be used to support future construction projects. (Linkage: Objective 6.1)

Replace All-Terrain Utility Vehicle
(First-year cost: $12,000; Recurring cost: $1,000)

This project calls for the replacement of the 2006 Kawasaki Mule 4-wheel drive vehicle. This all-terrain vehicle is the primary mode of transportation to carry refuge staff, volunteers, equipment, and large refuge signs around the beaches and rough trails of the island. It is used for law enforcement, injured wildlife rescues, exotic species control, and wildfire suppression. All vehicles on the island need replacement after 3 years of service due to the extensive use and harsh environmental conditions (salt corrosion).
(Linkage: Objective 6.1)

Replace 25-Foot Work Boat
(First-year cost: $125,000; Recurring cost: $10,000)

This project calls for the replacement of the1986 Boston Whaler vessel with twin 4-stroke outboard motors. This boat is the primary vessel used to transport staff, volunteers, and supplies to Egmont Key and Passage Key NWRs. This boat provides the only reliable passage to these island refuges regardless of wind or wave conditions. A replacement vessel with twin outboard motors capable of safely transporting a dozen passengers or a ton of cargo and able to load beach vehicles (ATV, Kawasaki Mule, electric carts) is needed. (Linkage: Objectives 6.1)

Replace 23-Foot Law Enforcement Boat
(First-year cost: $100,000; Recurring cost: $ 10,000)

This project calls for the replacement of the 2000 Seacraft vessel with twin outboard motors. This boat is the primary vessel used by law enforcement officers to conduct patrol activities around Egmont Key and Passage Key NWRs. This boat is outfitted with blue lights/sirens and boat bumper to conduct vessel stops. A replacement vessel with twin outboard motors and a covered wheel house is needed to provide law enforcement coverage during the frequent poor weather situations occurring in Tampa Bay.
(Linkage: Objective 6.1)

Administrative Support
(First-year cost: $78,000; Recurring cost: $ 78,000)

If additional staff including a full-time refuge officer, biological technician, and park ranger were added to the current staff (assistant manager) living and working in Tampa Bay, additional administrative office space and support would be needed. A part-time permanent administrative office assistant would be needed assist the complex office assistant (located 100 miles driving distance from the complex headquarters office) with the additional administrative workload. This project would also provide $60,000 for GSA- leased office space and computer needs. (Linkages: Objective 6.1)

Table 14 summarizes the proposed projects and associated costs and staffing needs.

FUNDING AND PERSONNEL

The Tampa Bay Refuges are satellite stations of Chassahowitzka NWR Complex, with the headquarters office located in Crystal River, Citrus County, Florida. All five refuges in the complex share a budget and partially share staff. The Tampa Bay Refuges are staffed by a refuge operations specialist/law enforcement, GS-485-9/11 (assistant refuge manager) with collateral law enforcement authority who handles daily activities. Complex staff provides assistance on large projects, biological surveys, and law enforcement activities. However, since Tampa Bay and Crystal River are 100 miles driving distance apart, it is not feasible to send staff to assist on a daily basis. The addition of a full-time law enforcement officer, public use specialist, biological technician, and part-time office assistant will be required for the refuges to achieve the goals and objectives outlined in this CCP. The estimated cost for a full staff would be $280,000 per year based on the 2008 General Schedule salary table including estimates for benefits and overtime pay.

PARTNERSHIP/VOLUNTEERS OPPORTUNITIES

A key element of this CCP is to establish partnerships with local volunteers groups, adjacent landowners, private organizations, and state and federal natural resource agencies. Many partnerships currently exist at the Tampa Bay Refuges, since a variety of partners help further the purposes, vision, goals, and objectives of the refuges through wildlife and habitat management activities, outreach, environmental education, other visitor services, and cultural resource protection. The Service will continue to work with existing partners and thrive to add new partners that will benefit the refuges.

Table 14. Summary of proposed projects and costs (in 2008 dollars)

Projects Proposed to Implement Management Plan	Initial Project Cost ($)	Annual Recurring Costs ($) *	Staffing FTEs (3.5)
Eradicate or Control Exotic and Invasive Predators	$130,000	$5,000	--
Science-based Inventory and Monitoring of Plant and Animal Populations	$45,000	$45,000	Biological Technician
Eradicate or Control Exotic and Invasive Plants	$100,000	$15,000	--
Fire Management Program on Egmont Key NWR	$70,000	$15,000	--
Erosion Monitoring and Beach Restoration	$5,000	$5,000	--
Mangrove Restoration for Pinellas NWR	$5,000	$5,000	--
Habitat Maintenance for Beach Nesters	$5,000	$5,000	--
Protect Refuge Resources and Visitors	$70,000	$70,000	Refuge Officer
Cultural Resource Protection and Interpretation	$30,000	$5,000	--
Land Acquisition (non-federal lands)	$6,000,000	--	--
Minimize Impacts of Trash, Marine Debris, and Oil Spills	$20,000	$5,000	--
Visitor Center and Environmental Education	$565,000	$100,000	Park Ranger
Improve Wildlife-dependent Recreation	$75,000	$5,000	--
Construct New Refuge Dock	$150,000	$2,000	--
Construct New Public Restroom Facility by Egmont Key Guard House	$950,000	$25,000	--
Construct New Shop/ Bunk House Facility on Egmont Key NWR	$750,000	$15,000	--

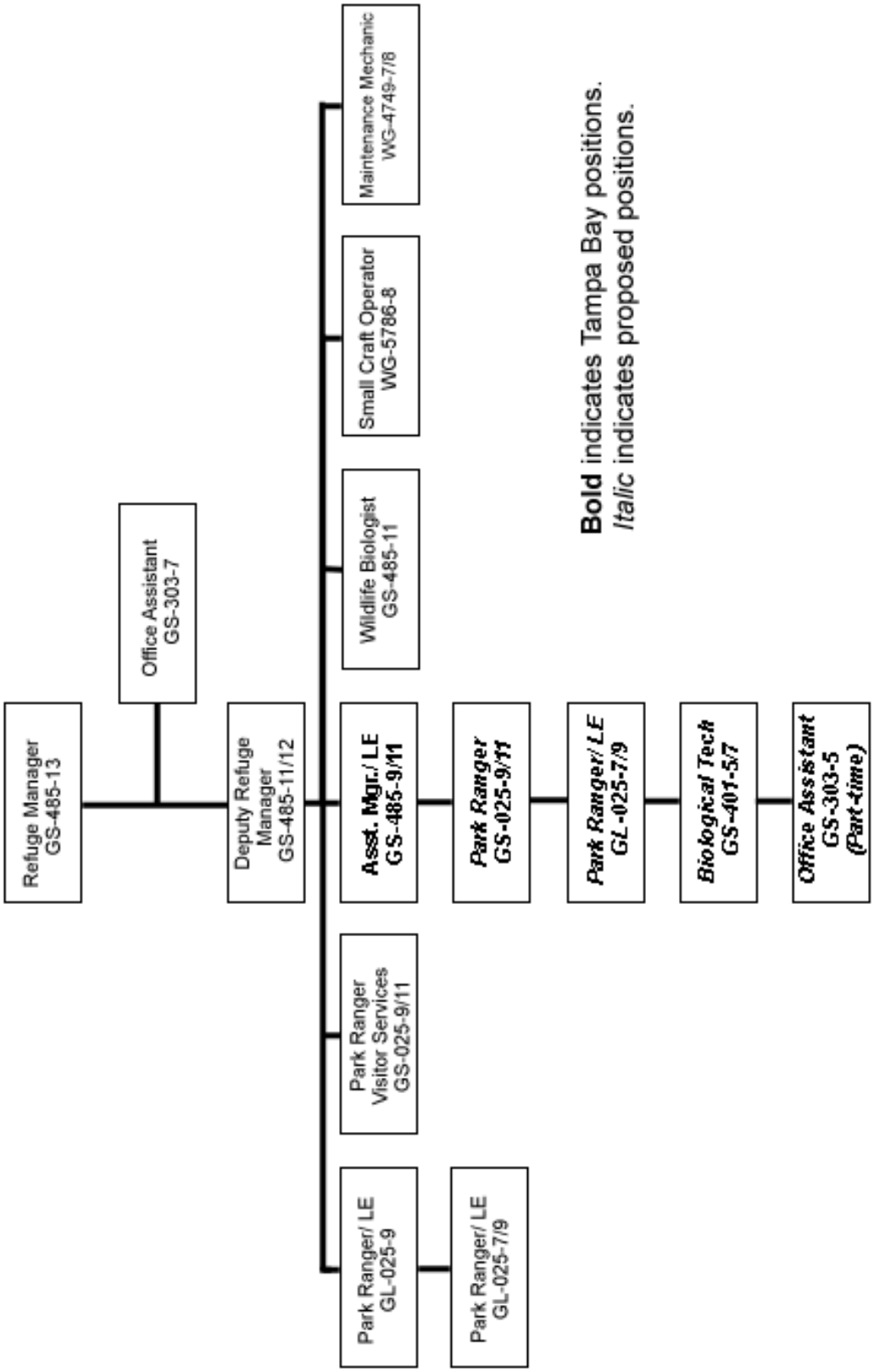
Projects Proposed to Implement Management Plan	Initial Project Cost ($)	Annual Recurring Costs ($) *	Staffing FTEs (3.5)
Construct New Commercial Docking Facility by Egmont Key Guard House	$500,000	$15,000	--
Meet/Fulfill Heavy Equipment Needs	$75,000	$10,000	--
Replace All-Terrain Utility Vehicle	$12,000	$1,000	--
Replace 25-Foot Work Boat	$125,000	$10,000	--
Replace 23-Foot Law Enforcement Boat	$100,000	$10,000	--
Administrative Support	$78,000	$78,000	(PT) Office Assistant
Grand Totals:	**$9,860,000**	**$446,000**	**3.5**
Grand Total Without Land Acquisition:	**$3,835,000**	**$416,000**	

Table 15. Approximate annual costs of proposed staff positions in 2008 dollars

Title	Responsibility	RONS Project Number	Grade	Annual Cost
Refuge Officer	Resource Protection	99006	GS-7/9	$70,000
Biological Technician	Wildlife Monitoring and Exotic Species Control	09003	GS-5/7	$45,000
Park Ranger	Visitor Services	09002	GS-9/11	$65,000
Office Assistant (PTE)	Administration	09004	GS-5	$18,000
			Total yearly cost:	**$198,000**

Note: *These figures have been incorporated into the project descriptions and their associated costs in Table 14.*

Figure 18. Proposed organization structure for the management of the Tampa Bay Refuges—current and proposed positions



STEP DOWN MANAGEMENT PLANS

A CCP is a strategic plan that guides the direction of the refuge. A step-down management plan provides more details and specific guidance on certain refuge program areas or activities, such as habitat, prescribed fire, and visitor services management. As implementation strategies in the CCP, step-down plans are also developed in accordance with the National Environmental Policy Act. Each of these plans will further address the priority issues raised during the comprehensive conservation planning process, the recommendations of the CCP review teams, and comments made by the public and other interested parties.

The refuge proposes to initiate, update, revise, and/or implement 12 step-down plans within the 15-year time frame of this CCP. A list of these plans and their associated completion dates is presented in Table 16. The following section describes the proposed step-down plans.

Law Enforcement Plan (Update), plan completed 2006: This plan provides a ready reference to Service, regional, and local law enforcement resources regarding refuge policies, procedures, and programs concerning refuge law enforcement. It describes the objectives of the law enforcement function on all refuges in the complex. It addresses the type of jurisdiction, active memoranda of understanding, and authorities of refuge officers both on and off the refuge. This plan discusses the procedures for addressing crimes on refuge lands, and includes patrols, traffic control, plain clothes operations, surveillance, and investigations. This plan includes procedures for documentation of both serious and routine incidents, warnings, and violation notices, and outlines procedures for custodial arrests, execution of warrants, intrusion alarm responses, searches and rescues, medical emergencies, and crowd control. This plan was approved in 2006 and will be reviewed every 5 years.

Fire Management Plan (New Plan), completion 2009: This plan will describe the use of prescribed fire on Egmont Key, and also serve as a contingency plan in the case of wildfire activity on or near refuge property. The plan will implement the policies, objectives, and standards for fire management presented in the Fire Management Handbook (621 FW 1-5), Department Manual (620 DM), and Service Manuals (095 FW 3, 232 FW6, 241 FW 3, and 241 FW 7). It will provide guidance for achieving the resource management objectives defined in refuge resource management plans and the comprehensive conservation plan. Guidance will be provided to staff for carrying-out fire management operations, including prescribed burning for habitat improvement and fuel reduction, as well as wildfire suppression activities.

Wildlife Inventorying and Monitoring Plan (New), completion 2010: This plan describes inventorying and monitoring techniques and methodologies for surveys of priority species or species groups. Several migratory bird and reptile species are monitored for nest success and population trends. Plant communities will also be addressed. The plan establishes timetables for inventorying and monitoring. Inventory data is essential to guide in management of wildlife habitat on refuges.

Predator Control Plan (New Plan), completion 2011: This plan will include a description of refuge predator issues, control methods, and an explanation of the necessity to control mammalian and avian predators in order to protect priority refuge species.

Exotic/Invasive Plant Control Plan (New Plan), completion 2010: This plan will establish the strategy to eradicate or control exotic and invasive plants to maintenance levels. It will include monitoring protocols and control techniques including herbicide applications, mechanical treatments, and the use of prescribed fire.

Oil Spill Response Plan (Update), plan completed 2007: This plan sets forth a strategy for protection of refuge shoreline and marine environments within and adjacent to refuge boundaries. This plan outlines refuge responsibilities and rolls in responding to oil spills.

Refuge Sign Plan (New Plan), completion 2012: This plan will describe refuge strategies for informing visitors via signs, kiosks, and buoys. It will incorporate Service sign policy guidelines. This plan will contain a photo, the message, GPS location, and condition of all refuge signs currently installed. The plan will specify signage needed to improve communication of information and regulations to the public.

Visitor Services Management Plan (New Plan), completion 2012: This plan will describe wildlife-dependent recreation, environmental education, and interpretive programs associated with the Tampa Bay Refuges. It will address specific issues or items, such as refuge access, facility operations, site plans, and handicapped accessibility. This plan will guide the Visitor Services' program on the refuges. The plan will also address wildlife and habitat needs, trail development, wildlife-dependent recreation priorities, and interpretation of cultural resources.

Commercial Use Monitoring Plan (New Plan), completion 2013: Access to Egmont Key NWR is by personal boat or commercial tour boats. This plan will address commercial uses and operations on Egmont Key NWR.

Cultural Resource Protection Plan (New Plan), completion 2013: This plan will address management and protection of cultural resources on Egmont Key NWR including inventory, interpretation, and restoration. This plan will contain current and historic photos of resources, GPS location, and history/current condition of all island cultural resources.

Habitat Management Plan (New Plan), completion 2011: This plan will guide all habitat management activities on the Tampa Bay Refuges, including habitat management and restoration, shoreline restoration, and exotic and invasive plant control. The plan will identify the wildlife habitat needs and outline the appropriate application of management tools, such as prescribed fire, herbicide and pesticide treatments, and mechanical or hand removal of vegetation. Wildlife and habitat monitoring will be incorporated into the plan. It will include parameters for using adaptive management principles to fine-tune management and to improve results for targeted, priority wildlife species, species groups, and habitat.

Hurricane/Disaster Action Plan (Update), plan completed 2008: This plan outlines general procedures to be followed before, during, and after hurricane events or other disasters. It outlines staff responsibilities for preparations of facilities, equipment, vehicles, information systems, and files. This plan contains key contact information and GPS locations of refuge facilities and staff residences. The plan is updated annually.

Table 16. Step-down management plans related to the goals and objectives of CCP

Step-down Plan	Completion Date
Law Enforcement Plan (2006)	**2012**
Fire Management Plan (draft 2008)	**2009**
Wildlife Inventorying and Monitoring Plan (1990)	**2010**
Predator Control Plan (draft 2002)	**2011**
Exotic/Invasive Plant Control Plan (draft 2007)	**2010**
Oil Spill Response Plan (2007)	**2013**
Refuge Sign Plan (new)	**2012**
Visitor Services Management Plan (new)	**2012**
Commercial Use Management Plan (new)	**2013**
Cultural Resource Protection Plan (new)	**2013**
Habitat Management Plan (new)	**2011**
Hurricane/Disaster Action Plan (2006)	**Annually**

MONITORING AND ADAPTIVE MANAGEMENT

Adaptive management is a flexible approach to long-term management of biotic resources that is directed over time by the results of ongoing monitoring activities and other information. More specifically, adaptive management is a process by which projects are implemented within a framework of scientifically driven experiments to test the predictions and assumptions outlined within a plan.

To apply adaptive management, specific surveying, inventorying, and monitoring protocols will be adopted for the refuges. The habitat management strategies will be systematically evaluated to determine management effects on wildlife populations. This information will be used to refine approaches and determine how effectively the objectives are being accomplished. Evaluations will include ecosystem team and other appropriate partner participation. If monitoring and evaluation indicate undesirable effects for target and non-target species and/or communities, then alterations to the management projects will be made. Subsequently, this CCP will be revised. Specific monitoring and evaluation activities will be described in the step-down management plans.

PLAN REVIEW AND REVISION

This CCP will be reviewed annually as the refuges' annual work plans and budgets are developed. It will also be reviewed to determine the need for revision. A revision will occur if and when conditions change or significant information becomes available, such as a change in ecological conditions or a major refuge expansion. This CCP will be augmented by detailed step-down management plans to address the completion of specific strategies in support of the refuges' goals and objectives. Revisions to this CCP and the step-down management plans will be subject to NEPA compliance.

Appendix A. Glossary

Adaptive Management: Refers to a process in which policy decisions are implemented within a framework of scientifically driven experiments to test predictions and assumptions inherent in a management plan. Analysis of results helps managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.

Alluvial: Sediment transported and deposited in a delta or riverbed by flowing water.

Alternative: 1. A reasonable way to fix the identified problem or satisfy the stated need (40 CFR 1500.2). 2. Alternatives are different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission, and resolving issues (Service Manual 602 FW 1.6B).

Anadromous: Migratory fishes that spend most of their lives in the sea and migrate to fresh water to breed.

Biological Diversity: The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (Service Manual 052 FW 1. 12B). The System's focus is on indigenous species, biotic communities, and ecological processes. Also referred to as biodiversity.

Carrying Capacity: The maximum population of a species able to be supported by a habitat or area.

Categorical Exclusion: A category of actions that does not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by a federal agency pursuant to the National Environmental Policy Act (40 CFR 1508.4).

CFR: Code of Federal Regulations.

Compatible Use: A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge [50 CFR 25.12 (a)]. A compatibility determination supports the selection of compatible uses and identifies stipulations or limits necessary to ensure compatibility.

Comprehensive Conservation Plan: A document that describes the desired future conditions of a refuge or planning unit and provides long-range guidance and management direction to achieve the purposes of the refuge; helps fulfill the mission of the Refuge System; maintains and, where appropriate, restores the ecological integrity of each refuge and the Refuge System; helps achieve the goals of the National Wilderness Preservation System; and meets other mandates (Service Manual 602 FW 1.6 E).

Concern: See Issue

Cover Type: The present vegetation of an area.

Cultural Resource Inventory: A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in 36 CFR 60.4 (Service Manual 614 FW 1.7).

Cultural Resource Overview: A comprehensive document prepared for a field office that discusses, among other things, its prehistory and cultural history, the nature and extent of known cultural resources, previous research, management objectives, resource management conflicts or issues, and a general statement on how program objectives should be met and conflicts resolved. An overview should reference or incorporate information from a field office's background or literature search described in Section VIII of the Cultural Resource Management Handbook (Service Manual 614 FW 1.7).

Cultural Resources: The remains of sites, structures, or objects used by people in the past.

Designated Wilderness Area: An area designated by the U.S. Congress to be managed as part of the National Wilderness Preservation System (Draft Service Manual 610 FW 1.5).

Disturbance: Significant alteration of habitat structure or composition. May be natural (e.g., fire) or human-caused events (e.g., aircraft overflight).

Ecosystem: A dynamic and interrelating complex of plant and animal communities and their associated non-living environment.

Ecosystem Management: Management of natural resources using system-wide concepts to ensure that all plants and animals in ecosystems are maintained at viable levels in native habitats and basic ecosystem processes are perpetuated indefinitely.

Endangered Species (Federal):	A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.
Endangered Species (State):	A plant or animal species in danger of becoming extinct or extirpated in the state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.
Environmental Assessment (EA):	A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).
Environmental Impact Statement (EIS):	A detailed written statement required by section 102(2)(C) of the National Environmental Policy Act, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.11).
Estuary:	The wide lower course of a river into which the tides flow. The area where the tide meets a river current.
Finding of No Significant Impact (FONSI):	A document prepared in compliance with the National Environmental Policy Act, supported by an environmental assessment, that briefly presents why a federal action will have no significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared (40 CFR 1508.13).
Goal:	Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (Service Manual 620 FW 1.6J).
Habitat:	Suite of existing environmental conditions required by an organism for survival and reproduction. The place where an organism typically lives.
Habitat Restoration:	Management emphasis designed to move ecosystems to desired conditions and processes, and/or to healthy ecosystems.
Habitat Type:	See Vegetation Type.
Improvement Act:	The National Wildlife Refuge System Improvement Act of 1997.
Informed Consent:	The grudging willingness of opponents to “go along” with a course of action that they actually oppose (Bleiker).

Issue:	Any unsettled matter that requires a management decision [e.g., an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or other presence of an undesirable resource condition (Service Manual 602 FW 1.6K)].
Management Alternative:	See Alternative
Management Concern:	See Issue
Management Opportunity:	See Issue
Migration:	The seasonal movement from one area to another and back.
Mission Statement:	Succinct statement of the unit's purpose and reason for being.
Monitoring:	The process of collecting information to track changes of selected parameters over time.
National Environmental Policy Act of 1969 (NEPA):	Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making (40 CFR 1500).
National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57):	Under the Refuge Improvement Act, the Fish and Wildlife Service is required to develop 15-year comprehensive conservation plans for all national wildlife refuges outside Alaska. The Act also describes the six public uses given priority status within the Refuge System (i.e., hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation).
National Wildlife Refuge System Mission:	The mission 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.
National Wildlife Refuge System:	Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife, including species threatened with extinction; all lands, waters, and interests therein administered by the Secretary as wildlife refuges; areas for the protection and conservation of fish and wildlife that are threatened with extinction; wildlife ranges; game ranges; wildlife management areas; or waterfowl production areas.

National Wildlife Refuge:	A designated area of land, water, or an interest in land or water within the Refuge System.
Native Species:	Species that normally live and thrive in a particular ecosystem.
Noxious Weed:	A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; parasitic; a carrier or host of serious insect or disease; or non-native, new, or not common to the United States. According to the Federal Noxious Weed Act (P.L. 93-639), a noxious weed is one that causes disease or had adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the Untied States and to the public health.
Objective:	A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Making objectives attainable, time-specific, and measurable (Service Manual 602 FW 1.6N).
Plant Association:	A classification of plant communities based on the similarity in dominants of all layers of vascular species in a climax community.
Plant Community:	An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community.
Preferred Alternative:	This is the alternative determined (by the decision-maker) to best achieve the refuge purpose, vision, and goals; contributes to the Refuge System mission, addresses the significant issues; and is consistent with principles of sound fish and wildlife management.
Prescribed Fire:	The application of fire to wildland fuels to achieve identified land use objectives (Service Manual 621 FW 1.7). May occur from natural ignition or intentional ignition.
Priority Species:	Fish and wildlife species that require protective measures and/or management guidelines to ensure their perpetuation. Priority species include the following: (1) State-listed and candidate species; (2) species or groups of animals susceptible to significant population declines within a specific area or statewide by virtue of their inclination to aggregate (e.g., seabird colonies); and (3) species of recreation, commercial, and/or tribal importance.
Public Involvement Plan:	Broad long-term guidance for involving the public in the comprehensive conservation planning process.

Public Involvement: A process that offers impacted and interested individuals and organizations an opportunity to become informed about, and to express their opinions on Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.

Public: Individuals, organizations, and groups; officials of federal, state, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in service issues and those who do or do not realize that Service decisions may affect them.

Purposes of the Refuge: "The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge sub-unit." For refuges that encompass congressionally designated wilderness, the purposes of the Wilderness Act are additional purposes of the refuge (Service Manual 602 FW 106 S).

Recommended Wilderness: Areas studied and found suitable for wilderness designation by both the Director of the Fish and Wildlife Service and the Secretary of the Department of the Interior, and recommended for designation by the President to Congress. These areas await only legislative action by Congress in order to become part of the Wilderness System. Such areas are also referred to as "pending in Congress" (Draft Service Manual 610 FW 1.5).

Record of Decision (ROD): A concise public record of decision prepared by the federal agency, pursuant to NEPA, that contains a statement of the decision, identification of all alternatives considered, identification of the environmentally preferable alternative, a statement as to whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted (and if not, why they were not), and a summary of monitoring and enforcement where applicable for any mitigation (40 CFR 1505.2).

Refuge Goal: See Goal

Refuge Purposes: See Purposes of the Refuge

Songbirds: (Also Passerines) A category of birds that is medium to small, perching landbirds. Most are territorial singers and migratory.

Step-down Management Plan: A plan that provides specific guidance on management subjects (e.g., habitat, public use, fire, and safety) or groups of related subjects. It describes strategies and implementation schedules for meeting CCP goals and objectives (Service Manual 602 FW 1.6 U).

Strategy:	A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives (Service Manual 602 FW 1.6 U).
Study Area:	The area reviewed in detail for wildlife, habitat, and public use potential. For purposes of this CCP, the study area includes the lands within the currently approved refuge boundary and potential refuge expansion areas.
Threatened Species (Federal):	Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.
Threatened Species (State):	A plant or animal species likely to become endangered in the state within the near future if factors contributing to population decline or habitat degradation or loss continue.
Tiering:	The coverage of general matters in broader environmental impact statements with subsequent narrower statements of environmental analysis, incorporating by reference, the general discussions and concentrating on specific issues (40 CFR 1508.28).
U.S. Fish and Wildlife Service Mission:	The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.
Unit Objective:	See Objective
Vegetation Type, Habitat Type, Forest Cover Type:	A land classification system based upon the concept of distinct plant associations.
Vision Statement:	A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates. We will tie the vision statement for the refuge to the mission of the Refuge System; the purpose(s) of the refuge; the maintenance or restoration of the ecological integrity of each refuge and the Refuge System; and other mandates (Service Manual 602 FW 1.6 Z).

Wilderness Study Areas: Lands and waters identified through inventory as meeting the definition of wilderness and undergoing evaluation for recommendation for inclusion in the Wilderness System. A study area must meet the following criteria:

- Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
- Has outstanding opportunities for solitude or a primitive and unconfined type of recreation; and
- Has at least 5,000 contiguous roadless acres or is sufficient in size as to make practicable its preservation and use in an unimpaired condition (Draft Service Manual 610 FW 1.5).

Wilderness: See Designated Wilderness

Wildfire: A free-burning fire; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).

Wildland Fire: Every wildland fire is either a wildfire or a prescribed fire (Service Manual 621 FW 1.3

ACRONYMS AND ABBREVIATIONS

AQI	Air Quality Index
ADA	Americans with Disability Act
BRT	Biological Review Team
BCC	Birds of Conservation Concern
CFR	Code of Federal Regulations
CCP	Comprehensive Conservation Plan
cfs	cubic feet per second
DRP	Department of Recreation and Parks
DOI	Department of the Interior
DU	Ducks Unlimited
EA	Environmental Assessment
EE	environmental education
EIS	Environmental Impact Statement
EKA	Egmont Key Alliance
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FR	Federal Register
FY	Fiscal Year
FDEP	Florida Department of Environmental Protection
FWC	Florida Fish and Wildlife Conservation Commission
FGFWFC	Florida Game and Fresh Water Fish Commission
FPS	Florida Park Service
FTBNWR	Friends of Tampa Bay National Wildlife Refuge
FTE	full-time equivalent
GIS	Global Information System
MSL	Mean Sea Level
MSA	Metropolitan Statistical Area
NAMS	National Ambient Monitoring Stations
NASA	National Aeronautics and Space Administration
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
NGO	Non-Governmental Organization
CAMA	Office of Coastal and Aquatic Managed Areas
PFT	Permanent Full Time
PUNA	Public Use Natural Area
ROD	Record of Decision
RM	Refuge Manual
RNA	Research Natural Area
RONS	Refuge Operating Needs System
RRP	Refuge Roads Program
SMC	Save the Manatee Club
SLAMM	Sea Level Affecting Marshes Model
SLAMS	State and Local Ambient Monitoring Stations
SPAS	St. Petersburg Audubon Society
SWIM	Surface Water Improvement and Management Program

TBPA	Tampa Bay Pilots Association
TFT	Temporary Full Time
USDA	United States Department of Agriculture
EPA	United States Environmental Protection Agency
FWS	United States Fish and Wildlife Service (also Service)
USFWS	United States Fish and Wildlife Service (also Service)
USGS	United States Geological Survey
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USC	United States Code
USFWS	United States Fish and Wildlife Service
WSA	Wilderness Study Area

Appendix B. References and Literature Citations

Absolutely Florida. “Egmont Key State Park.” http://www.abfla.com/parks/EgmontKey/egmontkey.html

”AirNow.” EPA's Air Quality Index, Air Quality and Human Health. http://www.airnow.gov/

Bailey, R.G. 1978. *Descriptions of the Ecoregions of the United States*. Washington, D.C.: U.S. Department of Agriculture Forest Service, Misc. Publ. #1391.

Clough, J.S. July 10, 2008. Application of the Sea-Level Affecting Marshes Model (SLAMM 5.0) to Pinellas National Wildlife Refuge. Prepared by Warren Pinnacle Consulting, Inc., Warren, Vermont, for Dr. Brian Czech, U.S. Fish and Wildlife Service.

Coastal Planning and Engineering, Inc. 1997. Egmont Key Erosion Control Project Feasibility Study. Prepared for Florida Department of Environmental Protection, Division of Parks and Recreation. 16 pp.

Dawes, C.J., R.C. Phillips, and G. Morrison. 2004. “Seagrass Communities of the Gulf Coast of Florida: Status and Ecology.” Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute and the Tampa Bay Estuary Program. St. Petersburg, FL.

Dial, R.S., and D.R. Deis. June 1986. *Mitigation Options for Fish and Wildlife Resources Affected by Port and Other Water-Dependent Developments in Tampa Bay, Florida*. U.S. Fish and Wildlife Service Biological Report 86(6).

Dodd, C.K. March 1998. "Biomass of an Island Population of Florida Box Turtles (Terrapene Carolina bauri)." U.S. Geological Survey, Biological Resources Division. *Journal of Herpetology*: 32:1.

Doyle, L.H. 1985. “Marine Geology of Tampa Bay.” *Proceedings, Tampa Bay Area Scientific Information Symposium (May 1982)*. Edited by S. F. Treat, J. L. Simon, R. R. Lewis, III, and R. L. Whitman, Jr. Minneapolis: Burgess Publishing Co., Inc. (Available from Tampa BASIS, P. O. Box 15759, Tampa, FL 33684).

Dupree, A. Hunter. 1957. Science in the Federal Government: A History of Policies and Activities to 1940. Harvard University Press, Cambridge, Massachusetts. 460 pp.

Ehrhart, L.M. and B.E. Witherington. April 1987. *Human and Natural Causes of Marine Turtle Nest and Hatchling Mortality and Their Relationship to Hatchling Production on an Important Florida Nesting Beach*. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Technical Report No. 1.

Epperly, S.P. and J. Braun, compilers. 1998. Proceedings of the Seventeenth Annual Sea Turtle Symposium. U.S. Department of Commerce NOAA Tech. Memo. NMFS-SEFSC-415.

Fernandez, Mario, Jr. 1997. *A Preliminary Contamination Assessment Near the Former Power Plant, Fort Dade, Egmont Key State Park, and National Wildlife Refuge, Florida*. Tampa, FL: U.S. Geological Survey (prepared for the U.S. Fish and Wildlife Service), Administrative Report.

Fernandez, Mario, Jr. October 1996. *A Preliminary Contamination Assessment Near the Former Roundhouse, Fort Dade, Egmont Key National Wildlife Refuge, Florida*. Tampa, FL: U.S. Geological Survey (prepared for the U.S. Fish and Wildlife Service).

Florida Department of Environmental Protection, Division of Air Resource Management. *Florida Air Monitoring Report, 2004*. Tallahassee, FL. http://www.dep.state.fl.us/Air/publications/techrpt/amr.htm

Florida Department of Environmental Protection, Division of Recreation and Parks. February 13, 1998. "Egmont Key Unit Management Plan (Review Draft)."

Florida Department of Environmental Protection, Division of Recreation and Parks. "Egmont Key State Park History." *Florida Online Park Guide.* http://www.floridastateparks.org/egmontkey/History.cfm.

Florida Department of Environmental Protection, Division of Recreation and Parks. November 4, 1996. "Resource Management Audit, Egmont Key."

Florida Department of Environmental Protection, Division of Water Resource Management, Southwest District, Group 1 Basin. November 2001. "Basin Status Report, Tampa Bay." ftp://ftp.dep.state.fl.us/pub/water/basin411/tampa/status/TAMPA_BAY.pdf

Florida Department of Environmental Protection. Tampa Bay Aquatic Preserves Information Page. http://www.dep.state.fl.us/coastal/sites/bocaciega-pinellas/info.htm

Florida Department of Health, Division of Environmental Health. "Your Guide to Eating Fish Caught in Florida." http://doh.state.fl.us/floridafishadvice/

Florida Fish and Wildlife Conservation Commission, Fish & Wildlife Research Institute. "2005 Red Tide Impacts on Fish Spawning in Tampa Bay." St. Petersburg, FL. http://research.myfwc.com/features/view_article.asp?id=27503

Florida Fish and Wildlife Conservation Commission, Fish & Wildlife Research Institute. "Red Tides in Florida." St. Petersburg, FL. http://research.myfwc.com/features/view_article.asp?id=24936

Florida Fish and Wildlife Conservation Commission. November 2007. "Florida's Endangered Species, Threatened Species, and Species of Special Concern." Tallahasse, FL.

Florida Fish and Wildlife Conservation Commission. 2004. "Florida's Endangered and Threatened Species Management and Conservation Plan--FY 2004-2005 Progress Report." http://myfwc.com/imperiledspecies/pdf/Endangered-Threatened-Species-Mgmt-Plan-FY-2004-2005.pdf

Gabrielson, Ira N. 1943. Wildlife Conservation. The Macmillan Company, New York, New York. 250 pp.

Gore, Jeffery A. and Timothy E. O'Meara. April 1988. "Guidelines for Conservation and Management of Least Tern Colonies in Florida." Florida Game and Fresh Water Fish Commission Nongame Wildlife Program. Tallahassee, FL.

Grange, R.T., Jr. 1977. *Archeological survey of Egmont Key National Wildlife Refuge, Hillsborough County, Florida.* (ISBN B0006YAMNU).

Hazen and Sawyer (eds.). 1996. "Funding Source Inventory for Comprehensive Conservation and Management Action Plans." Tampa Bay Estuary Program Technical Publication #14-95

Hillsborough County Historic Resources Review Board. 1996. "Hillsborough County Report of the Historic Resources Review Board Recommending the Designation of the Egmont Key Lighthouse as a Hillsborough County Landmark." Historic Tampa/Hillsborough County Preservation Board. Tampa, FL.

"History of Anna Maria Island." *Florida Vacation & Travel Guide.* http://www.2fla.com/history.htm

Hoehn, Theodore. 1998. "Rare and Imperiled Fish Species of Florida: A Watershed Perspective." Office of Environmental Services, Florida Game and Fresh Water Fish Commission. Tallahassee, FL.

Imperial, Mark T. August 2000. *The Tampa Bay Estuary Program: Developing and Implementing an Interlocal Agreement*. National Academy of Public Administration. Washington, DC.

Johnson, Karen (text), and How Bowers and Karen Lowman (photos). Nov./Dec. 1994. "Egmont Key—An Island Paradise." *Tampa Bay Magazine*. 7 pp.

Johnson, Karen (text) and Karen Lowman (photos). "Egmont Key: Where History and Natural History Collide." http://cas.usf.edu/lis/alis/lis5937/johnson/egmont.html

Kanaski, R.S. 1998. "Fort Dade, Egmont Key National Wildlife Refuge, Hillsborough County, Florida, Documentation of the Power Plant/Mess Hall, a Small Arms Munition Bunker, & the South End Mining Casemate." U.S. Fish and Wildlife Service, Office of the Regional Archaeologist, Savannah Coastal Refuges. Savannah, GA.

Kanaski, Richard S. 1998. "The Red Brick Road to Nowhere," Fort Dade, Egmont Key, Florida. U.S. Fish and Wildlife Service, Southeast Region.

Keinath, J.A., D.E. Barnard, J.A. Musick, and B.A. Bell. 1996. Proceedings of the Fifteenth Annual Workshop on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-387, 355 pp.

Kleen, Joyce and Chuck Hunter, compilers. June 2006. *Tampa Bay Refuges, St. Petersburg, FL – Egmont Key NWR, Pinellas NWR, Passage Key NWR.* (draft) Biological Review Report. U.S. Fish and Wildlife Service. Atlanta, GA.

Krabill, W., W. Abdalati, E. Frederick, S. Manizade, C. Martin, J. Sonntag, R. Swift, R. Thomas, W. Wright, and J. Yungel. "Greenland Ice Sheet: High-elevation Balance and Peripheral Thinning." *Science.* July 21, 2000: pp. 428-430.

Laycock, George. 1965. The Sign of the Flying Goose: A Guide to the National Wildlife Refuges. The Natural History Press, Garden City, New York. 299 pp.

Matthews, S., R. O'Connor, L.R. Iverson, and A.M. Prasad. 2004. *Atlas of Climate Change Effects in 150 Bird Species of the Eastern United States*. Newton Square, PA: U.S. Fish and Wildlife Service, General Technical Report NE-GTR-318. http://www.usgcrp.gov/usgcrp/Library/ocp2006/ocp2006-hi-eco.htm

McCall, Bruce E. August 1996. "Coastal Defense of Tampa Bay." *Coast Defense Study Group Journal* (ISSN: 1085-9675). Volume 10, Issue 3. (Note: Describes buildings of Fort Dade)

McCall, Bruce Ed. Drawings of Buildings at Fort Dade, Egmont Key, Florida. Egmont Key Alliance. Sarasota, FL.

McMahon, S. October 25, 2006. Rising Tides: A Summary of Projected Impacts of Sea Level Rise on Florida's Coasts and Ding Darling, Egmont Key, Pine Island, and Pelican Island National Wildlife Refuges (Virginia Tech Independent Study Project). Prepared for Dr. Brian Czech, U.S. Fish and Wildlife Service.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1991. "Recovery Plan for U.S. Population of Atlantic Green Turtle." National Marine Fisheries Service, Washington, D.C.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1991. "Recovery Plan for U.S. Population of Loggerhead Turtle." National Marine Fisheries Service, Washington, D.C.

National Science and Technology Council, Committee on the Environment and Natural Resources, Interagency Working Group on Methylmercury. June 2004. "Methylmercury in the Gulf of Mexico: State of Knowledge and Research Needs." http://www.ostp.gov/pdf/methylmercurygulfmexiconstc04.pdf

Native Seed Network. "Southern Coastal Plain Ecoregion." http://www.nativeseednetwork.org/ecodetail?region=75

Outdoor Industry Association. August 11, 2006. "Active Outdoor Recreation on the Move: A $730 Billion Contributor to the U.S. Economy." http://www.outdoorindustry.org/media.oia.php?news_id=2175&sort_year=2006

Pinellas County Department of Engineering and the Department of Environmental Management. August 1, 1987. "Boca Ciega Bay and Pinellas County Aquatic Preserves Management Plan."

Pribble et al. 1999, Hazen and Sawyer 1996, H. Greening pers. comm., U.S. Geological Survey. "Appendix 1 -- Non-inclusive list of monitoring, restoration, and research programs in Tampa Bay and estimated budgets." *Five Year Science Plan for the Tampa Bay Study.* http://gulfsci.er.usgs.gov/tampabay/reports/5yr_plan/index.html

Pribble, R.J., A.J. Janicki, and H. Greening (eds.). 1999. "Baywide Environmental Monitoring Report 1993-1998." Tampa Bay Estuary Program Technical Publication #07-99.

Schulte, S., S. Brown, and the American Oystercatcher Working Group. "American Oystercatcher Conservation Plan for the Atlantic and Gulf Coasts of the United States," Version 1.0, April 2006. www.ncsu.edu/project/grsmgis/AMOY/AMOYConservationPlan06_05_06.doc

Southwest Florida Water Management District. "District Water Management Plan-July 2005." Brooksville, FL. http://www.swfwmd.state.fl.us/about/watermanagementplan/watermanagementplan2005.pdf

Southwest Florida Water Management District. "Strategic Plan" and "Water Management Plan." http://www.swfwmd.state.fl.us/about/

Southwest Florida Water Management District, SWIM Section. February 8, 1999. "Tampa Bay Surface Water Improvement and Management (SWIM) Plan." Tampa, FL. http://www.swfwmd.state.fl.us/documents/plans/tampabay_1998.pdf

Southwest Florida Water Management District. 2002. "Tampa Bay/Anclote River Comprehensive Watershed Management Plan." http://www.swfwmd.state.fl.us/documents/

Southwest Florida Water Management District. 2002. "Tampa Bay/Anclote River Comprehensive Watershed Management Plan." http://www.swfwmd.state.fl.us/documents/plans/cwm/cwm-tampabayanclote.pdf

Tampa Bay Regional Planning Council. September 12, 2005. "Future of the Region: A Strategic Regional Policy Plan for the Tampa Bay Region" (Appendix D, 2004 SRPP Indicators Report). http://www.co.pinellas.fl.us/PPC/docs/eardocs/Strategic_Regional_Policy_Plan_2005.pdf

Tampa City Council - Hillsborough County, City-County Planning Commission. January 29, 1998. "Tampa Comprehensive Plan, Conservation and Aquifer Recharge."

The Tampa Bay Estuary Program. December 2006. "Baywide Environmental Monitoring Report, 2002-2005." Tampa, FL.: Technical Publication # 06-06.

The Tampa Bay Estuary Program. "Eyes On The Bay--Are Green Mussels Safe To Eat?" St. Petersburg, FL. http://www.tbep.org/eyesonthebay/greenmussels.html

The Tampa Bay Estuary Program. June 2007. "National Estuary Program Coastal Condition Report," Chapter 5, Gulf Coast National Estuary Program Coastal Condition. http://www.epa.gov/owow/oceans/nepccr/index.html

The Tampa Bay Estuary Program. May 2006. "Charting The Course, The Comprehensive Conservation and Management Plan For Tampa Bay 2006." St. Petersburg, FL. http://www.tbep.org/pdfs/ctc/ctctoc.html

The Tampa Bay Estuary Program. "State of the Bay—Invasive Species." St. Petersburg, FL. http://www.tbep.org/baystate/invasivespecies.html

The Tampa Bay Estuary Program. "State of the Bay—Spill Prevention and Response." St. Petersburg, FL. http://www.tbep.org/baystate/spillprevention.html

The Tampa Bay Estuary Program. "State of the Bay—Water and Sediment Quality." St. Petersburg, FL. http://www.tbep.org/baystate/waterquality.html

University of South Florida. "Tampa Bay Estuary Atlas." http://www.tampabay.wateratlas.usf.edu/

University of South Florida. "Tampa Bay Estuary Atlas." http://www.tampabay.wateratlas.usf.edu/watershed/default.asp?wshedid=7#projects

U.S. Department of Agriculture, Natural Resources Conservation Service. "Florida Online Soil Survey Manuscripts." http://soils.usda.gov/survey/online_surveys/florida/

U.S. Department of Agriculture, Natural Resources Conservation Service, National Weather and Climate Center. "Climate Reports." ftp://ftp.wcc.nrcs.usda.gov/support/climate/soil-nar/fl/pinellas.doc

U.S. Department of Agriculture, Natural Resources Conservation Service. "The State Soil of Florida." http://www.mo15.nrcs.usda.gov/news/state_soils/fl_ss.html

U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations and Soil Science Department; and the Florida Department of Agriculture and Consumer Services. 1989. "Soil Survey of Hillsborough County, Florida."

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, The Office of Ocean and Coastal Resource Management. http://coastalmanagement.noaa.gov/

U.S. Department of Commerce, U.S. Census Bureau. 2005 American Community Survey.

U.S. Department of the Interior, Fish and Wildlife Service; and U.S. Department of Commerce, U.S. Census Bureau. Revised March 2003. 2001 "National Survey of Fishing, Hunting, and Wildlife-Associated Recreation." http://www.census.gov/prod/www/abs/fishing.html

U.S. Environmental Protection Agency. "Climate Change." http://www.epa.gov/climatechange/

U.S. Environmental Protection Agency. December 2004. "National Coastal Condition Report II" (Chapter 5). Publication # EPA-620/R-03/002. http://www.epa.gov/owow/oceans/nccr/2005/

U.S. Environmental Protection Agency. June 2007. "National Estuary Program Coastal Condition Report" (Chapter 5). Publication #EPA-842-B-06-001. http://www.epa.gov/owow/oceans/nepccr/

U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory. "Level III Ecoregions of Florida." Revised April 2000. http://www.hort.purdue.edu/newcrop/cropmap/florida/maps/FLeco3.html

U.S. Environmental Protection Agency, Western Ecology Division. "Level III Ecoregions." http://www.epa.gov/wed/pages/ecoregions/level_iii.htm

U.S. Fish and Wildlife Reference Service and National Marine Fisheries Service. 1992. "Recovery Plan for the Kemp's Ridley Sea Turtle (Lepidochelys kempii)." National Marine Fisheries Service: St. Petersburg, Florida.

U.S. Fish and Wildlife Service. 1990. "An Ecological Characterization of the Tampa Bay Watershed--Biological Report 90(20)." http://dl.nwrc.gov/tampa/prod_search_tampa.aspx?prodid=586

U.S. Fish and Wildlife Service. December 1993. "Mercury Concentrations in Tissues of Florida Bald Eagles—Final Project Report." Atlanta, Georgia. 44 pp.

U. S. Fish and Wildlife Service. 2004. "Draft Visitor Services Review Report, Tampa Bay Refuges." U.S. Fish and Wildlife Service Region 4 (Southeast Region).

U.S. Fish and Wildlife Service, Division of Refuge Management. 1986. "Preliminary Survey of Contaminant Issues of Concern On National Wildlife Refuges."

U.S. Fish and Wildlife Service. "Ecosystem Units." http://www.fws.gov/offices/ecounits.html

U.S. Fish and Wildlife Service. "Egmont Key National Wildlife Refuge Complex." http://www.fws.gov/egmontkey/

U.S. Fish and Wildlife Service. 1989. Florida Manatee (*Trichechus manatus latirostris*) Recovery Plan. Prepared by the Florida Manatee Recovery Team for the U.S. Fish and Wildlife Service, Atlanta, Georgia. 98 pp.

U.S. Fish and Wildlife Service. January 1987. "Egmont Key National Wildlife Refuge Public Use Review."

U.S. Fish and Wildlife Service. "John H. Chafee Coastal Barrier Resource System." http://www.fws.gov/habitatconservation/coastal_barrier.htm (accessed April 26, 2006)

U.S. Fish and Wildlife Service. New Employee Handbook.

U.S. Fish and Wildlife Service. "Passage Key and the American Wildlife Conservation Movement." http://www.fws.gov/southeast/pubs/PassageFactSheet.pdf

U.S. Fish and Wildlife Service. "Passage Key National Wildlife Refuge." http://www.fws.gov/southeast/PassageKey/

U.S. Fish and Wildlife Service. "Pinellas-National Wildlife Refuge." http://www.fws.gov/southeast/Pinellas/

U.S. Fish and Wildlife Service, Southeast Region, Division of Planning. http://www.fws.gov/southeast/planning/index.htm

U.S. Fish and Wildlife Service, Tampa Bay Refuges. March, 2004. "Visitor Services Review Report (draft)."

U.S. Fish and Wildlife Service. 1985. "Wetland Inventory Map of Egmont Key, Florida."

U.S. Geological Survey, Coastal and Marine Geology Program. *Coastal Classification Atlas,West-Central Florida Coastal Classification Maps - Anclote Key to Venice Inlet.* USGS Open File Report 03-227. http://pubs.usgs.gov/of/2003/of03-227/process.html

U.S. Geological Survey, Florida Caribbean Science Center. "National Treasures: the Box Turtles of Egmont Key." http://cars.er.usgs.gov/Education/Egmont_for_PDF.pdf

U.S. Geological Survey. "Gulf of Mexico Integrated Science Tampa Bay Study." http://dl.nwrc.gov/net_prod_download/public/gom_net_pub_products/DOC/OFR_2004-1449_TBS_overview.pdf

U.S. Geological Survey. "Gulf of Mexico Integrated Science Tampa Bay Study." http://gulfsci.er.usgs.gov/tampabay/

U.S. Geological Survey, National Coastal Program Plan. "A Plan for a Comprehensive National Coastal Program." http://marine.usgs.gov/coastal-plan/index.html

U.S. Geological Survey, Northern Prairie Wildlife Research Center. "Bird Checklists of the United States, Egmont Key State Park and National Wildlife Refuge." http://www.npwrc.usgs.gov/resource/birds/chekbird/r4/egmont.htm

Weigle, B.L., I.E. Wright, M. Ross, and R. Flamm. 2001. *Movements of Radio-Tagged Manatees in Tampa Bay and Along Florida's West Coast, 1991-1996*. Florida Marine Research Institute Technical Report TR-7. 156 pp.

Wilkinson, Philip M., Stephen A. Nesbitt, and James F. Parnell. 1994. "Recent History and Status of the Eastern Brown Pelican." *Wildlife Society Bulletin* 22:420-430. 12 pp.

Zieman, J.C., and R. T. Zieman. 1989. *The Ecology of the Seagrass Meadows of the West Coast of Florida: A Community Profile*. U.S. Fish and Wildlife Service Biological Report 85(7.25). 155 pp.

Appendix C. Relevant Legal Mandates and Executive Orders

STATUE	DESCRIPTION
Administrative Procedures Act (1946)	Outlines administrative procedures to be followed by federal agencies with respect to identification of information to be made public; publication of material in the Federal Register; maintenance of records; attendance and notification requirements for specific meetings and hearings; issuance of licenses; and review of agency actions.
American Antiquities Act of 1906	Provides penalties for unauthorized collection, excavation, or destruction of historic or prehistoric ruins, monuments, or objects of antiquity on lands owned or controlled by the United States. The Act authorizes the President to designate as national monuments objects or areas of historic or scientific interest on lands owned or controlled by the Unites States.
American Indian Religious Freedom Act of 1978	Protects the inherent right of Native Americans to believe, express, and exercise their traditional religions, including access to important sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.
Americans With Disabilities Act of 1990	Intended to prevent discrimination of and make American society more accessible to people with disabilities. The Act requires reasonable accommodations to be made in employment, public services, public accommodations, and telecommunications for persons with disabilities.
Anadromous Fish Conservation Act of 1965, as amended	Authorizes the Secretaries of Interior and Commerce to enter into cooperative agreements with states and other non-federal interests for conservation, development, and enhancement of anadromous fish and contribute up to 50 percent as the federal share of the cost of carrying out such agreements. Reclamation construction programs for water resource projects needed solely for such fish are also authorized.
Archaeological Resources Protection Act of 1979, as amended.	This Act strengthens and expands the protective provisions of the Antiquities Act of 1906 regarding archaeological resources. It also revised the permitting process for archaeological research.
Architectural Barriers Act of 1968	Requires that buildings and facilities designed, constructed, or altered with federal funds, or leased by a federal agency, must comply with standards for physical accessibility.
Bald and Golden Eagle Protection Act of 1940, as amended	Prohibits the possession, sale or transport of any bald or golden eagle, alive or dead, or part, nest, or egg except as permitted by the Secretary of the Interior for scientific or exhibition purposes, or for the religious purposes of Indians.

STATUE	DESCRIPTION
Bankhead-Jones Farm Tenant Act of 1937	Directs the Secretary of Agriculture to develop a program of land conservation and utilization in order to correct maladjustments in land use and thus assist in such things as control of soil erosion, reforestation, conservation of natural resources and protection of fish and wildlife. Some early refuges and hatcheries were established under authority of this Act.
Cave Resources Protection Act of 1988	Established requirements for the management and protection of caves and their resources on federal lands, including allowing the land managing agencies to withhold the location of caves from the public, and requiring permits for any removal or collecting activities in caves on federal lands.
Clean Air Act of 1970	Regulates air emissions from area, stationary, and mobile sources. This Act and its amendments charge federal land managers with direct responsibility to protect the "air quality and related values" of land under their control. These values include fish, wildlife, and their habitats.
Clean Water Act of 1974, as amended	This Act and its amendments have as its objective the restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters. Section 401 of the Act requires that federally permitted activities comply with the Clean Water Act standards, state water quality laws, and any other appropriate state laws. Section 404 charges the U.S. Army Corps of Engineers (USACE) with regulating discharge of dredge or fill materials into waters of the United States, including wetlands.
Coastal Barrier Resources Act of 1982 (CBRA)	Identifies undeveloped coastal barriers along the Atlantic and Gulf Coasts and included them in the John H. Chafee Coastal Barrier Resources System (CBRS). The objectives of the act are to minimize loss of human life, reduce wasteful federal expenditures, and minimize the damage to natural resources by restricting most federal expenditures that encourage development within the CBRS.
Coastal Barrier Improvement Act of 1990	Reauthorized the Coastal Barrier Resources Act (CBRA), expanded the CBRS to include undeveloped coastal barriers along the Great Lakes and in the Caribbean, and established "Otherwise Protected Areas (OPAs)." The Service is responsible for maintaining official maps, consulting with federal agencies that propose spending federal funds within the CBRS and OPAs, and making recommendations to Congress about proposed boundary revisions.
Coastal Wetlands Planning, Protection, and Restoration (1990)	Authorizes the Director of the Fish and Wildlife Service to participate in the development of a Louisiana coastal wetlands restoration program, participate in the development and oversight of a coastal wetlands conservation program, and lead in the implementation and administration of a national coastal wetlands grant program.

STATUE	DESCRIPTION
Coastal Zone Management Act of 1972, as amended	Established a voluntary national program within the Department of Commerce to encourage coastal states to develop and implement coastal zone management plans and requires that "any federal activity within or outside of the coastal zone that affects any land or water use or natural resource of the coastal zone" shall be "consistent to the maximum extent practicable with the enforceable policies" of a state's coastal zone management plan. The law includes an Enhancement Grants Program for protecting, restoring, or enhancing existing coastal wetlands or creating new coastal wetlands. It also established the National Estuarine Research Reserve System, guidelines for estuarine research, and financial assistance for land acquisition.
Emergency Wetlands Resources Act of 1986	This Act authorized the purchase of wetlands from Land and Water Conservation Fund moneys, removing a prior prohibition on such acquisitions. The Act requires the Secretary to establish a National Wetlands Priority Conservation Plan, required the states to include wetlands in their Comprehensive Outdoor Recreation Plans, and transfers to the Migratory Bird Conservation Fund amounts equal to import duties on arms and ammunition. It also established entrance fees at national wildlife refuges.
Endangered Species Act of 1973, as amended	Provides for the conservation of threatened and endangered species of fish, wildlife, and plants by federal action and by encouraging the establishment of state programs. It provides for the determination and listing of threatened and endangered species and the designation of critical habitats. Section 7 requires refuge managers to perform internal consultation before initiating projects that affect or may affect endangered species.
Environmental Education Act of 1990	This Act established the Office of Environmental Education within the U.S. Environmental Protection Agency to develop and administer a federal environmental education program in consultation with other federal natural resource management agencies, including the Fish and Wildlife Service.
Estuary Protection Act of 1968	Authorized the Secretary of the Interior, in cooperation with other federal agencies and the states, to study and inventory estuaries of the United States, including land and water of the Great Lakes, and to determine whether such areas should be acquired for protection. The Secretary is also required to encourage state and local governments to consider the importance of estuaries in their planning activities relative to federal natural resource grants. In approving any state grants for acquisition of estuaries, the Secretary was required to establish conditions to ensure the permanent protection of estuaries.

STATUE	DESCRIPTION
Estuaries and Clean Waters Act of 2000	This law creates a federal interagency council that includes the Director of the Fish and Wildlife Service, the Secretary of the Army for Civil Works, the Secretary of Agriculture, the Administrator of the Environmental Protection Agency and the Administrator for the National Oceanic and Atmospheric Administration. The council is charged with developing a national estuary habitat restoration strategy and providing grants to entities to restore and protect estuary habitat to promote the strategy.
Food Security Act of 1985, as amended (Farm Bill)	The Act contains several provisions that contribute to wetland conservation. The Swampbuster provisions state that farmers who convert wetlands for the purpose of planting after enactment of the law are ineligible for most farmer program subsidies. It also established the Wetland Reserve Program to restore and protect wetlands through easements and restoration of the functions and values of wetlands on such easement areas.
Farmland Protection Policy Act of 1981, as amended	The purpose of this law is to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. Federal programs include construction projects and the management of federal lands.
Federal Advisory Committee Act (1972), as amended	Governs the establishment of and procedures for committees that provide advice to the federal government. Advisory committees may be established only if they will serve a necessary, nonduplicative function. Committees must be strictly advisory unless otherwise specified and meetings must be open to the public.
Federal Coal Leasing Amendment Act of 1976	Provided that nothing in the Mining Act, the Mineral Leasing Act, or the Mineral Leasing Act for Acquired Lands authorized mining coal on refuges.
Federal-Aid Highways Act of 1968	Established requirements for approval of federal highways through national wildlife refuges and other designated areas to preserve the natural beauty of such areas. The Secretary of Transportation is directed to consult with the Secretary of the Interior and other federal agencies before approving any program or project requiring the use of land under their jurisdiction.
Federal Noxious Weed Act of 1990, as amended	The Secretary of Agriculture was given the authority to designate plants as noxious weeds and to cooperate with other federal, State and local agencies, farmers' associations, and private individuals in measures to control, eradicate, prevent, or retard the spread of such weeds. The Act requires each Federal land-managing agency, including the Fish and Wildlife Service, to designate an office or person to coordinate a program to control such plants on the agency's land and implement cooperative agreements with the states, including integrated management systems to control undesirable plants.

STATUE	DESCRIPTION
Fish and Wildlife Act of 1956	Establishes a comprehensive national fish, shellfish, and wildlife resources policy with emphasis on the commercial fishing industry but also includes the inherent right of every citizen and resident to fish for pleasure, enjoyment, and betterment and to maintain and increase public opportunities for recreational use of fish and wildlife resources. Among other things, it authorizes the Secretary of the Interior to take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources including, but not limited to, research, development of existing facilities, and acquisition by purchase or exchange of land and water or interests therein.
Fish and Wildlife Conservation Act of 1980, as amended	Requires the Service to monitor non-gamebird species, identify species of management concern, and implement conservation measures to preclude the need for listing under the Endangered Species Act.
Fish and Wildlife Coordination Act of 1958	Promotes equal consideration and coordination of wildlife conservation with other water resource development programs by requiring consultation with the Fish and Wildlife Service and the state fish and wildlife agencies where the “waters of a stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted…or otherwise controlled or modified” by any agency under federal permit or license.
Improvement Act of 1978	This act was passed to improve the administration of fish and wildlife programs and amends several earlier laws, including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act, and the Fish and Wildlife Act of 1956. It authorizes the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. It also authorizes the use of volunteers on Service projects and appropriations to carry out volunteer programs.
Fishery (Magnuson) Conservation and Management Act of 1976	Established Regional Fishery Management Councils comprised of federal and state officials, including the Fish and Wildlife Service. It provides for regulation of foreign fishing and vessel fishing permits.
Freedom of Information Act, 1966	Requires all federal agencies to make available to the public for inspection and copying administrative staff manuals and staff instructions; official, published and unpublished policy statements; final orders deciding case adjudication; and other documents. Special exemptions have been reserved for nine categories of privileged material. The Act requires the party seeking the information to pay reasonable search and duplication costs.
Geothermal Steam Act of 1970, as amended	Authorizes and governs the lease of geothermal steam and related resources on public lands. Section 15 c of the Act prohibits issuing geothermal leases on virtually all Service-administrative lands.

STATUE	DESCRIPTION
Lacey Act of 1900, as amended	Originally designed to help states protect their native game animals and to safeguard U.S. crop production from harmful foreign species, this Act prohibits interstate and international transport and commerce of fish, wildlife or plants taken in violation of domestic or foreign laws. It regulates the introduction to America of foreign species.
Land and Water Conservation Fund Act of 1948	This Act provides funding through receipts from the sale of surplus federal land, appropriations from oil and gas receipts from the outer continental shelf, and other sources for land acquisition under several authorities. Appropriations from the fund may be used for matching grants to states for outdoor recreation projects and for land acquisition by various federal agencies, including the Fish and Wildlife Service.
Marine Mammal Protection Act of 1972, as amended	The 1972 Marine Mammal Protection Act established a federal responsibility to conserve marine mammals with management vested in the Department of the Interior for sea otter, walrus, polar bear, dugong, and manatee. The Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus. With certain specified exceptions, the Act establishes a moratorium on the taking and importation of marine mammals, as well as products taken from them.
Migratory Bird Conservation Act of 1929	Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The role of the commission was expanded by the North American Wetland Conservation Act to include approving wetlands acquisition, restoration, and enhancement proposals recommended by the North American Wetlands Conservation Council.
Migratory Bird Hunting and Conservation Stamp Act of 1934	Also commonly referred to as the “Duck Stamp Act,” requires waterfowl hunters 16 years of age or older to possess a valid federal hunting stamp. Receipts from the sale of the stamp are deposited into the Migratory Bird Conservation Fund for the acquisition of migratory bird refuges.
Migratory Bird Treaty Act of 1918, as amended	This Act implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Except as allowed by special regulations, this Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, barter, export or import any migratory bird, part, nest, egg, or product.
Mineral Leasing Act for Acquired Lands (1947), as amended	Authorizes and governs mineral leasing on acquired public lands.

STATUE	DESCRIPTION
Minerals Leasing Act of 1920, as amended	Authorizes and governs leasing of public lands for development of deposits of coal, oil, gas, and other hydrocarbons; sulphur; phosphate; potassium; and sodium. Section 185 of this title contains provisions relating to granting rights-of-way over federal lands for pipelines.
Mining Act of 1872, as amended	Authorizes and governs prospecting and mining for the so-called "hardrock" minerals (i.e., gold and silver) on public lands.
National and Community Service Act of 1990	Authorizes several programs to engage citizens of the U.S. in full- and/or part-time projects designed to combat illiteracy and poverty, provide job skills, enhance educational skills, and fulfill environmental needs. Among other things, this law establishes the American Conservation and Youth Service Corps to engage young adults in approved human and natural resource projects, which will benefit the public or are carried out on federal or Indian lands.
National Environmental Policy Act of 1969	Requires analysis, public comment, and reporting for environmental impacts of federal actions. It stipulates the factors to be considered in environmental impact statements, and requires that federal agencies employ an interdisciplinary approach in related decision-making and develop means to ensure that unqualified environmental values are given appropriate consideration, along with economic and technical considerations.
National Historic Preservation Act of 1966, as amended	It establishes a National Register of Historic Places and a program of matching grants for preservation of significant historical features. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register.
National Trails System Act (1968), as amended	Established the National Trails System to protect the recreational, scenic, and historic values of some important trails. National recreation trails may be established by the Secretaries of Interior or Agriculture on land wholly or partly within their jurisdiction, with the consent of the involved state(s), and other land managing agencies, if any. National scenic and national historic trails may only be designated by Congress. Several national trails cross units of the National Wildlife Refuge System.
National Wildlife Refuge System Administration Act of 1966	Prior to 1966, there was no single federal law that governed the administration of the various national wildlife refuges that had been established. This Act defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge provided such use is compatible with the major purposes(s) for which the refuge was established.

STATUE	DESCRIPTION
National Wildlife Refuge System Improvement Act of 1997	This Act amends the National Wildlife Refuge System Administration Act of 1966. This Act defines the mission of the National Wildlife Refuge System, establishes the legitimacy and appropriateness of six priority wildlife-dependent public uses, establishes a formal process for determining compatible uses of Refuge System lands, identifies the Secretary of the Interior as responsible for managing and protecting the Refuge System, and requires the development of a comprehensive conservation plan for all refuges outside of Alaska.
Native American Graves Protection and Repatriation Act of 1990	Requires federal agencies and museums to inventory, determine ownership of, and repatriate certain cultural items and human remains under their control or possession. The Act also addresses the repatriation of cultural items inadvertently discovered by construction activities on lands managed by the agency.
Neotropical Migratory Bird Conservation Act of 2000	Establishes a matching grant program to fund projects that promote the conservation of neotropical migratory birds in the united States, Latin America, and the Caribbean.
North American Wetlands Conservation Act of 1989	Provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, the United States, and Mexico. The North American Wetlands Conservation Council was created to recommend projects to be funded under the Act to the Migratory Bird Conservation Commission. Available funds may be expended for up to 50 percent of the United States' share cost of wetlands conservation projects in Canada, Mexico, or the United States (or 100 percent of the cost of projects on federal lands).
Refuge Recreation Act of 1962, as amended	This Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife-oriented recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.
Partnerships for Wildlife Act of 1992	Establishes a Wildlife Conservation and Appreciation Fund to receive appropriated funds and donations from the National Fish and Wildlife Foundation and other private sources to assist the state fish and game agencies in carrying out their responsibilities for conservation of non-game species. The funding formula is no more that 1/3 federal funds, at least 1/3 foundation funds, and at least 1/3 state funds.

STATUE	DESCRIPTION
Refuge Revenue Sharing Act of 1935, as amended	Provided for payments to counties in lieu of taxes from areas administered by the Fish and Wildlife Service. Counties are required to pass payments along to other units of local government within the county, which suffer losses in tax revenues due to the establishment of Service areas.
Rehabilitation Act of 1973	Requires nondiscrimination in the employment practices of federal agencies of the executive branch and contractors. It also requires all federally assisted programs, services, and activities to be available to people with disabilities.
Rivers and Harbors Appropriations Act of 1899, as amended	Requires the authorization by the U.S. Army Corps of Engineers (USACE) prior to any work in, on, over, or under a navigable water of the United States. The Fish and Wildlife Coordination Act provides authority for the Service to review and comment on the effects on fish and wildlife activities proposed to be undertaken or permitted by the USACE. Service concerns include contaminated sediments associated with dredge or fill projects in navigable waters.
Sikes Act (1960), as amended	Provides for the cooperation by the Departments of Interior and Defense with state agencies in planning, development, and maintenance of fish and wildlife resources and outdoor recreation facilities on military reservations throughout the United States. It requires the Secretary of each military department to use trained professionals to manage the wildlife and fishery resource under his jurisdiction, and requires that federal and state fish and wildlife agencies be given priority in management of fish and wildlife activities on military reservations.
Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948	This Act provides that upon determination by the Administrator of the General Services Administration, real property no longer needed by a federal agency can be transferred, without reimbursement, to the Secretary of the Interior if the land has particular value for migratory birds, or to a state agency for other wildlife conservation purposes.
Transportation Equity Act for the 21st Century (1998)	Established the Refuge Roads Program, requires transportation planning that includes public involvement, and provides funding for approved public use roads and trails and associated parking lots, comfort stations, and bicycle/pedestrian facilities.
Uniform Relocation and Assistance and Real Property Acquisition Policies Act (1970), as amended	Provides for uniform and equitable treatment of persons who sell their homes, businesses, or farms to the Service. The Act requires that any purchase offer be no less than the fair market value of the property.

STATUE	DESCRIPTION
Water Resources Planning Act of 1965	Established Water Resources Council to be composed of Cabinet representatives including the Secretary of the Interior. The Council reviews river basin plans with respect to agricultural, urban, energy, industrial, recreational and fish and wildlife needs. The act also established a grant program to assist States in participating in the development of related comprehensive water and land use plans.
Wild and Scenic Rivers Act of 1968, as amended	This Act selects certain rivers of the nation possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values; preserves them in a free-flowing condition; and protects their local environments.
Wilderness Act of 1964, as amended	This Act directs the Secretary of the Interior to review every roadless area of 5,000 acres or more and every roadless island regardless of size within the National Wildlife Refuge System and to recommend suitability of each such area. The Act permits certain activities within designated wilderness areas that do not alter natural processes. Wilderness values are preserved through a “minimum tool” management approach, which requires refuge managers to use the least intrusive methods, equipment, and facilities necessary for administering the areas.
Youth Conservation Corps Act of 1970	Established a permanent Youth Conservation Corps (YCC) program within the Departments of Interior and Agriculture. Within the Service, YCC participants perform many tasks on refuges, fish hatcheries, and research stations.

EXECUTIVE ORDERS	DESCRIPTIONS
EO 11593, Protection and Enhancement of the Cultural Environment (1971)	States that if the Service proposes any development activities that may affect the archaeological or historic sites, the Service will consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.
EO 11644, Use of Off-road Vehicles on Public Land (1972)	Established policies and procedures to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.
EO 11988, Floodplain Management (1977)	The purpose of this Executive Order is to prevent federal agencies from contributing to the "adverse impacts associated with occupancy and modification of floodplains" and the "direct or indirect support of floodplain development." In the course of fulfilling their respective authorities, federal agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains."
EO 11989 (1977), Amends Section 2 of EO 11644	Directs agencies to close areas negatively impacted by off-road vehicles.
EO 11990, Protection of Wetlands (1977)	Federal agencies are directed to provide leadership and take action to minimize the destruction, loss of degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
EO 12372, Intergovernmental Review of Federal Programs (1982)	Seeks to foster intergovernmental partnerships by requiring federal agencies to use the state process to determine and address concerns of state and local elected officials with proposed federal assistance and development programs.
EO 12898, Environmental Justice (1994)	Requires federal agencies to identify and address disproportionately high and adverse effects of its programs, policies, and activities on minority and low-income populations.

EXECUTIVE ORDERS	DESCRIPTIONS
EO 12906, Coordinating Geographical Data Acquisition and Access (1994), Amended by EO 13286 (2003). Amendment of EOs and other actions in connection with transfer of certain functions to Secretary of DHS.	Recommended that the executive branch develop, in cooperation with state, local, and tribal governments, and the private sector, a coordinated National Spatial Data Infrastructure to support public and private sector applications of geospatial data. Of particular importance to comprehensive conservation planning is the National Vegetation Classification System (NVCS), which is the adopted standard for vegetation mapping. Using NVCS facilitates the compilation of regional and national summaries, which in turn, can provide an ecosystem context for individual refuges.
EO 12962, Recreational Fisheries (1995)	Federal agencies are directed to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities in cooperation with states and tribes.
EO 13007, Native American Religious Practices (1996)	Provides for access to, and ceremonial use of, Indian sacred sites on federal lands used by Indian religious practitioners and direction to avoid adversely affecting the physical integrity of such sites.
EO 13061, Federal Support of Community Efforts Along American Heritage Rivers (1997)	Established the American Heritage Rivers initiative for the purpose of natural resource and environmental protection, economic revitalization, and historic and cultural preservation. The Act directs Federal agencies to preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.
EO 13084, Consultation and Coordination With Indian Tribal Governments (2000)	Provides a mechanism for establishing regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications.
EO 13112, Invasive Species (1999)	Federal agencies are directed to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, accurately monitor invasive species, provide for restoration of native species and habitat conditions, conduct research to prevent introductions and to control invasive species, and promote public education on invasive species and the means to address them. This EO replaces and rescinds EO 11987, Exotic Organisms (1977).

EXECUTIVE ORDERS	DESCRIPTIONS
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. (2001)	Instructs federal agencies to conserve migratory birds by several means, including the incorporation of strategies and recommendations found in Partners in Flight Bird Conservation plans, the North American Waterfowl Plan, the North American Waterbird Conservation Plan, and the United States Shorebird Conservation Plan, into agency management plans and guidance documents.

Appendix D. Public Involvement

SUMMARY OF PUBLIC SCOPING COMMENTS

The Service conducted three public meetings in February 2006 for the purpose of accepting public comments on issues to be addressed in the Tampa Bay CCP. The public meetings included an informal workshop where the public was invited to talk with refuge staff and review maps and information on the three refuges, a presentation on the refuges and the CCP process, and an open comment period during which the public was invited to raise issues and topics of concern and to ask questions.

The Service published announcements for the public meetings in the *Federal Register* and legal notices in the local newspapers. News releases were sent to local newspapers and public service announcements were sent to television and radio stations.

The first public meeting was held on February 8 in Tampa, Hillsborough County, Florida, and was attended by 13 members of the public, including representatives from the state and county governments and a representative from Senator Mel Martinez's office. The second meeting was held on February 9 in St. Petersburg, Pinellas County, Florida, and was attended by 26 members of the public, including representatives of state and county governments. The third public meeting was held on February 13 in Palmetto, Manatee County, Florida, and was attended by 12 members of the public, including representatives from the state government.

The planning team expanded its list of issues and concerns to include those generated by the agencies, organizations, businesses, and citizens from the local communities. These issues and concerns formed the basis for the development and comparison of objectives in the three alternatives described in the environmental assessment. The following paragraphs present a summary of comments from the three public meetings:

Public uses in wildlife refuges:

- Install mooring balls (buoys) to limit the number of visitors.

CCP Process:

- Long-term ecological monitoring needs to be conducted.
- The Egmont Key State Park Unit Management Plan and the CCP should be in sync with each other.

Species Management and Habitat Protection:

- A long-term solution to beach erosion needs to be determined.

Refuge Administration:

- The Service should keep a permanent staff presence in Tampa Bay.

Summary of Public comments on the Draft CCP

The notice that the Draft CCP was available was published in the *Federal Register* on April 24, 2009. The public review and comment period for the Draft CCP was from April 26, 2009 through May 26, 2009. At least 57 persons attended two public meetings held to present the Draft CCP during the open comment period. Table 1 shows the locations and details of the public meetings.

Location	County	Date	Attendees	Speakers
Tampa Bay Watch Tierra Verde, Florida	Pinellas	5-08-09	13	5
Regional Planning Council, Agency on Bay Management Meeting Pinellas Park, Florida	Pinellas	5-14-09	44	1
		Totals	**57**	**6**

Refuge staff and other participants at the meetings included the following individuals:

*Richard Meyers – Assistant Refuge Manager (Primary Speaker)
Keith Ramos – Refuge Manager, Chassahowitzka NWR Complex
Joyce Kleen – Wildlife Biologist
Ivan Vicente – Public Use Specialist
Craig Cavanna – Refuge Law Enforcement Officer
*denotes attendance on May 14th at Pinellas Park

This section summarizes all comments that were received on the Draft CCP/EA for Tampa Bay Refuges. Public comments on this Draft CCP/EA were accepted from April 26, 2009 to May 26, 2009.

Several speakers identified themselves as representing the following organizations: The Friends of Tampa Bay National Wildlife Refuges (FTBNWR), The Egmont Key Alliance (EKA), and St. Petersburg Audubon Society (SPAS).

Notices of the Draft CCP/EA's availability and public meetings were sent to over 180 persons on the CCP mailing list, including representatives of the following Indian tribes: The Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians of Alabama, and the Muscogee (Creek) Nation of Oklahoma. A total of 23 comment letters were received by mail or e-mail from 12 persons and the following 8 organizations: The FTBNWR, EKA, Tampa Bay Ferry, St. Petersburg Audubon (SPAS), Save the Manatee Club (SMC), Tampa Bay Watch, Friends of the Chassahowitzka NWR Complex, Inc., and Audubon of Florida. Additionally, comments were received from the following government agencies: the FWC, FDEP, Division of Recreation and Parks (DRP) and FDEP, Office of Coastal and Aquatic Managed Areas (CAMA).

The Draft CCP/EA was circulated through the Florida State Clearinghouse to state, regional, and local governments: The Tampa Bay Regional Planning Council, Florida Department of Community Affairs, FWC, Florida Departments of State, Transportation, FDEP-DRP, and the Southwest Florida

Water Management District. The clearinghouse agencies review documents pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, and the National Environmental Policy Act. FWC replied that the agency had no comments on the Draft CCP/EA. The FDEP-DRP had commented on the Service's Internal Review Draft and all appropriate comments were incorporated into or addressed within the Draft CCP/EA. The Florida State Clearinghouse issued a letter dated June 11, 2009 and signed by Sally B. Mann, Director of the Office of Intergovernmental Programs, DEP. It states that the Draft CCP/EA for the Tampa Bay Refuges is consistent with the Florida Coastal Management Program.

Under the National Environmental Policy Act, the Service must respond to substantive comments received during the open comment period. This includes both written comments and oral statements made at public meetings. For purposes of this CCP, a substantive comment is one that is: (1) within the scope of the proposed action and the alternatives that were considered under the EA; (2) is specific to the proposed action; or (3) is directly related to the proposed action. The Service does not reply directly to each commenter. Instead, the comments submitted during the open comment period were evaluated, summarized, and grouped into the following categories:

Habitat Management
Fish and Wildlife Population Management
Visitor Services
Resource Protection
Refuge Administration
Other

The Service's responses to the comments are provided below by category, as are the related goals and objectives in the CCP. Editorial comments on text or grammar were incorporated in the revision of the CCP document as applicable.

HABITAT MANAGEMENT

Comment: Objective 3 proposes to protect and conserve manatee seagrass feeding habitat on the east side of Egmont Key NWR by working with the state and other partners to enforce the vessel exclusion zone around the seagrass beds on the east side of Egmont Key NWR, expand the vessel exclusion zone out from shore, and clarify the boundary by creating a straight border. SMC supports these measures, which would result in greater protection for manatees and their food source.

Service Response: Comment noted.

Comment: Regarding Egmont Key NWR, note the dune stabilization and wildlife food source benefits of strangler figs and coin vine.

Service Response: The CCP has been revised.

Comment: Egmont Key is not adjacent to an aquatic preserve, but a recent study of biotic factors affecting island plant distributions included transects on Egmont Key. Based on observations during that study, CAMA strongly encourages an active fire management program on the island. In addition to preempting potential gopher tortoise foraging areas, the large amounts of fuel on the ground may pose a public safety threat.

Service Response: A Fire Management Plan for Egmont Key NWR was approved in January 2009. This plan will institute a regular cycle of prescribed fire to reduce the island's hazardous fuel loads to minimize wildfire threats to public safety and wildlife. Prescribed fire will also be used as a tool to accomplish habitat management goals to benefit native plant and animal communities on Egmont Key NWR.

Comment: FDEP-CAMA investigators working on a plant study are currently analyzing data, and they should be working on a manuscript soon. Hopefully, the data from that study can help in selecting optimal elevations, soil salinities, etc., for any plant restoration that may be done on the island of Egmont Key.

Service Response: Comment noted.

Comment: Several comments received oppose the provisions in Alternatives B and C to restore Passage Key: Remove the section regarding restoration and maintenance of Passage Key. The birds have now moved to Egmont Key and resources would be better utilized in keeping Egmont Key a suitable habitat. The restoration of Passage Key should be revisited in the next CCP in 15 years. Passage Key has eroded away then reappeared in the past and will possibly do so again.

Service Response: Passage Key's is an intermittent island with a changing footprint. An interpretation of the Wilderness Act may be required to determine the "minimum tool necessary" for this task to be accomplished. The erosion of Passage Key is caused in some part by human activity in the Tampa Bay (heavy boat traffic and dredging), as well as by storms. The proposed alternative's Goal 1, Objective 4, is intended to serve the purpose of the refuge to provide habitat for birds. The strategies listed in Chapter IV provide information on what actions may be taken to meet the objectives. Details on specific location and timing of actions will be developed and described in relevant step-down management plans and annual operating plans, and further assessed for environmental impacts through Intra-Service Section 7 Biological Consultations. The CCP is only meant to provide broad guidance for a 15-year timeframe; whereas all strategies will be prioritized, implemented, and evaluated in an adaptive management approach within the constraint of limited fiscal resources, environmental conditions at the time, project feasibilities, and other relevant factors.

FISH AND WILDLIFE POPULATION MANAGEMENT

Comment: Regarding Egmont Key NWR, update the state listing for gopher tortoises to "threatened." Table 7, *Gopherus polyphemus* State Protection Status is listed as LS (Species of Special Concern). Correct State Status to LT (Listed as Threatened) with FWC or FL Chap 68A.27.004.

Service Response: The change in State Protection Status has been noted in the CCP.

Comment: In addition to regular bird counts on the Tampa Bay Refuges, migratory bird surveys should be conducted at appropriate times of the year to document the critical importance of the refuges to passerine bird species.

Service Response: The Service concurs with this suggestion and will work with partners to improve survey methodology and frequency.

Comment: The status of Passage Key indicates “hundreds ... nest annually"--while historically correct, that is not the current status. The continuing viability of Passage Key is a major concern and 'routine' (as used in the EA) surveys of Passage Key should be performed to monitor re-emergence and vegetative status, resting and feeding bird status, and verification of 'no public access' condition.

Service Response: Comment noted.

Comment: Add a water source for migrating birds, especially during the fall and spring.

Service Response: During typical weather cycles, Egmont Key receives enough rainfall to provide island biota ample freshwater. During times of extreme drought, the Service will consider adding artificial water sources for the benefit of resident wildlife and migrating birds. Additionally, artificially adding water sources to the island would increase standing water sources that could potentially escalate mosquito breeding and thus public disease concerns.

Comment: The National Audubon Society and Audubon of Florida support the "Cats Indoors" program, and do not support allowing any domestic or feral cats to roam on Egmont Key. Any cats kept on Egmont Key should be harnessed and leashed if they are outdoors.

Service Response: The Service as a rule does not allow pets on Egmont Key NWR. All exotic animal species including feral cats found within the refuge boundary will be subject to removal or eradication as specified in the step-down predator control plan for Egmont Key scheduled to be completed in 2011. The Service will also work to educate island partners and the visiting public on the potential impacts of mammalian predator species on Egmont Key’s resident wildlife and migratory birds.

VISITOR SERVICES

Visitor Center Facilities

Comment: A couple of comments were received regarding Egmont Key NWR, to initiate a cooperative effort to determine the best use of the Fort Dade Guard House for public information and education. Open the renovated guard house with a visitor center. The best methods of preserving the refuges are public awareness and education. If the visitor center was just opened summer weekends and holidays, it would have an impact. The addition of a nature shop will raise funds to help meet the expenses of the refuges. At least, get the kiosks already made in place on Egmont Key.

Service Response: The Service will collaborate with State Park partners to determine the best use of the Guard House Visitor Center. The Service is currently in the design and construction phase of indoor exhibits for the Visitor Center and hopes to open the facility on a limited basis in the near future.

Comment: Many comments expressed the need for visitor’s center on the mainland in the future. Entertain the idea that the mainland office/storage space be found at a location that would also have room for a small visitor center for the Tampa Bay Refuges. This would give the refuges exposure to the public who may not be able to make it out to the actual refuges. When people come and visit the Tampa Bay area, they can see what our refuges have to offer, even though they might not have the time, physical ability, or money to get out to Egmont. We also encourage a partnership with Pinellas County Park System, being extremely starved for money right now, would welcome your money and your presence at Fort De Soto Park.

Service Response: Comment noted.

Comment: Many comments expressed the immediate need for restroom facilities on Egmont Key. Restrooms on Egmont Key should be a top priority with 165,000 visitors each year and growing. Expedite construction of restroom facilities, self-composting toilets might be ideal, but may not be feasible due to the possibility of tropical storm or hurricane tidal surges.

Service Response: The Service agrees that restroom facilities are needed on Egmont Key. The Final CCP covers a time span of 15 years during which proposed projects will be implemented only as feasible and necessary, based on the availability of limited fiscal resources, unforeseen events, and adaptive management principles that include monitoring and evaluation.

Comment: Several comments expressed that all Service facilities, new and existing, should be constructed or retrofitted with green energy (e.g., solar panels for electricity, hot water, desalination, etc.). Facilities on the refuge should work towards being carbon neutral. Vehicles and motors should be purchased from American companies and the greenest technology available.

Service Response: Comment noted.

New Service Facilities

Comment: Build the dock with boat lifts for exclusive use by USFWS. Build the bunkhouse to create independency from the pilot's association and to be able to implement Alternative C quickly as suggested by the Friends Group if the Florida State Park is pulled out of Egmont. The new facility should make use of environmental technology available for the generation of power, as well as be built to withstand hurricanes; something that the current structures on Egmont Key are not capable of.

Service Response: Comment noted. The Final CCP covers a time span of 15 years during which proposed projects will be implemented only as feasible and necessary, based on the availability of limited fiscal resources, unforeseen events, and adaptive management principles that include monitoring and evaluation.

Comment: Pinellas NWR needs a huge educational promotion about the problems with monofilament fishing line to lessen the number of birds killed each year from entanglement.

Service Response: The Service will work with Tampa Bay partners to increase awareness of the hazard associated with monofilament fishing line.

Comment: Although specific manatee habitats may be outside refuge jurisdiction, manatees may come into close contact with refuge visitors, particularly on Egmont Key. Therefore, enhanced manatee educational opportunities are needed. With regard to manatee education, SMC would like to offer the use of our various education and outreach materials, which can be viewed online and requested by contacting SMC.

Service Response: Comment noted.

Comment: Several comments expressed the desire that the refuge complex public use specialist should provide interpretive/educational tours open to the public on Egmont Key NWR at least 4 times per year.

Service Response: Comment noted. The Service will make an effort to increase interpretive/ educational tours on Egmont Key.

Comment: Several comments were received regarding user fees: User fees should be implemented on Egmont Key. Duck Stamps could also be honored. Stickers for boats can be sold and ferry operators (concessionaires) could collect the fee from their passengers. It should be specified that tour operators (ferryboats) be approved by the Service. Private boats can purchase a decal for the year and concessionaire boats can charge a daily rate. This will bring in much needed funds to help the refuges. User fees would defray construction and operation costs.

Service Response: The Service will work with State Park partners to evaluate the need of a user fee demonstration program on Egmont Key. The refuge manager will make the final determination of the suitability and feasibility of a fee program at Egmont Key.

Comment: Several comments expressed that concessionaires could provide photo opportunities around the south end of Egmont Key during nesting season. The concessionaire concept in Alternative C would provide USFWS with income and better control.

Service Response: The Service will need to determine the suitability of the concessionaire concept for Egmont Key. All commercial operators will need to operate with Service regulations and guidelines as specified by annual special use permits and the step-down Commercial Use Plan.

RESOURCE PROTECTION

Erosion Control

Comment: Several comments expressed the wish for the Service to work with the Army Corps of Engineers (Corps) regarding erosion control.

Service Response: The Service will work with partners including the Corps to implement feasible erosion control measures on Egmont Key. The re-nourishment alternatives outlined in the Corps' Egmont Key Feasibility Study will be reviewed and used to guide the Service decision-making process to determine which option will serve the purposes of the refuge best, but remain economically feasible.

Comment: On Pinellas NWR, oyster bar construction should be used judiciously as a means of stabilizing shorelines. Often, oyster bars constructed to reduce erosion are placed in locations and orientations that would not be natural for oyster bar growth. When possible, *Spartina* spp. or other means should be used to stabilize island shorelines.

Service Response: Comment noted.

Cultural Resources

Comment: The CCP refers to the Cultural Resources Management Unit which would be at the north end of the island, and I was interested in what that might reflect. Is that something that would be specifically devoted to the historic artifacts up there including the gun batteries, the lighthouse, etc.?

Service Response: The CCP describes the establishment of a Cultural Resources Management Unit. This management unit will be specified by the step-down Cultural Resource Protection Plan scheduled for completion in 2013. The Cultural Resourced Management Unit will describe, document, and detail maintenance/management of specific cultural resources located on the refuge for interpretation to the public. Additional cultural resources will be added to the management unit as the Service acquires additional lands in the refuge boundary.

Comment: Regarding Egmont Key NWR, create a separate objective to deal with the stabilization and preservation of the various structures on Egmont Key.

Service Response: Project 5 listed under Habitat Management for Erosion Monitoring and Beach Restoration would indirectly benefit the historical structures by restoring habitat for the beach-nesting birds and sea turtles and would provide needed sand to prevent the destruction of historical structures. Project 9 listed under Cultural Resources Protection states that the structures will be protected from vandalism and encroaching native and exotic plants.

REFUGE ADMINISTRATION

Comment: I am concerned about the jurisdictional issues that exist on the management of the island. Under Plan B, you are, in effect, keeping the state park, but it's not clear whether you would have all the land managed by the Fish and Wildlife Service, except the pilot station. It is going to take a while for this plan to be put into effect, if it is put into effect, are the things you would do in the future going to eliminate jurisdictional issues?

Service Response: The Service has a cooperative management agreement with FDEP-DRP Park and Recreation to manage all Service-owned lands as part of Egmont Key State Park. The State Park's jurisdiction will mirror the Service's jurisdiction, regardless of acquisitions. The Service and the State Park will still face jurisdictional issues in the waters surrounding the island of Egmont Key.

Comment: The CCP specifies an amount of $6 million for land acquisition and I was curious as to just what that was for. I don't know whether that's on Egmont or elsewhere. But if the land that the Coast Guard manages is taken over by the Service to manage, I would think that is just an intergovernmental transfer and there wouldn't be any capital or land acquisition investment.

Service Response: The Service has provided a rough estimate of cost of purchase based on 2008 market values for the 5.5 acres owned by Hillsborough County and occupied by the Tampa Bay Pilots Association. The north end of Egmont Key would be acquired as an inter-agency land transfer from the Bureau of Land Management, which is a sister agency within the Department of the Interior.

Comment: With regard to the 55-acre expansion, Table 14, page 106 "Summary of proposed projects and costs (in 2008 dollars)" is misleading. It could be understood to assign all or most of the $6 million costs of proposed land acquisition to the 55-acre tract, when, in fact, the tract is owned by the government and would be transferred at no cost. The $6 million figure applies to a 5-acre parcel under a 99-year lease to Hillsborough County. Clarification should be noted in the Draft CCP, both on page 106 under "project 10," and on page 107 under "Grand Totals" and "Grand Total without Land Acquisition."

Service Response: The suggested changes have been made to the CCP.

Comment: The Cooperative Agreement between the FDEP-DRP and the USFWS (dated 12/4/89) requires the FDEP-DRP to develop an Egmont Key Unit Management Plan (UMP) subject to the approval of the USFWS. Since a mutually acceptable UMP has not yet been finalized, staff recommends that the agencies work together to complete the UMP. FDEP-DRP staff requests that the CCP address regulatory and law enforcement authority on Egmont Key and the waters immediately surrounding the island. Suggestion for the final CCP regarding Egmont Key NWR would include providing a more detailed proposal to regulate public traffic.

Service Response: The Service will work with FDEP-DRP to finalize an Egmont Key Unit Management Plan.

Comment: Several comments expressed the following opinion: The federal lands located at the north end of Egmont Key should be transferred from the Coast Guard to the Service.

Service Response: The Service has a documented interest since 1973 in acquisition of all the federally owned lands on the island of Egmont Key. The Service concurs with the comments and will coordinate with the Bureau of Land Management to acquire non-refuge lands as they become available for transfer.

Comment: Under goal 5, objective 3, under the sub-heading "Strategies," the first strategy recommends: "Facilitate the transfer of the USCG property (approx. 10 acres) to the Service." It should be noted that the Coast Guard relinquished its interest in the approximately 55 acres on the northern tip of Egmont Key in 2000. Since the USCG's relinquishment, the Bureau of Land Management (BLM) has been holding the U.S. interest pending reassignment to a federal agency. References throughout the Draft CCP to the 55-acre tract as belonging to the Coast Guard do not accurately reflect its current status. Also, the approximate acreage is 55 rather than 10.

Proposed Projects, Project 10, page 102, refers to a minor expansion plan incorporating 2 parcels of land into the Egmont Key NWR. Of these 2 parcels, the critical acquisition is the incorporation of the 55-acre tract at the northern end of Egmont Key. In 2004, Representatives Ginny Brown-Waite and Jim Davis jointly requested then-Secretary of Interior Norton to accomplish this incorporation. Responding on behalf of the Secretary, the Service stated that "…because of its value to the wildlife that use the island, the Service has, on multiple occasions expressed interest in the property." The letter further noted that in 2000 the Coast Guard formally relinquished the 55 acres and GSA forwarded the relinquishment to BLM. Finally, the letter concluded by observing that, "The Service is in the process of developing a Comprehensive Conservation Plan (CCP) for Egmont Key NWR. We believe this is the appropriate vehicle for evaluating alternatives for the future use of the island."

Since 1973, the Service has placed numerous requests with BLM for the formal inclusion of the 55 acres into the refuge. The desirability of the action is once more validated by the above conclusions of the Draft CCP. The Service signaled approval of this part of the Draft CCP in the above congressional correspondence. Our research has uncovered no recorded objection to the obvious advantages of placing the tract under the administrative authority of the USFWS. We therefore respectfully request that the CCP recommend to the Department of the Interior that the administrative authority over the tract be expeditiously transferred to FWS.

Service Response: The CCP has been corrected for the noted acreage errors.

Comment: Continue excellent partnership with the State Park overlay of Egmont Key. The state has tried to remove the State Park from Egmont Key a few times now and USFWS needs to be prepared to jump in with equal or better manpower at short notice. For this reason, I prefer plan C now. With the continued economic downturn impacts which likely will provide even less of a tax base for the State of Florida into 2010, I worry that the Start Park overlay will be abandoned in 2010.

Service Response: Comment noted.

Comment: Currently, there are organizations that are aligned with your goals, and to actually start those relationships now rather than waiting until all this comes to fruition. They already exist with the same goals you have. So it would make a lot of sense to implement those partnerships and perhaps define

them in the plan a little bit more between the different organizations. For example, the guardhouse is built and the state has a lot of directions or is doing a lot of the objectives that you mentioned, so you have two government organizations going in the same direction on the same goals, on the same island, but not working together; and regarding the Visitor Services section, the Dock and Ferry terminal, there are currently many commercial operations going on out there, so there should be some plan in this document for commercial services, ferry terminals, and carrying capacity. That's something that was mentioned in the plan but it didn't really identify that there would be a study on how much public use the island can sustain, and then put it forward with a plan for commercial services.

Service Response: The CCP is a general plan, but the step-down plans will fully expand on the details of refuge management. The Service will complete a step-down Visitor Services Plan that is scheduled to be completed by 2012. In 2013, a step-down Commercial Use Plan will be completed as well. Both plans will dictate how the Service will manage commercial operations.

Comment: Partnerships/Volunteer Opportunities (page 105) - I have heard concerns expressed that volunteer groups have not been mentioned specifically by name in this section or within the CCP. I do not believe the CCP needs to be changed to do so, and can stand as is since it does explain that the Service uses such in partnerships. To attempt to name all and inadvertently leave one or two off a list might cause some ill feelings.

Service Response: Comment noted.

Comment: Need continued Federal/State partnership on Egmont.

Service Response: Comment noted.

Comment: Several comments expressed that tour boat operators should be under contract as concessionaires for better control and income for the refuge and USFWS.

Service Response: The refuge manager will make determinations on the suitability of an island concessionaire program.

Comment: The FTBNWR would like to acknowledge the work that went into creating the Draft CCP/EA document. It was well thought out and has provided invaluable background information. The proposed actions in Alternatives B and C to manage the Tampa Bay Refuges are positive steps in conserving and managing the fish and wildlife resources of these refuges. The three alternatives are well-defined.

Service Response: Comment noted.

Comment: Audubon of Florida congratulates the Service staff on preparing a very comprehensive plan. We value our longstanding partnership with the U.S. Fish and Wildlife Service in managing wildlife resources on the Tampa Bay Refuges and support preparation of this Comprehensive Conservation Plan.

Service Response: The Service values the partnership with Audubon as well.

Comment: Several comments expressed the satisfaction that Alternative B includes: 300-foot buffer zone around Egmont Key for law enforcement and other Tampa Bay Refuges; restrooms for Egmont Key; slow speed zone by Little Bird Key for erosion; transfer of property on the north end of Egmont from USCG (or DoD) to USFWS; Federal/State partnership on Egmont; and an improved number of personnel to focus on the refuges.

Service Response: Comment noted.

Comment: If the USFWS/FL State Park agreement ends, then Alternative C should be immediately put into place for Egmont Key NWR.

Service Response: The Service will evaluate the need to modify the CCP in response to major changes on the island including the loss of Egmont Key State Park staff due to state budget constraints.

Comment: After reviewing the CCP documents I have come to believe that while Alternative C is the best plan for the Tampa Bay Refuges, I recognize the fact that the possibility of Alternative C coming to fruition is not realistic in the current economy. I do strongly believe within the next 15 years, the refuges of Tampa Bay should become their own complex operating independently of the Chassahowitzka NWR Complex. The distance between headquarters and the location of Tampa Bay Refuges hinder the progression of meeting the needs and development of the refuges.

Service Response: Comment noted.

Comment: There is an assumption made in Alternative B that the Florida Park Service (FPS) will remain on Egmont Key. Recent activity by the Florida legislature indicates that there is no guarantee that funding will continue to support the FPS commitment to Egmont Key. FPS currently provides many services that FWS does not. Therefore, Alternative B must include a statement that if FPS is no longer present on Egmont Key (at least at its current commitment), then, Alternative C regarding Egmont Key should be put in place immediately.

Service Response: The Service will evaluate the need to modify the CCP in response to major changes on the island including the loss of Egmont Key State Park staff due to state budget constraints.

Comment: Management Direction/Goal 6 (page 96) - Objective 1 does not seem to be timely; staff resources are needed currently. The "Strategies' appear to have pre-selected Alternative B from the Environmental Assessment. This is predicated on the State of Florida continuing its support for Egmont Key. Should that not happen, much of the Visitor Services and refuge staffing will need to be revisited.

Service Response: Comment noted.

Comment: Much of the data appears to have been collected in 2004 with some updates in 2006. This will make the data almost five years old when the CCP is approved and almost 20 years old at the end of the CCP interval. It is recommended that the CCP state a commitment to a periodic (e.g., 5-year) review of updated data, particularly recreational usage and wildlife surveys, for continuing validity and identification of adverse trends. Projected utilization of the refuges has not been well-defined. Formal utilization assessments should be conducted periodically (e.g., every 5 years) to determine any changes in resource requirements that are needed.

Service Response: Comment noted.

Comment: Alternative A heavily depends on volunteers and partners to support the Service in Tampa Bay. This alternative is not a positive step forward in conserving and managing the wildlife and cultural resources and should not be considered. Variability in both volunteer availability and partner commitments may exist over the next 15 years. FTBNWR does not recommend this alternative.

Service Response: The Service concurs and chooses Alternative B, which will provide a slow- to-moderate growth in refuge resources. Alternative B also promotes the continued partnership with Egmont Key State Park.

Comment: Background/Fish and Wildlife Service (page 2) - The description of the overall Service mission should include a brief discussion of Hunting Permit (Duck) Stamps as major source of funds for land acquisition.

Service Response: Comment noted.

Comment: Refuge Overview/Introduction (page 13) - The first paragraph states all 7 mangrove islands of Pinellas NWR are within the city limits of St. Petersburg. I don't believe this is correct.

Service Response: The CCP has been corrected to accurately state that only the mangrove island of Indian Key is within the city limits of St. Petersburg.

Comment: Refuge Overview/Wildlife (page 52 et seq.) - Although listed without comment, the text should address the potential use of appropriate habitat on the NWRs by other nearby species, particularly red knot (petition for listing submitted to the Service and of moderate occurrence both north and south of Egmont Key), snowy plover, Wilson's plover (possibly the rarest unlisted North American plover), and caspian tern. The discussion of these species related to Passage Key should also reference Egmont Key.

Service Response: Comment noted.

Comment: Refuge Overview/Visitor Services (page 77) - The estimate of 130,000-170,000 visitors annually seems to be a state park number, but is not indexed to year. This is a vitally important statistic along with carrying capacity of Egmont Key. Yearly data needs to be provided, especially following Pinellas County's approval of the Shell Key Management Plan, and projections for future use should be provided. This is an essential item in determining future staff and law enforcement needs.

Service Response: FDEP-DRP is responsible for public use activities on the island of Egmont as detailed by cooperative agreement with the Service. The Service received monthly and annual visitation statistics from park management.

Comment: Clarify: Page 84 notes 60,000 commercial visitors, but page 94 indicates 70,000 visitors annually.

Service Response: The CCP has been corrected to clarify that 70,000 commercial visitors come to Egmont Key.

Comment: On page 23, Figure 12 - the base map does not accurately show the location and size of the Richard T. Paul Alafia Bank Bird Sanctuary, one of the most important bird colonies in Florida, at the mouth of the Alafia River Shipping Channel, Tampa Port Authority Spoil Island 2D, Tampa Port Authority Spoil Island 3D, and Tampa Port Authority Fishhook Spoil Island, all of which are posted bird colonies in Hillsborough Bay.

Service Response: Figure 12 - Conservation areas in the Tampa Bay Region does not accurately show the location of the Florida Coastal Island Sanctuaries. These maps were produced under contract in 2005. If feasible before publication, the map will be updated.

Law Enforcement

Comment: Many comments expressed the need for the Service to establish additional restrictions on the public use and consumption of alcohol and dogs on the refuge via codification of these restrictions above what is already applicable.

There is no mention in the plan about banning alcohol on the island and in the waterway around it. I think if we don't put that in there we're going to end up with drunks coming there to party. And we need that cooperating agreement with whoever owns the waterway around our island. Even to get cooperating agreement for the waterways surrounding Egmont Key to equal what Egmont Key State Park has now (400 feet).

The recent new restrictions in Pinellas County on Shell Key have driven many of those recreational boaters to other places like Egmont Key. Since Egmont Key is in Hillsborough County, it is a new "ball game." Do the current Federal regulations give/have sufficient teeth to protect the refuge not only on the land above the water line; but off the shoreline where these recreational boaters could be out of the Service's jurisdiction from any enforcement action? This action needs to be implemented now, because it is most likely a long process.

The CCP should state that no alcohol is allowed on the refuge islands or in the surrounding waters. This will make it easier to avoid the problems that neighboring Shell Key Preserve had with excessive drinking, nudity, fights, noise, and litter. Those same boaters who are now not allowed near Shell Key are still in the Tampa Bay area looking for a new place to party. The current rule for disorderly behavior is more difficult to enforce and very dangerous for law enforcement personnel. Currently, many boaters come out to Egmont Key to get drunk on the weekends.

Service Response: Pets are not permitted on Egmont Key and signs have been posted throughout the island informing visitors that pets are not allowed. Alcohol is not permitted within state parks. The brochure for Egmont Key State Park and the tear sheet for Egmont Key NWR both state that pets and intoxicants are not permitted. The Service currently has no refuge regulation or policy banning the use of alcohol on Egmont Key NWR. The Service can enforce state regulations that prohibit alcohol. The refuge manager has the authority to initiate new refuge regulations that address the use of alcohol on refuge lands if the need for refuge specific regulations is determined.

Comment: Many comments have expressed the need for additional law enforcement jurisdiction on the islands, USFWS should have jurisdiction up to 300 feet from shore (buffer zone):

One piece to really emphasize is the jurisdiction in the water for law enforcement. I've been out on that island many times and I've seen a lot of activity out in the water that I really understand that we can't do much with right now. So it would be good to enforce some rules out in the water. Jurisdictional control over the waterway is needed. Cooperative law enforcement agreements with other jurisdictions would be a big help. It would be nice to have an agreement with the Pinellas County Sheriff's Department or the Hillsborough County Sheriff's Department so that if they see a violation, they would be able to enforce as well as you. Why not give them the authority to act?

Page 36 discusses that manatee foraging areas need to be protected from recreational/boating disturbances, and suggests that a 30- to 300-foot submerged land buffer zone is needed to protect bird nesting and seagrass foraging areas, particularly around Egmont and Whale Keys. SMC supports the creation of such a buffer zone and proposes that a larger zone (i.e., 300-foot) will be most effective for resource protection.

The state currently has a cooperative agreement for a 300-foot buffer zone in the water for law enforcement purposes. The USFWS needs to immediately implement the same cooperative agreement with the agency that controls the waters surrounding Egmont Key NWR.

Service Response: The Service will work with partners and the Tampa Port Authority to improve the law enforcement jurisdiction and agreements around Egmont Key based on a determination of need and feasibility by the refuge manager.

Comment: Chronic and acute disturbance of nesting colonial waterbirds, colonial and solitary shorebirds is one of the major causes of reproductive failure on the Tampa Bay Refuges. We encourage the USFWS to maintain a high profile law enforcement presence at all refuges. At all refuges and particularly at Egmont Key, disturbance from boaters, fishermen, and the public approaching the refuge beaches from the water causes nesting birds to leave their nests and leave their eggs or young unprotected. Even during a short disturbance incident, eggs or chicks can die from either weather exposure or sudden predation from fish crows or other avian predators that can occur in the few moments that birds are off their nests. During longer disturbance incidents the risk of egg or chick loss increases significantly. We recommend that the Service establish a law enforcement buffer zone and maintain a buffer closure during the nesting season to improve nesting success for beach-nesting birds and colonial waterbirds. The buffer should equal or exceed (needed near historical facilities) the existing State Park Service buffer of 500 feet, and in no case should be less than 300 feet - the buffer distance recommended by the FWC to protect nesting birds.

Service Response: The Service will work with partners and the Tampa Port Authority to improve the law enforcement jurisdiction and agreements around Egmont Key based on a determination of need and feasibility by the refuge manager.

Comment: Hire staff for the Tampa Bay Refuges such as but not limited to: full-time law enforcement, public use technician, and assistant manager. Need an improved number of personnel to focus on the refuges.

Service Response: The Service proposes to add 3.5 additional staff to manage Tampa Bay NWRs over the next 15 years.

Comment: Park ranger presence should be increased to guard against illegal access by the public and to provide predator control to protect nesting birds on the keys.

Service Response: Comment noted.

Comment: Additional law enforcement personnel should be assigned to Tampa Bay Refuges seasonally (in addition to the permanent law enforcement officers assigned to Tampa Bay) (i.e., during busy holiday weekends or when heavy visitation is expected). Ideally, one full-time law enforcement officer should live on Egmont Key NWR.

Service Response: Currently, the Service has no housing facilities available to provide residence for a full-time law enforcement or any other staff.

Comment: Several comments expressed the need for Pinellas NWR's Little Bird Key to have a no-wake zone. The waves from boaters blasting through the channel are eroding the island. Even a slow speed zone by Little Bird Key would reduce erosion of the island.

Service Response: The Service will work Pinellas County waterway officials to evaluate the need of implementing a no-wake or slow-speed zone to minimize wake action impacts to Little Bird Key.

Comment: On page 35 of the draft CCP, it is stated that entanglement is a serious problem within the Pinellas NWR. Perhaps the Service could partner with nearby cities and counties to increase the number of monofilament recycling bins available at boat ramps and other locations used by shoreline anglers. More information about the monofilament recycling program and acquiring recycling bins is available at the following website: http://www.fishinglinerecycling.org/index.asp

Service Response: The Service currently partners with organizations like Tampa Bay Watch and the FTBNWR to increase awareness and promote the use of monofilament recycling bins.

Appendix E. Appropriate Use Determinations

Tampa Bay Refuges Appropriate Use Determinations

An appropriate use determination is the initial decision process a refuge manager follows when first considering whether or not to allow a proposed use on a refuge. The refuge manager must find that a use is appropriate before undertaking a compatibility review of the use. This process clarifies and expands on the compatibility determination process by describing when refuge managers should deny a proposed use without determining compatibility. If a proposed use is not appropriate, it will not be allowed and a compatibility determination will not be undertaken.

Except for the uses noted below, the refuge manager must decide if a new or existing use is an appropriate refuge use. If an existing use is not appropriate, the refuge manager will eliminate or modify the use as expeditiously as practicable. If a new use is not appropriate, the refuge manager will deny the use without determining compatibility. Uses that have been administratively determined to be appropriate are:

- Six wildlife-dependent recreational uses - As defined by the National Wildlife Refuge System Improvement Act of 1997, the six wildlife-dependent recreational uses (hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation) are determined to be appropriate. However, the refuge manager must still determine if these uses are compatible.

- Take of fish and wildlife under state regulations - States have regulations concerning take of wildlife that includes hunting, fishing, and trapping. The Service considers take of wildlife under such regulations appropriate. However, the refuge manager must determine if the activity is compatible before allowing it on a refuge.

Statutory Authorities for this policy:

National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. This law provides the authority for establishing policies and regulations governing refuge uses, including the authority to prohibit certain harmful activities. The Act does not authorize any particular use, but rather authorizes the Secretary of the Interior to allow uses only when they are compatible and "under such regulations as he may prescribe." This law specifically identifies certain public uses that, when compatible, are legitimate and appropriate uses within the Refuge System. The law states ". . . it is the policy of the United States that . . .compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System . . .compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in refuge planning and management; and . . . when the Secretary determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated . . . the Secretary shall . . . ensure that priority general public uses of the System receive enhanced consideration over other general public uses in planning and management within the System . . . ." The law also states "in administering the System, the Secretary is authorized to take the following actions: . . . issue regulations to carry out this Act." This policy implements the standards set in the Act by providing enhanced consideration of priority general public uses and ensuring other public uses do not interfere with our ability to provide quality, wildlife-dependent recreational uses.

Refuge Recreation Act of 1962, 16 U.S.C. 460k. The Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife dependent recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.

Other Statutes that Establish Refuges, including the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) (16 U.S.C. 410hh - 410hh-5, 460 mm - 460mm-4, 539-539e, and 3101 - 3233; 43 U.S.C. 1631 et seq.).

Executive Orders. The Service must comply with Executive Order 11644 when allowing use of off-highway vehicles on refuges. This order requires the Service to designate areas as open or closed to off-highway vehicles in order to protect refuge resources, promote safety, and minimize conflict among the various refuge users; monitor the effects of these uses once they are allowed; and amend or rescind any area designation as necessary based on the information gathered. Furthermore, Executive Order 11989 requires the Service to close areas to off-highway vehicles when it is determined that the use causes or will cause considerable adverse effects on the soil, vegetation, wildlife, habitat, or cultural or historic resources. Statutes, such as ANILCA, take precedence over executive orders.

Definitions:

Appropriate Use
A proposed or existing use on a refuge that meets at least one of the following four conditions.

1) The use is a wildlife-dependent recreational use as identified in the Improvement Act.
2) The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Improvement Act was signed into law.
3) The use involves the take of fish and wildlife under state regulations.
4) The use has been found to be appropriate as specified in section 1.11.

*Native American***.** American Indians in the conterminous United States and Alaska Natives (including Aleuts, Eskimos, and Indians) who are members of federally recognized tribes.

Priority General Public Use. A compatible wildlife-dependent recreational use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

Quality. The criteria used to determine a quality recreational experience include:

- Promotes safety of participants, other visitors, and facilities.
- Promotes compliance with applicable laws and regulations and responsible behavior.
- Minimizes or eliminates conflicts with fish and wildlife population or habitat goals or objectives in a plan approved after 1997.
- Minimizes or eliminates conflicts with other compatible wildlife-dependent recreation.
- Minimizes conflicts with neighboring landowners.
- Promotes accessibility and availability to a broad spectrum of the American people.
- Promotes resource stewardship and conservation.

- Promotes public understanding and increases public appreciation of America's natural resources and the Service's role in managing and protecting these resources.
- Provides reliable/reasonable opportunities to experience wildlife.
- Uses facilities that are accessible and blend into the natural setting.
- Uses visitor satisfaction to help define and evaluate programs.

Wildlife-Dependent Recreational Use. As defined by the Improvement Act, a use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay Refuges

Use: Mosquito Management (Egmont Key, Passage Key, and Pinellas National Wildlife Refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes** X **No** ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate_____ **Appropriate** X

Refuge Manager: Signed Date: 3/22/2010

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 4/20/2010

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Photography, video, filming, or audio recording (commercial, news and educational) (all refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate X

Refuge Manager: Signed _____ Date: 03/30/2009

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 4/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Research and surveys (all refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate__X__

Refuge Manager: Signed _____ Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence. If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Beach uses - shelling and fossil collecting (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate__X__

Refuge Manager: Signed _____ Date: 02/20/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 02/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Beach uses-sunbathing and swimming from shore (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate X

Refuge Manager: Signed _____ Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 09/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Concessions (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate_____ Appropriate__X__

Refuge Manager: Signed Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Hiking/walking (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate _X__

Refuge Manager: Signed _____ Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence. If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Picnicking (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate X

Refuge Manager: Signed Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay Refuges

Use: Snorkeling (Skin Diving)/SCUBA Diving (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes** X **No** ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ **Appropriate** X

Refuge Manager: Signed Date: 3/22/2010

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 4/20/2010

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Boating-non-motorized/human powered (Pinellas)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate____ Appropriate__X__

Refuge Manager: Signed Date: 09/30/2009

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay Refuges

Use: Wildlife Observation and Photography (noncommercial) (Egmont Key and Pinellas NWRs)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes** X **No** ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate_____ **Appropriate** X

Refuge Manager: Signed _____ Date: 4/5/2010

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: _____

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges .

Use: Bicycling (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?		X
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate__X__ Appropriate____

Refuge Manager: Signed _____ Date: 09/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence. If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Camping (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 605 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _X_ Appropriate ____

Refuge Manager: Signed _____ Date: 05/20/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Competitive sporting events (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?		X
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No _X_

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _X_ Appropriate ____

Refuge Manager: Signed _____ Date: 05/30/2008

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.
If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/05

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Geocaching (Egmont Key)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?		X
(d) Is the use consistent with public safety?		
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate__X__ Appropriate____

Refuge Manager: Signed Date: 9/3-/09

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay Refuges

Use: Boating – Overnight Mooring (Egmont Key and Pinellas National Wildlife Refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?		X
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will **generally** not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. **Yes** __ **No** X

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X **Appropriate** ____

Refuge Manager: Signed Date: 3/22/2010

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence. If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 4/20/2010

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Military uses (all refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?		X
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, **we will generally not allow the use.**

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate__X__ Appropriate_____

Refuge Manager: Signed _____ Date: 09/30/2009

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Tampa Bay National Wildlife Refuges

Use: Boating-other: vessel landings (all refuges)

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		
(g) Is the use manageable within available budget and staff?		
(h) Will this be manageable in the future within existing resources?		
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes _X_ No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate _X_ Appropriate ____

Refuge Manager: Signed _____ Date: 09/30/2008

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed _____ Date: 9/14/09

A compatibility determination is required before the use may be allowed.

Appendix F. Compatibility Determinations

Tampa Bay Refuges (Egmont and Passage Keys and Pinellas National Wildlife Refuges) Compatibility Determination

Uses: The following uses were evaluated and determined to be compatible with the Refuge System's mission and the purpose of the refuges:

Egmont Key, Passage Key, and Pinellas NWRs

- Mosquito Management
- Photography, Video, Filming, or Audio Recording (Commercial, News, and Educational)
- Research/Surveys

Egmont Key NWR

- Beach Use (Shelling and Fossil Collecting)
- Beach Use (Sunbathing and Swimming from Shore)
- Concessions
- Hiking/Walking
- Picnicking
- Snorkeling (Skin Diving)/SCUBA Diving

Pinellas NWR

- Boating (Non-motorized/Human Powered)

Egmont and Pinellas NWRs

- Wildlife Observation and Photography (Non-commercial)

A description of each use and its anticipated biological impact is presented in this appendix.

Establishing and Acquisition Authorities:

Egmont Key NWR

Public Law 93-341 dated July 10, 1974.

Pinellas NWR

Executive Order 3502 dated June 21, 1921 prohibits disturbance of birds or eggs on Indian Key Migratory Bird Conservation Act (16 U.S.C. section 715-715r)

Passage Key NWR

Executive Order 3578 dated October 10, 1905.

Refuge Purposes:

Egmont Key NWR

To administer the refuge in accordance with the National Wildlife Refuge System Administration Act of 1966.

Pinellas NWR

For lands acquired under the Migratory Bird Conservation Act, as amended, the purposed of the acquisition is: "…for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

"…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 16 U.S.C. Section 460k-1 (Refuge Recreation Act)

Passage Key NWR

"…as a preserve and breeding ground for native birds." Executive Order 3578, dated October 10, 1905.

National Wildlife Refuge System Mission: The mission of the System, as defined by the National Wildlife Refuge System Improvement Act of 1977, 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."

Other Applicable Laws, Regulations, and Policies:

Antiquities Act of 1906 (34 Stat. 225)
Archaeological Resources Protection Act of 1979
Native American Graves Protection and Repatriation Act, as amended
Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)
Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)
Criminal Code Provisions of 1940 (18 U.S.C. 41)
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 54 Stat. 250)
Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)
Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat.1119)
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)
Wilderness Act (16 U.S.C. 1131-1136; 78 Stat. 890)
Land and Water Conservation Fund Act of 1965
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)
National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)
Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)
Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)

Emergency Wetlands Resources Act of 1986 (S.B. 740)
The Property Clause of the U.S. Constitution Article IV 3, Clause 2
The Commerce Clause of the U.S. Constitution Article 1, Section 8
The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC668dd)
Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System, March 25, 1996
Cooperative Agreement Between the U.S. Department of the Interior and the Florida Department of Natural Resources (now Florida Department of Environmental Protection), November 24, 1989.
Memorandum of Understanding between U.S. Fish and Wildlife Service Chassahowitzka Refuges Complex Tampa Bay Refuges Homosassa, Florida and U.S. Coast Guard St. Petersburg Group, St. Petersburg, Florida dated February 7, 1984.
Board of Trustees of the Internal Improvement Trust Fund Amendment to Sovereignty Submerged Land Management Agreement No. 750-0013 dated April 7, 1992
Management Agreement for Certain Sovereignty Submerged Lands Surrounding Passage Key National Wildlife Refuge in Manatee County Agreement No. 750-0013 dated February 7, 1986

Compatibility determinations for each description listed were considered separately. Although the preceding sections from "Uses" through "Public Review and Comment" are only written once within the Comprehensive Conservation Plan (CCP) for the Tampa Bay Refuges, they are part of each descriptive use and become part of that compatibility determination if considered apart from the CCP.

Public Review and Comment: The notice of availability for the Draft CCP/EA for Tampa Bay Refuges was published in the *Federal Register* on April 24, 2009. Notices of the availability of the Draft CCP/EA and of the scheduled public meetings were sent to more than 180 individual parties including five Indian tribes. The Draft CCP/EA was circulated through the Florida State Clearinghouse to the following state, regional, and local governments: Tampa Bay Regional Planning Council; Florida Department of Community Affairs; Florida Fish and Wildlife Conservation Commission; Florida Departments of State, Transportation, and Environmental Protection; and the Southwest Florida Water Management District. The public review and comment period for the Draft CCP/EA was from April 26 through May 26, 2009. At least 57 people attended the two public meetings held in Pinellas County on May 8 and 14. Several speakers at the public meetings identified themselves as representing the following organizations: Friends of Tampa Bay National Wildlife Refuges; Egmont Key Alliance; and the St. Petersburg Audubon Society. A total of 23 comment letters were received by mail or by e-mail from twelve individuals and the following eight organizations: Friends of Tampa Bay National Wildlife Refuges; Egmont Key Alliance; Tampa Bay Ferry; St. Petersburg Audubon; Save the Manatee Club; Tampa Bay Watch; Friends of the Chassahowitzka NWR Complex; and the Audubon of Florida. In addition, comments were received from the following government agencies: Florida Fish and Wildlife Conservation Commission; Florida Department of Environmental Protection; Office of Coastal and Aquatic Managed Areas. No comments received were specific to the compatibility determinations (Appendix F). Comments received related to allowed public uses as described in the Draft CCP/EA were consistent with the compatibility determinations.

Use: Mosquito Management (Egmont Key, Passage Key, and Pinellas NWRs)

This use involves activities undertaken to manage and control mosquitoes, including habitat management.

Availability of Resources: The cost of allowing this use on the refuges is absorbed within the operating budget and does not require additional staff for enforcement or other purposes. Mosquito control operations will be conducted by the Tampa Bay Pilots Association. The refuges will annually review and evaluate mosquito control operations and special use permit compliance.

Anticipated Impacts of the Use: Typically, microbial larvicides or aerial sprayings are applied to aquatic habitats where mosquito larvae occur. These compounds pose minimal threats to non-target, vertebrate, and invertebrate species. Experimental testing of some microbial larvicides has shown no demonstrated effects of larvicidal applications on other aquatic insects or invertebrates. There are no known mammalian health effects resulting from larvicidal applications.

Determination (check one below):
___Use is Not Compatible
_X_Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: The Tampa Bay Pilots Association currently uses a ground application of bti to standing water on lands leased from the Service at the Pilot Compound on Egmont Key. A Pesticide Use Proposal must be approved for this application on an annual basis.

Justification: If mosquito populations are elevated due to storm events or disease outbreaks, mosquito control may be necessary. Mosquito control is warranted for the health and safety of employees of the refuge, Florida Park Service, and the Tampa Bay Pilots Association, including volunteers and interns working for these agencies.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Photography, Video, Filming, or Audio Recording (Commercial, News, and Educational) (Egmont Key, Passage Key, and Pinellas NWRs)

These activities involve photography, videography, filming, or other recording of sight or sound for public information, educational, or commercial purposes.

Availability of Resources: The cost of allowing these uses on the refuges would be absorbed within the operating budget.

Anticipated Impacts of the Use: Filming from helicopters could affect wildlife, especially nesting birds. The transport of equipment could result in trampling of vegetation or wildlife nests.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: All commercial activity conducted by an individual or organization, including guiding and outfitting, would be regulated under a special use permit. The landing of helicopters would also be regulated under a special use permit. Aerial craft is subject to the Federal Aviation Administration's regulations on airspace and height restrictions around wildlife refuges. Some areas are closed to the public. Certain areas of the refuges may be restricted seasonally for breeding or nesting purposes or to protect habitat.

Justification: The use of media is an important tool to promote the wildlife refuge and to facilitate environmental education and awareness of the refuges' resources, wildlife, and habitat. If regulated through a special use permit, impacts to wildlife and habitat can be minimized.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Research/Surveys (Egmont Key, Passage Key, and Pinellas NWRs)

These uses include scientific research, inventorying, monitoring, and scientific collecting conducted by non-refuge personnel on refuge lands. The refuges are often used for biological and historical research by the Florida Park Service, the Audubon Society, Tampa Bay Watch, Egmont Key Alliance, and others.

Availability of Resources: The cost of most field studies is borne by the researchers with the exception of staff time to review proposals, issue a special use permit, and monitor the project. These are considered routine duties of biologists and managers and are absorbed within refuge operating costs.

Anticipated Impacts of the Use: The collecting or monitoring of field data during a research project may cause mortality to some target species. Minor habitat and temporary wildlife disturbance may also occur. Research project impacts are minimized by strict monitoring of all projects by refuge personnel.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: All research proposals are reviewed by refuge staff before approval is given. A special use permit is prepared for each project, which specifies the purpose and duration of the project, location of field work, and any special conditions that the permittee is required to follow. Refuge personnel regularly monitor the progress of all field work, and all permittees are required to submit an annual report of work accomplished and/or a final report of the study.

Historical research and archaeological investigations by non-Service parties require both Archaeological Resources Protection Act (ARPA) permits and refuge special use permits. ARPA permit applications are available only from the Regional Historic Preservation Officer. The applicants are required to submit a number of items to initiate the process, which includes identification of the site and/or area of interest, a research proposal, and a resumé for the principal investigator.

Justification: Research is important because it provides the Service with scientific information that can be used to manage natural resources. Species identification, resource inventorying and resource monitoring provide valuable data for refuge operations. Access to current and state-of-the-art research can aid management decisions.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Beach Use (Shelling, Fossil Collecting, and Walking/Hiking) (Egmont Key NWR)

The beaches on Egmont Key NWR that are not closed to the public are available for the activities of shelling, fossil collecting, and walking/hiking.

Availability of Resources: The cost of allowing these uses on the refuge is absorbed within the operating budget and does not require additional staff for enforcement or other purposes.

Anticipated Impacts of the Use: Removal of certain shells would affect hermit crabs or mollusks that could inhabit them. However, due to the limited number of visitors on the island and the large number of shells that wash ashore, impacts are expected to be minor. Walking on beaches can increase the opportunity of disturbing wildlife, creating litter, or trampling vegetation or nests.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Regarding shell collecting, shells containing live animals may not be taken. No live animals may be removed from shells. These activities are restricted to daylight hours. Certain areas of the refuge may be restricted seasonally for breeding or nesting purposes to protect habitat or for experimental purposes to draw in birds.

Justification: These activities are low impact. Walking and hiking are considered to be wildlife-oriented. Observation of wildlife may be enhanced by visiting the open shoreline beaches.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Beach Use (Sunbathing and Swimming from Shore) (Egmont Key NWR)

The beaches on Egmont Key NWR that are not closed to the public are available for the activities of sunbathing and swimming from shore.

Availability of Resources: The public beaches are maintained by refuge staff and volunteers. Swimming is available at the swimmer's own risk.

Anticipated Impacts of the Use: No significant impacts are anticipated from sunbathing or swimming from shore. Some littering, vandalism, plant removal, and feeding/disturbance of wildlife may occur. Litter that washes in or that is left by visitors will be controlled through refuge staff, volunteers, and through regular monthly beach cleanups conducted by the citizen support organization.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Sunbathing and swimming are restricted to areas open to the public away from densely populated areas of nesting birds. These activities will be restricted to daylight hours only. Visitors will be asked to "pack it in, pack it out" and remove their own litter. Pets are not allowed on the island and visitors will be asked to minimize their noise (i.e., blaring radios, screaming) in order to reduce the disturbance to wildlife. Refuge and state park law enforcement patrol of public use areas should continue to minimize violations.

Justification: Although sunbathing and swimming are not wildlife-dependent or priority public uses, wildlife may be seen while sunbathing or swimming.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Concessions (Egmont Key NWR)

There are presently no concessions on Egmont Key. Concessions are businesses operated by a private enterprise that provide equipment, facilities or other goods or services for the recreational, educational, and /or interpretive enjoyment for the public. A concession, such as a boat tour or ferry, could be used to bring persons to the island.

Availability of Resources: The cost of allowing these uses on the refuge would be absorbed within the operating budget. A special use or operating permit may be used to cover any administrative costs to accommodating this use.

Anticipated Impacts of the Use: Small groups led by professional guides or boat crews that are under permit should have minimal impacts on the environment.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Concessions would only be run under agreement with the Service through operating or special use permits. Concessionaires would be trained to avoid leading their groups in activities that could harm wildlife or habitat.

Justification: Since Egmont Key is an island and the Service has no means to shuttle persons out to the island, a concession would be useful for providing access to the island. The number and activities of visitors could be controlled partly by concessions if they are under a permit system. Regulation of concessions would ensure training of staff for visitor education and safety. Access for the purpose of wildlife-dependent recreation would allow more opportunity for public use.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Hiking/Walking (Egmont Key NWR)

Egmont Key NWR contains rudimentary roads and trails, a brick road dating from the World War II era, and miles of shoreline that are accessible for walking and hiking.

Availability of Resources: Some of the developed primitive roads and trails are maintained for refuge purposes and therefore maintenance does not constitute additional cost for these activities.

Anticipated Impacts of the Use: Impacts from these activities could include littering, vegetation trampling, and wildlife disturbance.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Hiking and walking are restricted to daylight hours. Certain areas of the refuge may be restricted seasonally for breeding or nesting purposes or to protect or promote habitat. No pets are allowed on the island.

Justification: These activities are low impact and considered to be wildlife-oriented. Observation of wildlife is enhanced by using the trails offered at the refuge.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Picnicking (Egmont Key NWR)

There are presently no picnic facilities (e.g., tables, shelters, and restrooms) available to the public on Egmont Key NWR.

Availability of Resources: Staff resources limit this use as there are no facilities available to the public. The cost of allowing this use on the refuge would be absorbed within the operating budget.

Anticipated Impacts of the Use: No significant impacts are expected since picnicking is restricted to the upland portion of the refuge. Some littering, vandalism, plant removal, and feeding/disturbance of wildlife could occur. Litter would have to be controlled by the placement and collection of refuse containers.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Picnicking, like all refuge uses, is restricted to daylight hours. Picnicking on the beach/shoreline is discouraged to prevent littering and disturbance to wildlife and trampling of wildlife nests. Some areas of the refuge may be closed to picnicking on a seasonal, temporary, or trial basis for the protection of wildlife and habitat.

Justification: Picnic areas and facilities can provide refuge visitors a place to rest and to observe wildlife around these sites with minimal disturbance to wildlife. Sites could also be developed to allow mobility impaired visitor access to areas where animal life is plentiful. While there are no facilities in the refuge at present, properly placed facilities could be an asset in drawing visitors to certain areas. Interpretive displays could be located at these resting sites.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Snorkeling (Skin Diving)/SCUBA Diving (Egmont Key NWR)

Snorkeling is permitted from shore and in the seagrass beds on the east side of Egmont Key NWR, where there is a vessel exclusion zone. Access to the seagrass beds can be from boats anchored outside the vessel exclusion zone or from visitors walking south along the eastern shoreline of the refuge to the vessel exclusion zone. There is also snorkeling and SCUBA diving on the batteries offshore on the southwestern side of Egmont Key NWR.

Availability of Resources: Snorkeling and diving are activities visitors can do at their own risk. There are no lifeguards. No additional costs are required of the refuge to accommodate this use.

Anticipated Impacts of the Use: Disturbance of wildlife or trampling of nests can be expected by visitors walking along the shoreline. These impacts are expected to be minimal and temporary. Snorkelers who walk in the seagrass areas can damage them. Although it is prohibited by refuge regulation, some take of live marine species, especially mollusks, could occur. Since this is an activity to be done at the diver's risk, safety concerns include injuries and the potential for heart attacks or the drowning of unfit swimmers.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Snorkeling is allowed from refuge beaches. To access the seagrass beds, snorkelers must walk a distance down the beach.before entering the water. This will limit the number of persons that enter the seagrass beds. Many snorkelers are trained not to stand on the bottom or to touch marine life or any living organisms. An interpretive sign might be used at the access point along the beach to educate snorkelers. If snorkelers come to the refuge via a regulated concession, they could be provided with an educational program on snorkeling etiquette and how to minimize damage in seagrasses, along with an interpretive program on marine resources and the value of seagrass beds. Florida regulations for swimming and diving apply. Skin and SCUBA divers should carry and use a dive flag signaling divers down. This prohibits boaters from coming within 100 feet of a diver.

Justification: Snorkeling provides an opportunity for wildlife observation of the marine environment. Learning about an environment and enjoying time in it is a means of instilling a value of stewardship among visitors. Although this is not a priority public use, it provides a means of wildlife observation.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Boating (Non-motorized/Human Powered) (Pinellas NWR)

Motorized boats are prohibited within the refuge boundary around Tarpon, Indian/Bird, and part of Whale Keys. Within the refuge boundary on these islands, only non-motorized/human powered boats, such as canoes and kayaks, are allowed. Persons in watercraft vessels are restricted to paddling, poling, or pedaling as means of propulsion to cross through these waters.

Availability of Resources: The cost of allowing this use on the refuge is absorbed within the operating budget and does not require additional staff for enforcement or other purposes.

Anticipated Impacts of the Use: Since non-motorized boats are quieter than motor boats, fewer disturbance and noise impacts to wildlife are anticipated than if motor boats were prohibited. Some littering and minor impacts to wildlife or habitat may occur, but these are expected to be minor due to the limited number of persons who visit these islands by non-motorized vessel.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Boating by non-motorized/human powered vessels is restricted to daylight use only within the refuge boundary of Tarpon, Indian/Bird, and part of Whale Keys. For fishers, fishing is prohibited within the area between the island shores and the casting distance between the island and their vessel. This is to ensure that birds are not snagged by fishhooks and that monofilament is not caught in vegetation on the island.

Justification: Boating allows access to these islands for wildlife observation, which is a priority public use under the National Wildlife Refuge System Improvement Act. By restricting boating to non-motorized/human powered vessels, it will cut down the number of visitors within the refuge boundary and it will prevent impacts from oil or gas spills.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 10-year Re-evaluation Date: 09/25/2019

Use: Wildlife Observation and Photography (Non-commercial) (Egmont Key and Pinellas NWRs)

Non-consumptive wildlife observation uses include wildlife observation, which is defined as the viewing of fish, wildlife, plants and habitats, including the provision of access to viewing areas. Photography involves refuge visitation for the purpose of photographing natural or cultural resources, or public uses of these resources for individual recreational purposes rather than news, educational, or commercial purposes. Wildlife observation can also include commercial guiding or outfitting of refuge visitors to view fish, wildlife, plants, or their habitats (including provisions of access to viewing areas). There are presently no refuge-sanctioned guides or outfitters for wildlife observation and photography excursions.

Availability of Resources: The cost of allowing this use on the refuges would be absorbed within the operating budget. Trails and beaches are maintained for refuge purposes and recreational use. The addition of platforms, photography blinds, or towers to encourage these uses on the refuges would involve new construction costs. With a fee program, the refuges could receive 80 percent on entrance fee receipts. This may be used to support the six priority public uses identified in the National Wildlife Refuge System Improvement Act. If outfitters and guides were allowed under special use or operators' permits as part of a concession, then there may be fees involved to cover the administrative costs of operating a permit system.

Anticipated Impacts of the Use: Some violations of refuge regulations are anticipated, such as wildlife disturbance, collecting, poaching, plant removal, littering, and vandalism.

Determination (check one below):
___ Use is Not Compatible
_X_ Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Patrol of public use areas should minimize violations of refuge regulations. The refuges are closed overnight. Certain areas of the refuges may be restricted seasonally for breeding or nesting purposes or to protect habitat.

Justification: These are priority public uses under the National Wildlife Refuge System Improvement Act.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space*.

___ Categorical Exclusion without Environmental Action Statement
___ Categorical Exclusion and Environmental Action Statement
_X_ Environmental Assessment and Finding of No Significant Impact
___ Environmental Impact Statement and Record of Decision

Mandatory 15-year Re-evaluation Date: 09/25/2024

Other Uses:

Bicycling, Camping, Competitive Sporting Events, and Geocaching (Egmont Key NWR)

Boating (Overnight Mooring) (Egmont Key and Pinellas NWRs)

Military Uses, Boating – Other (Vessel Landings) (Egmont Key, Passage Key, and Pinellas NWRs)

The CCP team addressed these “other uses” and they were found to be not appropriate. The team and refuge managers also deemed them imcompatible uses due to the fact that all are non-priority, non-wildlife-dependent uses. Each use had the potential for user conflicts, public safety concerns, habitat and/or wildlife disturbance, habitat destruction, and/or resource degradation (e.g., vandalism, littering, and/or disturbance to cultural resources). The specific rationale for each decision is included in the CCP planning record within the compatibility determinations’ file.

Approval of Compatibility Determination

The signature of approval is for all compatibility determinations considered within the Comprehensive Conservation Plan for the Tampa Bay Refuges. If one of the descriptive uses is considered for compatibility outside of the Comprehensive Conservation Plan, the approval signature becomes part of that determination.

Refuge Manager: Signed 03/03/2009
(Signature/Date)

Regional Compatibility Coordinator: Signed 8/26/09
(Signature/Date)

Refuge Supervisor: Signed 9/14/09
(Signature/Date)

Regional Chief, National Wildlife Refuge System, Southeast Region: Signed 9-15-09
(Signature/Date)

Appendix G. Intra-Service Section 7 Biological Evaluation

REGION 4
INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

[Note: This form provides the outline of information needed for intra-Service consultation. If additional space is needed, attach additional sheets, or set up this form to accommodate your responses.]

Originating Person: Joyce M. Kleen
Telephone Number: 352/563-2088 x 211 **E-Mail:** joyce_kleen@fws.gov
Date: September 15, 2008

PROJECT NAME (Grant Title/Number): Tampa Bay Refuges Comprehensive Conservation Plan and Environmental Assessment

I. Service Program:

___ Ecological Services
___ Federal Aid
___ Clean Vessel Act
___ Coastal Wetlands
___ Endangered Species Section 6
___ Partners for Fish and Wildlife
___ Sport Fish Restoration
___ Wildlife Restoration
___ Fisheries
_X_ Refuges/Wildlife

II. State/Agency: Florida, U.S. Fish and Wildlife Service

III. Station Name: Tampa Bay Refuges including Egmont Key, Passage Key, and Pinellas National Wildlife Refuges

IV. Description of Proposed Action (attach additional pages as needed):

Implementation of the Comprehensive Conservation Plan.

The U.S. Fish and Wildlife Service developed a Comprehensive Conservation Plan (CCP) for the Tampa Bay Refuges, which include Egmont Key, Passage Key, and Pinellas, totaling 639 acres in Hillsborough, Manatee, and Pinellas Counties, respectively.

The preferred alternative identified in the CCP outlines actions to improve refuge management. It supports the purposes for which the refuges were established and the missions of the refuges and Refuge System. The CCP identifies six broad goals for habitat and wildlife, threatened and endangered species, visitor services, cultural resources, wilderness, and administration. Specific objectives and strategies for these goals are detailed. The goals, objectives, and strategies were developed to support international, national, and regional conservation plans and initiatives in partnership with other agencies, such as the FWC.

V. Pertinent Species and Habitat:

A. Include species/habitat occurrence map: See Figures 14, 15, 16 in the CCP

B. Complete the following table:

SPECIES/CRITICAL HABITAT	STATUS[1]
Atlantic loggerhead turtle	T
Atlantic green turtle	E
Piping plover/CH-Egmont	E
Wood stork	E
West Indian manatee	E

[1]STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

VI. Location (attach map): See Figures 1 and 2 in the CCP

A. Ecoregion Number and Name: Ecoregion 32, North Florida Ecosystem

B. County and State: Hillsborough, Manatee, and Pinellas Counties, Florida

C. Section, township, and range (or latitude and longitude):

T 33 S, R 15 E, S 23, 24, 25, 26-Egmont
T 33 S, R 16 E, -Passage
T 31 S, R 16 E, S 15; T 32 S, R 15 E, S 20, 29, 32; & T 32 S, R 16 E, S 27, 28, 33, 34-Pinellas

D. Distance (miles) and direction to nearest town:

Less than 2 miles southwest of St. Petersburg, Florida

E. Species/habitat occurrence:

Atlantic loggerhead turtles nest on the beaches around the perimeter of Egmont Key NWR. One nest was also documented on Passage Key NWR in 1995. Atlantic green turtles are occasional visitors to the sea grass beds along the east side of Egmont Key NWR and may be seen in the coastal waters of Passage Key and Pinellas NWRs.

West Indian manatees forage in the sea grass beds along the east side of Egmont Key NWR and may also be found in the coastal waters surrounding Passage Key and Pinellas NWRs.

Piping plovers have been documented on the beaches of Egmont Key NWR during the fall months and occasionally during the winter. The beach is designated as critical habitat for piping plovers

VII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitats in item V. B (attach additional pages as needed):

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Atlantic loggerhead turtle	The project is not likely to adversely affect loggerheads.
Atlantic green turtle	The project is not likely to adversely affect green turtles.
Piping plover/CH-Egmont	The project is not likely to adversely affect piping plovers.
Wood stork	The project is not likely to adversely affect wood storks.
West Indian manatee	The project is not likely to adversely affect manatees.

Beach renourishment and protection will benefit nesting loggerhead sea turtles and wintering piping plovers by providing more nesting habitat for loggerheads and more wintering habitat for piping plovers.

Protection of the sea grass beds near Egmont Key NWR and surrounding Pinellas NWR will benefit manatees and green sea turtles.

Habitat restoration of the mangrove islands within Pinellas NWR will provide more habitat for wood storks.

B. Explanation of actions to be implemented to reduce adverse effects:

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Atlantic loggerhead turtle	Beach renourishment projects will not occur during loggerhead nesting season (summer months).
Atlantic green turtle	No actions to mitigate/minimize impacts are needed for green turtles.
Piping plover/CH-Egmont	Beach renourishment projects may occur during the fall and winter when plovers are present which may temporarily displace plovers. The renourishment projects will ultimately provide more beach habitat for the plovers.
Wood stork	No actions to mitigate/minimize impacts are needed for wood storks.
West Indian manatee	No actions to mitigate/minimize impacts are needed for manatees.

Beach renourishment projects will occur during the fall and winter when loggerhead turtles are not nesting. The additional habitat provided by the extra sand will provide more beach area for the turtles to nest and is critical to loggerhead nesting success. The additional sand will protect the incubating eggs from high surf and waves caused by high tides, tropical storms, and hurricanes.

These same renourishment projects will be occurring during the fall and winter when piping plovers are present, which may cause the birds to be temporarily displaced or it may temporarily reduce the availability of invertebrates. The addition of the new sand will ultimately provide more habitat for piping plovers to winter.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION[1]			RESPONSE[1] REQUESTED
	NE	NA	AA	
Atlantic loggerhead turtle		X		Concurrence
Atlantic green turtle		X		Concurrence
Piping plover/CH-Egmont		X		Concurrence
Wood stork		X		Concurrence
West Indian manatee		X		Concurrence

[1]DETERMINATION/RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response Requested for proposed or candidate species is "Conference".

Signed 05/24/2008

Signature (originating station) **date**

Deputy Refuge Manager / Acting Refuge Manager

Title

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence ✓ **Nonconcurrence** _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Signed for 1/8/09

Signature **date**

Deputy Field Supervisor Jacksonville Ecological Services

Title **office**

Appendix H. Wilderness Review

The Wilderness Act of 1964 defines a wilderness area as an area of federal land that retains its primeval character and influence, without permanent improvements or human inhabitation, and is managed so as to preserve its natural conditions and which:

1. generally appears to have been influenced primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;

2. has outstanding opportunities for solitude or primitive and unconfined types of recreation;

3. has at least 5,000 contiguous roadless acres or is of sufficient size to make practicable its preservation and use in an unimpeded condition; or is a roadless island, regardless of size;

4. does not substantially exhibit the effects of logging, farming, grazing, or other extensive development or alteration of the landscape, or its wilderness character could be restored through appropriate management at the time of review; and

5. may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

The lands within the Tampa Bay Refuges were reviewed for their suitability in meeting the criteria for wilderness, as defined by the Wilderness Act of 1964.

WILDERNESS REVIEW –
PINELLAS, EGMONT KEY, AND PASSAGE KEY NATIONAL WILDLIFE REFUGES
JANUARY 12, 2005

The Service's Comprehensive Conservation Plan team for Tampa Bay Refuges met at Chassahowitzka NWR on January 12, 2004, to discuss the refuges' wilderness review. The review team included:

- Jim Kraus, Refuge Manager
- John Kasbohm, Assistant Refuge Manager
- Joyce Kleen, Wildlife Biologist
- Mary Morris, Natural Resource Planner
- Richard Meyers, Assistant Refuge Ranger
- Sarah Palmisano, Refuge Operations Specialist
- Deborah Jerome, Wilderness Coordinator, Regional Office (via conference call)

The wilderness review is a required component of the Comprehensive Conservation Plan (CCP). The Wilderness Act defines a Wilderness Area as an area of federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is managed so as to preserve its natural conditions and which:

1) Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;

2) Has outstanding opportunities for solitude or primitive and unconfined type of recreation;

3) Has at least 5,000 contiguous roadless acres or is of sufficient size to make practicable its preservation and use in an unimpaired condition;

4) Does not substantially exhibit the effects of logging, farming, grazing, or other extensive development or alteration of the landscape, or its wilderness character could be restored through appropriate management, at the time of review;

5) Is a roadless island; and

6) May contain ecological, geological, or other features of scientific, education, scenic or historic value.

There is a three-phase process for conducting a wilderness review: inventory, study, and recommendation. During the inventory phase of the wilderness review, the emphasis is on an assessment of wilderness character as defined by the above criteria within the inventory unit. Lands that meet the above criteria will be designated as Wilderness Study Areas (WSAs).

The determination to recommend (or not recommend) a WSA to Congress for wilderness designation will be made through the CCP decision-making process.

The team discussed land status and ownership. The Passage Key NWR Wilderness was designated by Congress under Public Law 91-504 on October 23, 1970. The entire refuge portion of the island, estimated at 36.37 acres, but now experiencing erosion, is designated as a Wilderness Area. Since Passage Key NWR is already a Wilderness area and since this area cannot be expanded, it is not included in this summary as a wilderness inventory unit. Indian/Bird and Tarpon Keys are not owned in fee simple. They are leased from Pinellas County; therefore, they are not included as wilderness inventory units and they are not considered for WSA designation.

The team identified wilderness inventory units potentially meeting the WSA criteria and these units are identified in Table 18 and Figure 19. All of the units identified meet criterion 5 above since they are roadless islands.

Table 17. Wilderness inventory units – Tampa Bay Refuges

Unit	Acreage
Egmont Key	328.29
Little Bird Key	1.24
Jackass Key	4.31
Mule Key	0.07
Listen Key	3.99
Whale Key	2.80

Wilderness Management

The wilderness management policy and regulations allow motorized access and use of mechanized equipment for administrative purposes only if such uses are the minimum necessary to accomplish wilderness objectives. For the purpose of analysis in the CCP and the environmental assessment, which was Section B of the Draft CCP, managers should assume that authorization of such uses would be temporary and rare in a wilderness area. If such restrictions would significantly limit the Service's ability to accomplish other resource management objectives, these impacts should be fully described in the environmental consequences of the environmental assessment and would obviously be a factor for consideration in selecting a preferred alternative.

Resource Management Issues

Fire Management – Passage Key NWR and the Pinellas NWR keys do not need fire suppression or prescribed burning. Passage Key NWR has very little vegetation and the mangrove keys of Pinellas NWR are wet. Egmont Key NWR has had seven known fires (wild or arson) since the time it became a refuge in 1974. The Fire Management Plan dated May 25, 2001, covers wildfire contingency planning, but not prescribed burning. As part of the ongoing refuge operations, a burn prescription for Egmont Key NWR will be written.

Endangered Species – There are no known federally listed species on these islands, although there may be some undocumented, occasional use of some islands/keys by wood storks.

Public Use – Public use is primarily on Egmont Key NWR, which has an extensive beach area. Public uses, such as boating, sailing, and fishing, occur in the surrounding waters and interior tidal creeks. The keys and interior lagoon of Tarpon Key within Pinellas NWR are closed to public use to protect nesting and resting birds, but fishing is permitted in waters surrounding these islands. Passage Key NWR is also closed to public use to protect nesting and resting birds.

Navigable Waters – All of the inventory units are bounded by navigable waters which are sovereign State land. The Service has limited authority to restrict activities, such as motor boating, on navigable water bodies.

Summary of Wilderness Inventory Findings

The wilderness review inventory team identified six Wilderness Inventory Areas on the Tampa Bay Refuges (Table 18). Egmont Key NWR is a sandy beach island located in the Gulf of Mexico at the mouth of Tampa Bay. All five keys within Pinellas NWR are small, mangrove keys located in Tampa Bay. Small, mangrove islands generally do not meet the requirement of having "outstanding opportunities for solitude or primitive and unconfined type of recreation" (criterion 2 above).

The findings for each of the inventory units identified in Table 18 are summarized as follows:

Egmont Key NWR (328 acres) does not meet the criteria for a WSA. It does not meet the criterion 5 (a roadless island of any size), since it contains primitive roads and the remains of historic roads. Further, Egmont Key NWR does not meet criterion 4 since it contains many structures, including the remains of Fort Dade. It has a historically significant lighthouse on the island that is contained on the U.S. Coast Guard property. Out parcels on the island include the 55-acre Coast Guard tract and the 5-acre Tampa Bay Pilots housing compound. The Pilots lease another 5 acres from the refuge. Criterion 2 is also not applicable to Egmont Key NWR. Heavy public use limits the opportunities for individuals to enjoy solitude or a primitive and unconfined

recreational experience. The island is close to a major shipping channel that goes to the Port of Tampa. Large vessel traffic is frequent around the island. The pilot boats, private vessels, and tour operations also operate around the island.

Little Bird Key (1 acre) meets criterion 5 above for a WSA (a roadless island of any size), but could not be practicably managed as wilderness because of its location and close proximity to homes, Highway 693, and heavy motor boating activity. This heavy public use around the island, combined with the size of the island, limits the opportunities for individuals to enjoy solitude or a primitive and unconfined recreational experience.

Jackass Key (4 acres) meets criterion 5 above for a WSA (a roadless island of any size), but could not be practicably managed as wilderness because of its location and close proximity to urban areas, Highway 693, and heavy motor boating activity. This heavy public use around the island, combined with the size of the island, limits the opportunities for individuals to enjoy solitude or a primitive and unconfined recreational experience.

Mule Key (0.7 acres) meets criteria 5 above for a WSA (a roadless island of any size), but could not be practicably managed as wilderness because of its location and close proximity to homes, Highway 693, and heavy motor boating activity. This heavy public use around the island, combined with the size of the island, limits the opportunities for individuals to enjoy solitude or a primitive and unconfined recreational experience.

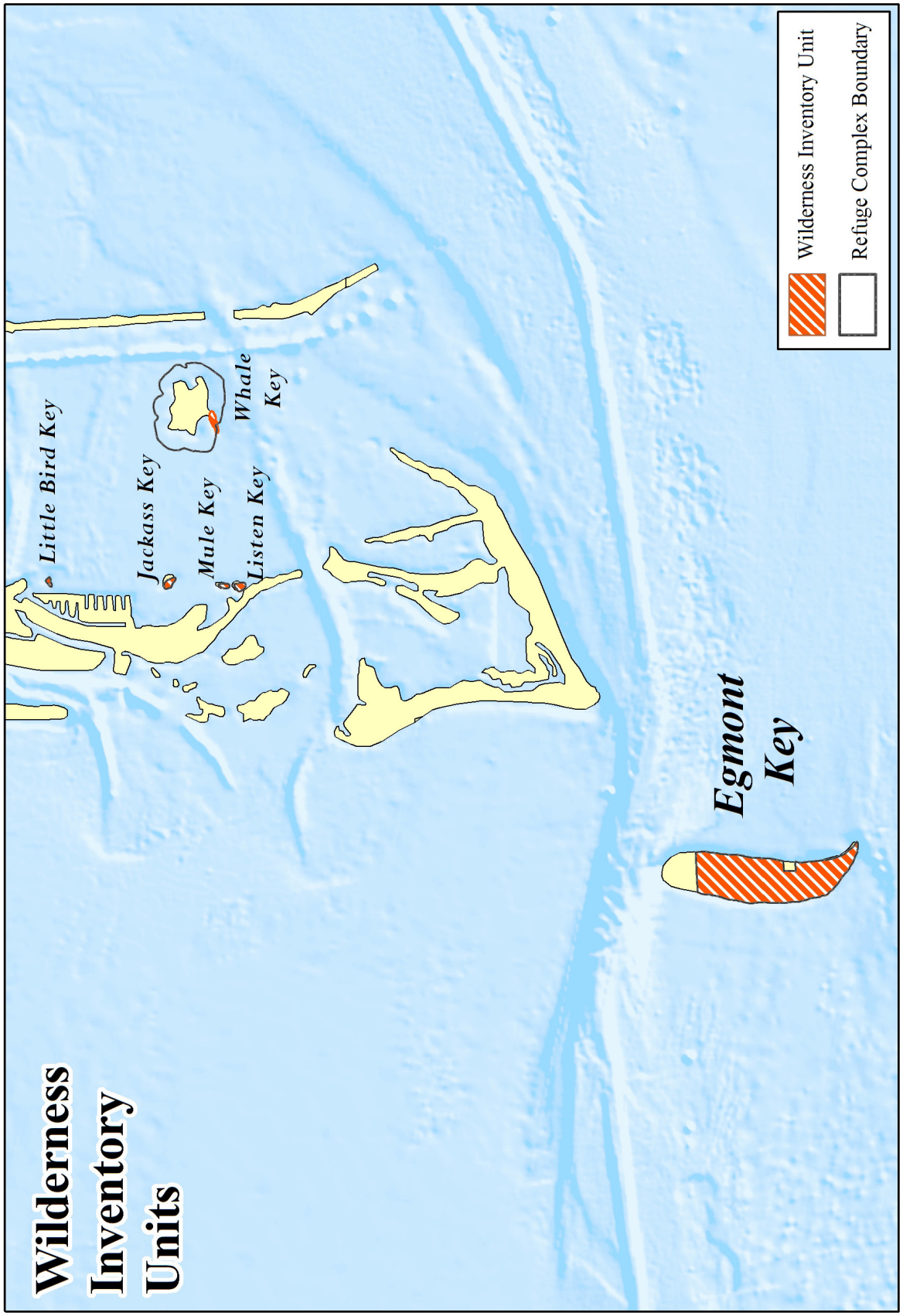
Listen Key (4 acres) meets the criterion 5 above for a WSA (a roadless island of any size), but could not be practicably managed as wilderness because of its location and close proximity to homes, Highway 693, and heavy motor boating activity. This heavy public use around the island, combined with the size of the island, limits the opportunities for individuals to enjoy solitude or a primitive and unconfined recreational experience.

Whale Island (3 acres) meets the criterion 5 above for a WSA (a roadless island of any size), but could not be practicably managed as wilderness because of its location and close proximity to urban areas, I-275 and the Sunshine Skyway Bridge, and heavy motor boating activity. This heavy public use around the island combined with the size of the island limits the opportunities for individuals to enjoy solitude or a primitive and unconfined recreational experience.

Recommendation

It is the recommendation of the team that none of the six inventory units described in the preceding section should be designated as WSAs.

Figure 19. Tampa Bay Refuges wilderness inventory units



Appendix I. Refuge Biota

Priority Bird Species

Mangrove Nesting and Roosting Waterbirds

All the species treated in this section are restricted to nesting on Pinellas NWR, with the exception of brown pelican that also nest on Egmont Key NWR and Passage Key NWR (before it was lost to a hurricane). Nesting on Pinellas NWR occurs in mangrove woodlands, currently mostly on Little Bird Key. Formerly, nesting occurred widely on other keys, especially on Tarpon and Whale Keys, but now at greatly reduced levels.

Tarpon Key, one of the islands within Pinellas NWR, was a significant nesting, resting, and feeding area for a variety of colonial nesting waterbirds including white ibis, reddish egrets, and roseate spoonbills. Very little nesting has been documented since 2002, when consistent predator control efforts ceased and this colony succumbed to raccoons and possibly fish crows. In addition, some of the mangrove habitat has been lost due to erosion from boat wakes, storm tides, tropical storms, and hurricanes. Although these islands are closed to all public use, illegal access by the public still occurs and may cause birds to abandon their nests or flush from their nests allowing predators to move in.

The late Rich Paul, National Audubon Society-retired, reviewed Audubon's data for bird populations in Tampa Bay and Pinellas County. Audubon's data was compared with data from Jim Rodgers, Florida Fish and Wildlife Commission (FWC), and any disparities were clarified and resolved.

The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicates the following species nesting in Tampa Bay (most on refuges) should be considered as in need of conservation attention in refuge planning:

Species of Conservation Importance (Concern vs. Stewardship vs. other, Action level, species, Combined Score, whether or not State listed, Refuge [2003] pairs, and percentage of 2003 pairs compared with Tampa Bay overall, compared with estimate of total pairs in BCR 31, and compared with estimate of total pairs in Southeast US Region; then percentage of 2003 pairs overall in Tampa Bay with BCR 31 and Southeast US). Percentages over 5 percent are highlighted to indicate high responsibility locally and regionally for Tampa Bay Refuges.

Conservation Concern Species
Critical Recovery
Wood Stork (Combined Score 19), also Federally Endangered and State listed (0/0/0, 8/5)

Immediate Management
*Reddish Egret (Combined Score 23), also State listed (**5**/1/<1, 18/5)
*Roseate Spoonbill (Combined Score 17), also State listed (**8**/<1/<1, 36/6)

Management Attention
*Brown Pelican (Combined Score 20), also State listed (**13/**2/<1, 12/3)
Tricolored Heron (Combined Score 19), also State listed (1/1/<1, **63**/3)
White Ibis (Combined Score 18), also State listed (0/0/0, **45**/12)
Glossy Ibis (Combined Score, 17) (0/0/0, **47/14**)

Anhinga (Combined Score 16) (0/0/0, **11**/4)
Great Blue Heron (Combined Score 16) (**18**/2/<1, **13**/<1)
Green Heron (Combined Score 16) (4/<1/<1, <1/<1)
Yellow-crowned Night-Heron (Combined Score 16) (3/<1/<1, 11/1)
*Great Egret (Combined Score 15) (**6**/<1/<1, **8**/1)
Little Blue Heron (Combined Score 15), also State listed (3/<1/<1, **14**/1)

Conservation Stewardship
Planning and Responsibility
*Double-crested Cormorant (**21**/2/2, **12/9**)
Snowy Egret, also State listed, (4/2/<1, **38**/3)

Other species
Cattle Egret (<1/<1/<1, **18**/2)
Black-crowned Night-Heron (13/2/<1, 18/2)

*Tampa Bay Refuges have high responsibility (>5 percent) for supporting all Tampa Bay populations.
**Tampa Bay Refuges have high responsibility (>50 percent) for supporting all peninsular Florida (BCR 31) populations.

Regionally, the reddish egret is the highest priority species among long-legged waders found nesting in Tampa Bay. It has not increased overall since the stoppage of the millinery trade. The Tampa Bay area supports the northernmost breeding population along Florida's Gulf Coast and includes at present between 60 and 85 pairs. This population has stabilized in the last few years.

The federally listed endangered wood stork is not nesting on any refuge lands in the Tampa Bay area, but it does nest in Tampa Bay.

Roseate spoonbills regionally appear to be doing well, but there is concern for the species in peninsular Florida (especially south Florida). Tampa Bay populations may be important as the northernmost breeding population along Florida's Gulf Coast.

Brown pelicans seem to be doing alright elsewhere in the southeast, with the exception of some areas in Florida (and South Carolina). Some Florida populations are apparently undergoing population declines. Brown pelicans are susceptible to entanglement in monofilament line; islands near fishing piers and boating passes seem to be the worst affected. Pelicans may be attempting to gather monofilament as fine material for nests, thus either getting entangled, or distributing monofilament throughout nesting areas.

The tricolored heron is of increasing concern regionally and in Florida. Because this species is most numerous in coastal habitats, Tampa Bay Refuges provide significant potential for foraging and nesting habitat.

White ibis are also of some regional concern, but while the species does breed in Tampa Bay, none are presently nesting on Pinellas NWR proper. This is a wandering species where numbers can fluctuate greatly locally depending on water conditions throughout the state/region. This area can provide important nesting sites when conditions inland are poor. For example in 2003, 18,000 pairs

nested in Tampa Bay due to poor conditions at historical colonies in the Everglades. More recently, white ibis actually nested on Egmont Key annually since 2005, for the first time known to the present refuge staff (i.e., during the last 18 years.)

Yellow-crowned night herons nest at edges and are vulnerable to fish crows. They are crustacean specialists and have limited foraging areas. Black-crowned night herons are more widespread and not of much concern overall, but colonies do not exist in the thousands like they used to. Both species nest on Tarpon and Little Bird Keys, Pinellas NWR and also on Egmont Key NWR.

Although not breeding in Tampa Bay, the keys in Pinellas NWR may represent important post-breeding roost sites for the magnificent frigatebird.

The two main short-term management issues identified during the Biological Review affecting mangrove nesting species are: (1) Depredation, which within recent years (when predator control has slacked off), has led to near complete abandonment of Tarpon and Whale Keys (among other islands on the refuge); and (2) through law enforcement presence the need to ensure that human disturbance is not a factor where and when waterbirds are nesting on the refuge. In addition to the above two major issues, three other long-term issues need to be considered: (1) Island stabilization through renourishment; (2) removal of exotic vegetation; and (3) reduction of monofilament lines causing mortality.

Beach-Nesting Waterbird and Shorebird Species

As with mangrove nesting waterbirds, the late Rich Paul, National Audubon Society-retired, reviewed Audubon's data for populations of beach nesting species in Tampa Bay and Pinellas County. Audubon's data was compared with data from Jim Rodgers, FWC, and any disparities were clarified and resolved. Within Tampa Bay, Egmont Key NWR and Passage Key NWR support a large majority of nesting terns and laughing gulls (while these species, other than brown pelican; do not occur on Pinellas NWR).

Approximately 38,000 pairs of birds nested on Egmont's beaches in 2007, up from 50 pairs in 1998. Brown pelicans, which have nested on Passage Key, began nesting on Egmont Key in 2000 for the first time in 17 years. Disturbance by people entering closed areas has caused total failure of all nesting colonies in past years. Continued efforts by volunteers, state park service staff, and refuge law enforcement to keep people out of closed areas, has allowed birds to successfully nest without human disturbance. Unfortunately, birds are still subject to loss of habitat and nests resulting from other forces-predators, high tides, tropical storms, and hurricanes.

Approximately 3,000 pairs of birds, including laughing gulls, royal terns, sandwich terns, and black skimmers, nested on Passage Key through 2004. In 2005, Passage Key NWR was reduced to a sandbar. Over the past 100 years, this island refuge has been reduced from 36 acres due to the effects of high tides, tropical storms, and hurricanes. This island is closed to the public year-round to protect nesting, resting, and migrating birds, but illegal access by the public continues to cause birds to abandon their nests. Since this refuge is designated wilderness, any attempt to restore it through beach renourishment requires additional considerations on impacts to wilderness character.

The conservation list for Bird Conservation Region 31 (BCR 31, Peninsular Florida) indicates the following species nesting in Tampa Bay (most on refuges) should be considered as in need of conservation attention in refuge planning:

Species of Conservation Importance (Concern vs. Stewardship vs. other, Action level, species, Combined Score, whether or not State listed, Refuge [2003] pairs, and percentage of 2003 pairs compared with Tampa Bay overall, compared with estimate of total pairs in BCR 31, and compared with estimate of total pairs in Southeast U.S. Region; then percentage of 2003 pairs overall in Tampa Bay with BCR 31 and Southeast U.S.). Percentages over 5 percent are highlighted to indicate high responsibility locally and regionally for Tampa Bay Refuges.

Conservation Concern Species

Critical Recovery
Snowy Plover (Combined Score 20), also State listed (0/0/0, 5/<1)

Immediate Management
None

Management Attention
Wilson's Plover (Combined Score 21) (0/0/0, **13**/2)
American Oystercatcher (Combined Score 21), also State listed (3/1/<1, **40**/3)
*Brown Pelican (Combined Score 20), also State listed (**14/**2/<1, **12**/3)
*Black Skimmer (Combined Score 20), also State listed (**18/15/**2, **82/11**)
*Least Tern (Combined Score 19), also State listed (**8**/<1/<1, **6**/1)
Sandwich Tern (Combined Score 17) (75**/**66/**1, **89**/2)
Laughing Gull (Combined Score 16) (61/50/74**, **82/12**)
Gull-billed Tern (Concern Score 16) (0/0/0, **53**/1)

Planning and Responsibility
Willet (Conservation Score 16) (2/<1/<1, <1/<1)

Conservation Stewardship
Planning and Responsibility
Royal Tern (82/82/**4, **100/5**)

Other species
Black-necked Stilt (0/0/0 <1/<1)
Caspian Tern (0/0/0, **49/5**)

*Tampa Bay Refuges have high responsibility (>5 percent) for supporting all Tampa Bay populations.
**Tampa Bay Refuges have high responsibility (>50 percent) for supporting all peninsular Florida (BCR 31) populations.

Beyond this conservation list above, it is instructive to divide beach nesting species into two types: (1) Those that do not tend to occur in huge colonies, but are more spread out, and (2) those that do occur only in large colonies generally on very isolated islands that are completely free of mammalian predators. The first group tends to have the species undergoing the most severe declines today, while the second group of species appears largely stable regionally, but only will continue to be stable if known colonies are all protected against predators becoming established and from increasing levels of human disturbance.

Islands and Mainland Beaches (most threatened as they do not tend to concentrate in huge colonies and are more subject to problems associated with nesting sites readily accessible to mammalian predators and high public use on beaches):
Snowy plover
Wilson's plover
American oystercatcher
Gull-billed tern
Least tern
Black skimmer

Isolated Islands (these species do well where islands are protected/managed; no predators and minimal human disturbance):
Brown pelican
Royal tern
Sandwich tern
Laughing gull
Caspian tern (not particularly common nesting species in the southeast, but where they do nest they occur only with royals and/or sandwich terns)

Among nesting shorebirds, plovers and oystercatchers are the highest priority species, but presently only the American oystercatcher is known to nest on Egmont Key and Passage Key NWRs. Wilson's plovers are not nesting on any refuge lands, but the potential exists. Snowy plovers also are not nesting on refuge lands in Tampa Bay, but do occur elsewhere in Tampa Bay.

Among the colonial nesting species, black skimmers and least terns are the highest priority species nesting on Egmont Key and Passage Key NWRs and these refuges may be among the most secure nesting sites in Tampa Bay. These two species are undergoing declines or are staying relatively stable by moving nesting off of beaches to gravel roof-tops (especially least tern) throughout the Southeast, including the Tampa Bay area. They generally have poor reproduction on beaches due to constant depredation and high human disturbance, but their reproductive rates on rooftops may not be much better on average. Roof-top colonies are subject to large scale failure associated with major storm events. Also, when colonies start to become large they are more likely to attract avian predators that can cause failure and abandonment (examples of avian predators on rooftops may include fish crows, cattle egrets, and even burrowing owls). Beyond these issues, now it is apparent that gravel on roof-tops are being phased out across the southeast and specifically in the Tampa Bay area (DeVries and Forys 2004, Loss of tar and gravel rooftops in Pinellas County, Florida, and potential effects on least tern populations, *Florida Field Naturalist* 32:1-41). As this phase out occurs, whatever higher level of overall reproductive success that may occur on roof-tops over beach habitats will be lost, highlighting the increasing importance of minimizing human disturbance especially on Egmont Key (both within closed areas as well as where compatible public use is now allowed).

Large and important colonies of brown pelicans, laughing gulls, royal and sandwich terns occur on Egmont Key NWR and formerly on Passage Key NWR. In particular among these species, sandwich tern is worth some specific attention on Tampa Bay Refuges from both a Tampa Bay and southeast regional perspective. With close to 90 percent of sandwich tern pairs in peninsular Florida occurring in Tampa Bay, and 66 percent of those on Egmont Key and Passage Key NWRs, it is clear that refuge colonies for this species are extremely important to maintain. Recent observations during the last two breeding seasons may be cause for some concern with respect to this species. Sandwich terns, at least on Egmont Key, typically settle in first to form nesting colonies and they are soon surrounded by large numbers of royal terns, but during the last two nesting seasons the opposite has been observed with sandwich terns forming a ring around settled in royal terns. This appears important as royal terns are easily able to fend off depredating fish crows and when they form the exterior of the mixed species colony they also protect sandwich terns from depredation. While on the review in 2004, the team observed adult sandwich terns on the edge of the mixed species colony being dragged off of their eggs by fish crows, with other fish crows then being able to access the eggs, resulting in depredation. Whether this depredation is becoming serious for sandwich terns at Egmont Key NWR is unclear, but it is clear when nesting sandwich terns form the edge of the mixed species colony, they suffer from a higher level of depredation than experienced by this species when it forms the core of the mixed species colony. Why sandwich terns formed a ring around nesting royal terns the last two nesting seasons is unknown, and this should be monitored in subsequent years and perhaps a research need identified if this pattern continues. Regionally, Tampa Bay does not presently represent a large proportion of nesting sandwich terns (less than 5 percent), but that may be changing as the world's largest sandwich tern colony within Breton NWR, Louisiana, has been dramatically reduced since the 1998 hurricane season (decreased by half), and perhaps will be reduced further still after the 2005 hurricane season, thus raising the importance of other relatively large colonies, such as on Egmont Key and Passage Key NWRs. There is not an indication that nesting pairs from Breton NWR are shifting to Tampa Bay (yet), but this is something to watch for. Nevertheless, the percentage of regional pairs occurring in Tampa Bay may need to be reassessed if the 2006 nesting season indicates further declines in Louisiana and relative stability in Tampa Bay.

Laughing gulls also deserve some special mention. According to Paul's data, laughing gulls have shown a 60 percent decline in the last 25 years in Florida, which may be more closely related to better waste management practices, reducing readily available foraging areas for gulls, more than anything else. Nevertheless, one-half of peninsular Florida's population of laughing gulls occur on Egmont Key NWR and formerly on Passage Key NWR and are therefore identified here as in need of at least some responsibility attention, if not also management attention. However, such management attention needs to be kept in perspective with the requirements of the other beach nesting species on Egmont Key and Passage Key NWRs. First, laughing gulls require some level of vegetation cover in line with brown pelican requirements, but in contrast to the requirements of open sand for nesting terns, skimmers, and oystercatchers. In addition, laughing gulls can be serious nest predators on adjacent nesting terns, skimmers, and shorebirds. Generally, laughing gulls are not considered a serious problem unless something else is disturbing tern and skimmer colonies or oystercatcher pairs on Egmont Key and Passage Key NWRs (e.g., increasing levels of human disturbance). The appropriate balance in managing vegetation on Egmont Key NWR should be based on the needs of brown pelicans as much or more than laughing gulls, but overall the needs of terns and skimmers for open sand for nesting should take precedent overall. Passage Key NWR is designated wilderness and regularly subject to overwashing and therefore no active vegetation management is considered necessary for that refuge. On balance, the review team does not recommend any special attention for laughing gulls at Egmont Key NWR beyond protection from disturbance, which benefits all beach-nesting species.

The first priority is to maintain and conserve nesting habitats for terns, skimmers, and oystercatchers on both Egmont Key and Passage Key NWRs. The second priority is to maintain and conserve breeding and post-breeding roosting and foraging habitat for these species. The two main short-term management issues identified during the Biological Review effecting beach nesting species on Egmont Key and Passage Key NWRs are: (1) Depredation which within recent years (when predator control has slacked off) has led to near complete abandonment of Tarpon and Whale Keys (among other islands on the refuge), and (2) through law enforcement presence the need to ensure that human disturbance is not a factor where and when waterbirds are nesting on the refuge. In addition to the above two major issues, three other long-term issues need to be considered: (1) Island stabilization through renourishment, (2) vegetation management on Egmont Key NWR, and (3) reduction of monofilament killing birds.

Disturbance --There are two wildlife sanctuaries, totaling 97 acres, which are located on Egmont Key. One is at the southern end of the island to protect nesting and resting birds and the second is along the eastern shoreline to protect feeding birds. Keeping visitors out of these closed areas is vital to the protection of nesting birds. If humans intrude on a nesting colony, adult birds flush from their nests, making their eggs and/or young vulnerable to predation by crows, laughing gulls, or excessive heat from the sun.

In addition, at least American oystercatchers nest outside of sanctuary areas and may have difficulty bringing off broods if there is excessive public use near nest sites. A regular law enforcement presence is necessary to ensure that otherwise compatible public use is conducted in ways to avoid disturbance of nesting, roosting, and foraging birds outside of sanctuaries, especially American oystercatchers. With minimal disturbance, it is possible that additional least terns and black skimmers may nest outside of sanctuary areas.

Depredation -- Egmont Key NWR has no raccoons and any that make it to the island are removed. Rats have invaded Egmont NWR during beach renourishment in 2006 and are being controlled. Four cats remain within the Tampa Bay Pilots' Compound and they have been neutered. Unleashed pets, mainly dogs, cause problems with disturbing colonial nesting birds and can kill the adult birds. Although the state park allowed dogs on a 6-foot leash, refuge regulations prohibited pets but was not being enforced. "No pet" signs have been posted now throughout the island. Fish crows are predating on ground-nesting birds on Egmont Key and Passage Key NWRs. Ticks may be causing problems for adult birds. Also, peregrine falcons are known to take laughing gulls and terns during winter.

Refuges should closely monitor whether fish crows are causing a population level effect on birds. If depredation from fish crows is considered to be increasing or already excessive, USDA Wildlife Services should be consulted about methods for dealing with individual crows exhibiting depredation behavior.

Vegetation management -- Vegetation management is necessary to maintain and increase nesting areas for terns and skimmers, especially where erosion rates are exceeding accretion rates. Vegetation management may include a limited amount of removing native (sea oats and low herbaceous plants) as well as exotic (Brazilian pepper and Australian pine) plants. In particular, fish crows use the Australian pines as perches and removal of these exotic trees may be one measure to reduce depredation problems from fish crows.

Beach renourishment -- Beach renourishment is likely necessary to maintain the existing nesting habitat for terns and skimmers on both Egmont Key and Passage Key NWRs, given present erosion rates ongoing on both refuges. However, there are many considerations involved in promoting continual renourishment proposals. The immediate impacts of beach renourishment include effects to near shore fauna, including a reduction in invertebrates available for foraging shorebirds and

effects or changes to the pattern of currents off shore. Renourished beaches require periodic investments to maintain. The consequences of not renourishing the beach include no beach for sea turtles or birds to nest on. In addition to providing habitat for nesting turtles and birds, renourishment also protects the cultural resources on Egmont Key NWR. Beach renourishment should only occur after nesting season for the birds and turtles.

The review team encourages beach renourishment at Egmont Key NWR on regular intervals with a thoughtful process that considers all resource issues and addresses when, where, how, how much, etc. Short-term decisions to renourish the beach at Egmont Key NWR need to be expedited to take advantage of dredge spoil that could become available.

Passage Key NWR may benefit from renourishment activities also or the island can be left to come and go dynamically with natural processes. There are Wilderness Designation concerns, but renourishment can be done (e.g., Pelican Island).

Reduce monofilament -- Hundreds of birds are killed and/or maimed by improperly discarded fishing line in Tampa Bay each year, especially vulnerable are the brown pelican and the magnificent frigatebird. Working with state and local agencies, the refuge needs to educate anglers on the harm associated with inappropriate monofilament disposal.

Non-breeding Shorebirds

In addition to supporting important nesting habitat, the beaches and sand dunes on Egmont Key and Passage Key NWRs also provide important foraging and roosting habitat for transient and wintering shorebirds (including the federally threatened piping plover).

Major issues for these species include disturbance and beach renourishment that have been treated above.

The conservation list for Bird Conservation Region 31 (BCR 31, peninsular Florida) indicates the following species migrating through or wintering in Tampa Bay should be considered as in need of conservation attention in refuge planning:

Species of Conservation Importance (Concern vs. Stewardship vs. other, Action level, species, Combined Score, and whether State listed).

Conservation Concern Species

Critical Recovery
Piping Plover 24, also FT, SL
Long-billed Curlew 19

Immediate Management
None

Management Attention
Marbled Godwit 19
Semipalmated Sandpiper 19
Short-billed Dowitcher 19
Least Sandpiper 18
Stilt Sandpiper 18
Red Knot 17
Sanderling 17
Western Sandpiper 17
Dunlin 17
Whimbrel 16
Ruddy Turnstone 16

Planning and Responsibility
Willet 16

Conservation Stewardship
Planning and Responsibility
Black-bellied Plover
Semipalmated Plover

Other species
None

*Tampa Bay Refuges have high responsibility for supporting all Tampa Bay populations.
**Tampa Bay Refuges have high responsibility for supporting all peninsular Florida (BCR 31) populations.

Special mention is needed for red knot, for which status at Egmont Key and Passage Key NWRs is unclear. Any red knots that do occur may involve both individuals from the southeast U.S. wintering population (considered presently stable, maybe) and possibly also individuals migrating to and from Tierra del Fuego (undergoing steep declines). Both populations, but especially the Tierra del Fuego population, are of increasing concern. If repeated beach renourishment results in a collapse of beach invertebrates available, then this may further impact one or both red knot populations if either occur regularly at Egmont Key NWR. Similarly, repeated disturbances of foraging red knot flocks (and other shorebirds) may reduce ability to migrate successfully to the next important stopover site (whether northbound or southbound).

Landbirds

Landbirds of conservation interest on Tampa Bay Refuges include mangrove breeding species (on Pinellas NWR) and transient neartic-neotropical migratory species (on Pinellas and Egmont Key NWRs).

The conservation list for Bird Conservation Region 31 (BCR 31, peninsular Florida) indicates the following species breeding, migrating through, or wintering in Tampa Bay should be considered as in need of conservation attention in refuge planning: Most of this attention would be tied to monitoring as there is very little active management intended for landbird habitat other than exotic vegetation control where needed.

Species of Conservation Importance (Concern vs. Stewardship vs. other Action level, species, Combined Score, and whether state listed).

Conservation Concern Species

Critical Recovery
None

Immediate Management
Prairie Warbler (Florida subspecies) 19
Loggerhead Shrike (any on Egmont Key?) 18
Painted Bunting (non-breeding) 17

Management Attention
Mangrove Cuckoo 19
Black-whiskered Vireo 19
Common Ground-Dove 17
Eastern Towhee (CHECK for Egmont) 17
Common Nighthawk 16
Chuck-will's-widow 16
Eastern Meadowlark 16
Northern Flicker 15
Northern Harrier 14
Purple Martin 14
Vesper Sparrow (non-breeding) 14

Planning and Responsibility
None

Conservation Stewardship
Planning and Responsibility
Gray Kingbird
White-eyed Vireo
Sedge Wren
Cape May Warbler (transient))
Black-throated Blue Warbler (transient)
Connecticut Warbler (transient)
Bobolink (transient)

Other species

Peregrine Falcon (N)

Mangroves support a number of landbirds of continental and regional concern, principally restricted within the continental United States to Peninsula Florida. Principal among these species are mangrove cuckoo, black-whiskered vireo, and Florida prairie warbler, all of which reach the northern most breeding outposts in Florida within the Tampa-St. Petersburg area (specifically no further north of Anclote Keys, Pasco County). Of these three species in Tampa Bay, the Florida prairie warbler is the most common, mangrove cuckoo is the rarest, and black-whiskered vireo is thought to have declined in recent decades (Paul, regional reports in *American Birds*).

Gray kingbird is another breeding species that is associated with open habitats and appears to be stable in the Tampa Bay area.

Dozens of nearctic-neotropical migratory species regularly pass through Tampa Bay, especially northbound and are priorities either at the national level or within specific physiographic regions. Presumably, availability of extensive and diverse mangrove and hardwood hammock habitats will accommodate the invertebrate, fruit, and nectar demands of most in-transit forest-dwelling species. Many grassland-scrubland species seem to make successful enroute use of disturbed habitats as well.

Efforts are underway to determine status and trends of these transient species in Florida, using point counts as the basic survey technique. Once a protocol is established, data from Tampa Bay Refuges would be desired to better understand roles of refuge lands in contributing to the conservation of these species. Fruiting understory and edge plants are important for these species. Establishing transects in contribution to regional Migration Surveys (on Egmont Key as best location) would add information on both the status of migratory birds and their use of refuge habitats. Any management actions implemented in hardwood hammock should give consideration to potential impacts on food and shelter resources available long-term to migrating birds. However, it is likely that any such actions would be beneficial or neutral.

As mentioned above, mosquito control on adjacent lands may affect indirectly insectivore food supplies for both breeding and migratory landbirds (including larvicides). Monitoring the mosquito control activities with respect to drift should be considered for landbirds in Tampa Bay Refuges.

Florida prairie warbler, gray kingbird (local interest species), black-whiskered vireo, and mangrove cuckoo were being monitored on mangrove islands by the late Rich Paul. Tampa Bay represents the northernmost established outpost for these species along the Gulf Coast of Florida and detections should be recorded during other activities. Refuge staff should seek the possibility of continuing Rich Paul's important work with these and other Tampa Bay bird species.

Refuges and other collaborators in south Florida are establishing monitoring protocols to determine status and trends for Florida's mangrove associated landbird species using the following baseline data to measure status (the densities given below are for mangrove birds and based on accounts in the Rare Biota of Florida series). Without knowing what is presently in Tampa Bay, if and when we establish a survey system (point counts or otherwise), we should compare with the densities listed for Florida Prairie Warbler, Black-whiskered Vireo, and Mangrove Cuckoo. These densities are likely based on south Florida counts and it is likely Tampa Bay densities for at least mangrove cuckoo and black-whiskered vireo should be much lower:

Mangrove Cuckoo with 1 pair per 25 acres of habitat

Black-whiskered Vireo with one singing male per 2.5 acres of habitat

Florida Prairie Warbler with one singing male per 2.5 acres of habitat

FISHES

Common Name	Scientific Name
Speckled worm eel	*Myrophis punctatus*
Spotted moray	*Cymnothorax moringa*
Spotted seatrout	*Cynoscion nebulosus*
Tarpon	*Megalops atlanticus*
Common snook	*Centropomus undecimalis*
Mosquitofish	*Gambusia sp.*
Striped mullet	*Mugil cephalus*
Redfish	*Scianops ocellatus*
Barracuda	*Sphyraena barracuda*
Sheepshead	*Archosargus probatocephalus*
Atlantic spadefish	*Chaetodipterus faber*
Blacktip shark	*Carcharhinus limbatus*
Bonnethead shark	*Sphyrna tiburo*
Burrfish	*Chilomycterus* sp.
Pigmy File Fish	*Monacanthus setifer*
Florida pompano	*TGrachinotus carolinus*
Gafftopsail catfish	*Bagre marinus*
Nassau grouper	*Epinephelus striatus*
Nurse shark	*Ginglymostoma cirratum*
Pinfish	*Lagodon rhomboids*
Scrawled cowfish	*Lactophrys quadricornis*
Sharksucker	*Echeneis naucrates*

REPTILES

Common Name	Scientific Name
Florida box turtle	*Terrapene carolina bauri*
Gopher tortoise	*Gopherus polyphemus*
Atlantic loggerhead	*Caretta caretta caretta*
Atlantic green turtle	*Chelonia mydas mydas*
Green anole	*Anolis carolinensis carolinensis*
Brown anole*	*Anolis sagrei*
Six-lined racerunner	*Cnemidophorus sexlineatus sexlineatus*
Southeastern five-lined skink	*Eumeces inexpectatus*
Mole skink	*Eumeces egregious*
Southern black racer	*Coluber constrictor priapus*
Corn snake	*Elaphe guttata guttata*
Yellow rat snake	*Elaphe obsolete quadrivittata*
Florida kingsnake	*Lampropeltis getula floridana*
Eastern diamondback rattlesnake	*Crotalus adamanteus*

AMPHIBIANS

Common Name	Scientific Name
Eastern narrowmouth toad	*Gastrophryne carolinensis*
Squirrel treefrog	*Hyla squirella*

MAMMALS

Common Name	Scientific Name
Common pilot whale	*Globicephala melaena*
Short-finned pilot whale	*Globicephala macrorhynchus*
Bottle-nosed dolphin	*Tursiops truncates*
Risso's dolphin	*Grampus griseus*
West Indian manatee	*Trichechus manatus latirostris*
Feral cat*	*Felis domesticus*

PLANTS

Common Name	Scientific Name
PTERIDOPHYTES	
Toothed mid-sorus fern	Blechnum serrulatum
Golden polypody	Phlebodium aureum
Whisk fern	Pteris vittata
GYMNOSPERMS	
Southern red cedar	*Juniperus silicicola*
ANGIOSPERMS	
MONOCOTS	
False sisal	*Agave decipens*
Wild century plant	*Agave neglecta*
Sisal hemp*	*Agave sisalana*
Bushy bluestem	*Andropogon glomeratus*
Tall threeawn grass	*Aristida patula*
Southern sandspur	*Cenchrus echinatus*
Coast sandspur	*Cenchrus incertus*
Dune sandspur	*Cenchrus tribuloides*
Milk-and-wine lily	*Crinum americanum*
String-lily	*Crinum americanum*
Bermuda grass*	*Cynodon dactylon*
Alabama swamp flat sedge	*Cyperus ligularis*
Flatleaf flat sedge	*Cyperus planifolius*
Texas sedge	*Cyperus polystachyos*

PLANTS

Common Name	Scientific Name
Straw-color flat sedge	*Cyperus strigosus*
Crowfoot grass*	*Dactyloctenium aegyptium*
Seashore saltgrass	*Distichlis spicata*
Roadgrass	*Eleocharis baldwinii*
Centipede grass*	*Eremochloa ophiuroides*
Rock finger grass	*Eustachys petraea*
Marsh fimbry	*Fimbristylis spedicea*
Shoal grass	*Halodule wrightii*
Muhly grass	*Muhlenbergia capillaries*
Beach panicum	*Panicum amarum*
Guinea grass	*Panicum maximum*
Thin paspalum	*Paspalum setaceum*
Seashore pellitory	*Paspalum vaginatum*
Date palm*	*Phoenix dactylifera*
White tops	*Phynchospora colorata*
Red natal grass	*Rhynchelytrum repens*
Sabal palm	*Sabal palmetto*
Saw palmetto	*Serenoa repens*
Knotroot foxtail	*Seteria parviflora*
Narrow-leaf blue-eyed grass	*Sisyrinchium angustifolium*
Wild bamboo	*Smilax auriculata*
Marshhay cord grass	*Spartina patens*

PLANTS

Common Name	Scientific Name
Spring ladies' tresses	*Sprianthes vernalis*
Seashore dropseed	*Sporobolus viginicus*
St. Augustine grass	*Stenotaphrum secundatum*
Manatee grass	*Syringodium filiforme*
Turtle grass	*Thalassis testudinum*
Ball moss	*Tillandsia recurvata*
Southern cattail	*Typha domingensis*
Sea oats	*Uniola paniculata*
Spanish bayonet*	*Yucca aloifolia*
DICOTS	
Smooth chaff-flower	*Alternanthera polygonoides*
Mexican poppy	*Argemone Mexicana*
Annual marsh aster	*Aster subulatus*
Sand atriplex	*Atriplex pentandra*
Groundsel bush	*Baccharis halimifolia*
Smooth water-hyssop	*Bacopa monnieri*
Saltwort	*Batis maritime*
Beggar's tick	*Bidens alba*
Samphire	*Blutaparon vermiculare*
Red spiderling	*Boerhavia diffusa*
Sea daisy	*Borrichia frutescens*
Blueheart	*Buchnera Americana*

PLANTS

Common Name	Scientific Name
Saffron plum	*Bumelia celastrina*
Gray nicker	*Caesalpinia bonduc*
Southern sea rocket	*Cakile lanceolata*
Love vine	*Cassytha filiformis*
Beefwood*	*Casuarina cunninghamiana*
Australian pine*	*Casuarina equisetifolia*
Scaly-bark beefwood*	*Casuarina glauca*
Madagascar periwinkle*	*Catharanthus roseus*
Partridge pea	*Chamaecrista fasciculate*
Blodgett's spurge	*Chamaesyce blodgettii*
Sand-dune spurge	*Chamaesyce bombensus*
Garden spurge	*Chamaesyce hirta*
Hyssop spurge	*Chamaesyce hyssopifolia*
Coast spurge	*Chamaesyce mesembryanthemifolia*
Lambs quarters	*Chenopodium album*
Snowberry	*Chiococca alba*
Horrid thistle	*Cirsium horridulum*
Tread softly	*Snidoscolus stimulosus*
Pigeon plum	*Coccoloba diversifolia*
Sea grape	*Coccoloba uvifera*
Buttonwood	*Conocarpus erecta*
Horseweed	*Conyza Canadensis*

PLANTS

Common Name	Scientific Name
Milk-and-wine lily	*Crinum amabile*
Small rattlebox	*Crotalaria pumila*
Rabbit bells	*Crotalaria rotundifolia*
Love vine	*Cuscuta gronovii*
Coastal cynanchum	*Cynanchum angustifolium*
Coin vine	*Dalbergia ecastophyllum*
Florida beggarweed	*Desmodium tortuosum*
Varnish leaf	*Dodonaea viscose*
False-daisy	*Eclipta prostrate*
Southern fleabane	*Erigeron quercifolius*
Daisy fleabane	*Erigeron strigosus*
Beach creeper	*Ernodea littoralis*
Spanish stopper	*Eugenia foetida*
Semaphore eupatorium	*Eupatorium mikaniodes*
Late boneset	*Eupatorium serotinum*
Seaside gentian	*Eustoma exaltata*
Golden fig	*Ficus aurea*
Florida yellow top	*Flaveria floridana*
Florida privet	*Forestiera segregate*
Downy milk-pea	*Galactia volubilis*
One-flowered bedstraw	*Galium uniflorum*
Southern gaura	*Gaura angustifolia*

PLANTS

Common Name	Scientific Name
Purple cudweed	*Gnaphalium purpureum*
Diamond flower	*Hedyotis nigricans*
Hairy beach sunflower	*Helianthus debilis vestitus*
Beach sunflower	*Helianthus debilis*
Scorpion tail	*Heliotropium angiospermum*
Pineland heliotrope	*Heliotropium polyphyllum*
Camphorweed	*Heterotheca subaxillaris*
Marsh pennywort	*Hydrocotyle umbellate*
Moonflower	*Ipomoea alba*
Railroad vine	*Ipomoea pes-caprae*
Bloodleaf	*Iresine diffusa*
Bigleaf marsh elder	*Iva frutescens*
Seacoast marsh elder	*Iva imbricate*
Saltmarsh mallow	*Kosteletzkya virginica*
White mangrove	*Laguncularia racemosa*
Poor man's pepper	*Lepidium virginicum*
Variable false pimpernel	*Lindernia anagallidea*
Frog fruit	*Lippia nodiflora*
Christmasberry	*Lycium carolinianum*
Curtiss' primrose-willow	*Ludwigia curtissii*
Purple axil-flower	*Mecardonia acuminate*
Chinaberry*	*Melia azedarach*

PLANTS

Common Name	Scientific Name
Climbing hempweed	*Midania scandens*
Wax myrtle	*Myrica cerifera*
Oleander*	*Nerium oleander*
Seaside evening primrose	*Oenothera humifusa*
Prickly-pear cactus	*Opuntia humifusa*
Shell mound prickly-pear cactus	*Opuntia stricta*
Florida pellitory	*Parietaria floridana*
White pellitory	*Parietaria praetermissa*
Virginia creeper	*Parthenocissus quinquefolia*
Corky-stemmed passionflower	*Passiflora suberosa*
Frog fruit	*Phyla nodiflora*
Abnormal phyllanthus	*Phyllanthus abnormis*
Seaside ground cherry	*Physalis viscose*
Pokeweed	*Phytolacca Americana*
Paleseed plantain	*Plantago virginica*
Shrubby camphorweed	*Pluchea odorata*
Painted-leaf	*Poinsettia cyathophora*
Large flowered milk wort	*Polygala grandiflora*
Rustweed	*Polypremum procumbens*
Portulaca	*Portulaca oleracea*
Pink purslane	*Portulaca pilosa*
Hair-like mock bishop's-weed	*Ptilimnium capillaceum*

PLANTS

Common Name	Scientific Name
Myrsine	*Rapanea punctata*
Red mangrove	*Rhizophora mangle*
Least snout bean	*Phynchosia minima*
Toothcup	*Rotala ramosior*
Southern dewberry	*Rubus trivalis*
Water pimpernel	*Samolus ebracteatus*
Inkberry	*Scaevola plumieri*
Brazilian pepper*	*Schinus terebinthifolius*
Slender sea purslane	*Sesuvium maritimum*
Sea purslane	*Sesuvium portulacastrum*
Southern sida	*Sida acuta*
Black nightshade	*Solanum chenopodioides*
Pine barren goldenrod	*Solidago fistulosa*
Seaside goldenrod	*Solidago sempervirens*
Common sow thistle	*Sonchus oleraceus*
Yellow necklace pod	*Sophora tomentosa*
Blue porterweed	*Stachytarpheta jamaicensis*
Bay-cedar	*Suriana maritime*
New Zealand spinach*	*Tetragonia tetagoniodes*
Poison ivy	*Toxicondendron radicans*
Forked bluecurl	*Trichostema dichotomum*
Marsh verbena	*Verbena scabra*

PLANTS

Common Name	Scientific Name
Yellow vigna	*Vigna luteola*
Summer grape	*Vitus aestivalis*
Southern fox grape	*Vitus rotundifolia var. munsoniana*
Indian waltheria	*Waltheria indica*
Hercules club	*Zanthoxylum clava-herculis*

Appendix J. Budget Requests

The Service Asset Management Maintenance System (SAMMS) is a system that has been used to track the needs for new projects and positions on national wildlife refuges. In the situation, SAMMS does not reflect all the present needs of the Tampa Bay Refuges. Below are SAMMS projects and additional personal needs to implement the Comprehensive Conservation Plan for these three refuges. This funding and its associated projects are identified in Chapter V of this document. All SAMMS projects involving staff positions are also represented in the RONS list on the following table:

Tampa Bay Refuges – Service Asset Management Maintenance System projects

Projects Name	Initial Cost ($)	Recurring Costs ($) *
Eradicate or Control Exotic and Invasive Predators	$130,000	$5,000
Science-based Inventory and Monitoring of Plant and Animal Populations	$45,000	$45,000
Eradicate or Control Exotic and Invasive Plants	$100,000	$15,000
Fire Management Program on Egmont Key NWR	$70,000	$15,000
Erosion Monitoring and Beach Restoration	$5,000	$5,000
Mangrove Restoration for Pinellas NWR	$5,000	$5,000
Habitat Maintenance for Beach Nesters	$5,000	$5,000
Protect Refuge Resources and Visitors	$70,000	$70,000
Cultural Resource Protection and Interpretation	$30,000	$5,000
Minimize Impacts of Trash, Marine Debris, and Oil Spills	$20,000	$5,000
Visitor Center and Environmental Education	$565,000	$100,000
Improve Wildlife-dependent Recreation	$75,000	$5,000
Construct New Refuge Dock	$150,000	$2,000
Construct New Public Restroom Facility by Egmont Key Guard House	$950,000	$25,000
Construct Shop/ Bunk House Facility on Egmont Key NWR	$750,000	$15,000
Construct Commercial Docking Facility by Egmont Guard House	$500,000	$15,000
Meet/ Fulfill Heavy Equipment Needs	$75,000	$10,000

Projects Name	Initial Cost ($)	Recurring Costs ($) *
Replace All-Terrain Utility Vehicle	$12,000	$1,000
Replace 25-Foot Work Boat	$125,000	$10,000
Replace 23-Foot Law Enforcement Boat	$100,000	$10,000
Administrative Support	$78,000	$78,000
TOTAL	**$3,860,000**	**$446,000**

The Refuge Operating Needs System (RONS) is a system that has been used in the past to track the needs for new projects and positions on national wildlife refuges. RONS is generally being phased out by SAMMS. In this situation, RONS does not reflect all the present needs of the Tampa Bay Refuges. The RONS projects listed represent shared funding and staffing for Egmont Key, Passage Key, and Pinellas NWRs, whereas all refuges are administered with the same budget and staff.

Tampa Bay Refuges – Refuge Operating Needs System (RONS) projects list

Project Name	Number	Amount
Full-time Law Enforcement Officer	084571	$98,000
Biological Technician	084742	$78,000
Public Use Specialist	084712	$115,000
Office Assistant (PTE)	084720	$28,000
Wildlife Refuge Specialist	085080	$95,000
Refuge Biologist	085150	$95,000
Maintenance Worker	084758	$78,000
TOTAL		**$587,000**

Appendix K. List of Preparers

Table 18. Tampa Bay Refuges Comprehensive Conservation Core Planning Team Members.

Name and Title	Organization, Location
Jim Kraus, former Refuge Manager John Kasbohm, former Deputy Refuge Manager Sarah Palmisano, former Refuge Operations Specialist Keith Ramos, Refuge Manager Richard Meyers, Assistant Refuge Manager Joyce Kleen, Wildlife Biologist Ivan Vicente, Park Ranger	U.S. Fish and Wildlife Service – Chassahowitzka NWR Complex
Mary Morris, Planner	U.S. Fish and Wildlife Service – Regional Office, Tallahassee, Florida
Anne Aiken, Contracted Planner	U.S. Tennessee Valley Authority, Chattanooga, Tennessee

Table 19. Tampa Bay Refuges comprehensive conservation public use review team members (March 23-25, 2004)

Name and Title	Organization, Location
Jim Kraus, former Refuge Manager Shawn Gillette, former Park Ranger	U.S. Fish and Wildlife Service – Chassahowitzka NWR Complex
Garry Tucker, Visitor Services and Outreach Deborah Jerome, Visitor Services and Outreach	U.S. Fish and Wildlife Service – Regional Office, Atlanta
Dorn Whitmore, Public Use Specialist	U.S. Fish and Wildlife Service – Merritt Island NWR

Table 20. Tampa Bay Refuges comprehensive conservation cultural resources review team members (August 31 to September 1, 2004)

Name and Title	Organization, Location
Jim Kraus, former Refuge Manager John Kasbohm, former Deputy Refuge Manager Sarah Palmisano, former Refuge Operations Specialist	U.S. Fish and Wildlife Service – Chassahowitzka NWR Complex
Rick Kanaski, Regional Archaeologist	U.S. Fish and Wildlife Service – Regional Office, Atlanta, Georgia
Mary Morris, Planner	U.S. Fish and Wildlife Service – Regional Office, Tallahassee, Florida
Scott Robinson, Park Manager	Florida Park Service – Honeymoon Island, Dunedin, Florida
Tom Watson, Assistant Park Manager	Florida Park Service – Egmont Key, St. Petersburg, Florida
Brian Burket, Office of Park Planning	Florida Park Service
Richard Johnson, President Barbara Schmidt, Member and volunteer	Egmont Key Alliance, St. Petersburg, Florida
Laura Kammerer, Deputy SHPO	Florida Division of Historical Resources
Steve Martin, Historical Resource Administrator	Florida Division of Environmental Protection
Brent Weisman, Department of Anthropology	University of South Florida
Jonathan Dean, Ph.D. Candidate	University of South Florida
Margo Schwadron, Archaeologist	National Park Service, Southeast Archaeological Center

Table 21. Tampa Bay Refuges comprehensive conservation biological review team members (May 11-13, 2004)

Name and Title	Organization, Location
Jim Kraus, former Refuge Manager John Kasbohm, former Deputy Refuge Manager Sarah Palmisano, former Refuge Operations Specialist Joyce Kleen, Wildlife Biologist	U.S. Fish and Wildlife Service – Chassahowitzka NWR Complex
Dean Demarest, Acting Nongame Bird Program Coordinator Chuck Hunter, Regional Refuge Biologist	U.S. Fish and Wildlife Service – Regional Office, Atlanta, Georgia
Nancy Douglass, Regional Nongame Wildlife Biologist	Florida Fish and Wildlife Conservation Commission, Lakeland, Florida
Rich Paul, retired (now deceased), Research Biologist and Sanctuary Manager	Florida Coastal Sanctuaries, National Audubon, Tampa, Florida
Sally Braem, Biologist	Florida Park Service – Honeymoon Island State Park, Dunedin, Florida
Mary Morris, Planner	U.S. Fish and Wildlife Service, Regional Office, Tallahassee, Florida
Consulted, but not able to attend the biological review:	
Ken Dodd, Herpetology Expert	U.S. Geological Survey, Gainesville, Florida
Peter Stangel, Director, Southeast Region	National Fish and Wildlife Foundation, Atlanta, Georgia
Sandy MacPherson, Sea Turtle Coordinator	U.S. Fish and Wildlife Service, Regional Office, Jacksonville, Florida

Table 22. Tampa Bay Refuges comprehensive conservation wilderness review team members (January 11-12, 2005)

Name and Title	Organization, Location
Jim Kraus, former Refuge Manager John Kasbohm, former Deputy Refuge Manager Sarah Palmisano, former Refuge Operations Specialist Joyce Kleen, Wildlife Biologist	U.S. Fish and Wildlife Service – Chassahowitzka NWR Complex
Deborah Jerome, Visitor Services and Outreach	U.S. Fish and Wildlife Service – Regional Office, Atlanta, Georgia (via conference call)
Mary Morris, Planner	U.S. Fish and Wildlife Service – Regional Office, Tallahassee, Florida

Appendix L. Consultation and Coordination

OVERVIEW

This appendix summarizes the consultation and coordination that has occurred to date in identifying the issues, alternatives, and preferred alternative, which are presented in this CCP. It lists the meetings that have been held with the various agencies, organizations, and individuals that were consulted in the preparation of this CCP. The list of participants, in addition to those individuals and organizations who provided comments during the public scoping process, includes the CCP Core Planning Team and the Interagency Coordination Planning Team.

The following meetings, open houses, and contacts were undertaken by the Service during the preparation of this CCP.

Core Planning Team

The Core Planning Team is comprised exclusively of Service staff and Service contractor. Personnel from St. Marks NWR and the Chassahowitzka NWR Complex, which includes the Tampa Bay Refuges, served on the team. Key tasks of the team included defining and refining the refuges' vision; identifying, reviewing, and filtering the issues; defining the goals and objectives; and outlining the alternatives.

U.S. Fish and Wildlife Service

- Jim Kraus, Refuge Manager, Chassahowitzka NWR Complex
- Keith Ramos, Refuge Manager, Chassahowitzka NWR Complex
- Richard Meyers, Assistant Refuge Manager, Chassahowitzka NWR Complex/Tampa Bay Refuges
- Joyce Kleen, Wildlife Biologist, Chassahowitzka NWR Complex
- Ivan Vicente, Visitor Services Specialist, Chassahowitzka NWR Complex
- Mary Morris, Natural Resources Planner, St. Marks NWR
- Evelyn Nelson, Writer/Editor, Southeast Regional Office
- Anne Aiken, Contractor, Tennessee Valley Authority

Interagency Coordination Planning Team

The Interagency Coordination Planning Team included local, state, and federal governmental field staff representatives involved with the resources at the local level. In addition to some of the members of the Core Planning Team, the Interagency Coordination Planning Team consisted of personnel from the Service's Savannah Coastal Refuges and the local Ecological Services Office; the U.S. Coast Guard; Florida Park Service; Florida Fish and Wildlife Conservation Commission; County Environmental Management and Parks Departments; and the Tampa Bay Estuary Program. During the Interagency Scoping Meeting on October 12, 2005, the team identified and discussed issues and opportunities for resource protection, habitat restoration, and public use at the Tampa Bay Refuges.

Members of the team who participated in the initial scoping meeting are as follows:

Fish and Wildlife Service

- Jim Kraus, Refuge Manager, Chassahowitzka NWR Complex
- Richard Meyers, Assistant Refuge Manager, Chassahowitzka NWR Complex/Tampa Bay Refuges
- Joyce Kleen, Wildlife Biologist, Chassahowitzka NWR Complex
- Mary Morris, Natural Resources Planner, St. Marks NWR
- Richard Kanaski, Regional Historic Preservation Officer and Regional Archaeologist, Savannah Coastal Refuges
- Linda Smith, Ecological Services Office

U.S. Coast Guard

- Lt. Heather Osburn, U.S.Coast Guard Sector, St. Petersburg

State of Florida

- Tom Watson, Assistant Park Manager, Egmont Key Preserve State Park
- Peter Krulder, Park Manager, Honeymoon Island State Park
- Valinda Subic, District 4 Bureau Chief, Florida Park Service
- Brian Burket, Park Planner, Florida Park Service
- Terry Hingtgen, Environmental Specialist III, Florida Park Service
- James Beever, Biological Scientist IV, Florida Fish and Wildlife Conservation Commission
- William R. Smith, Biological Scientist III, Florida Fish and Wildlife Conservation Commission
- Lee Taylor, Southwest Region Coordinator, Florida Fish and Wildlife Conservation Commission
- Parks Small, Natural and Cultural Resources Bureau Chief, Florida Park Service

County Agencies

- Eric Fehrmann, M.S., Environmental Program Manager, Pinellas County Environmental Management
- Deborah J. Chayet, Grants Specialist, Pinellas County Park Department

Other Agencies

- Lindsay Griffen, Environmental Associate, Tampa Bay Estuary Program

Public Scoping Meetings

The Core Planning Team hosted open houses/public scoping meetings in Hillsborough, Pinellas, and Manatee Counties in February 2006. The refuges' draft vision, goals, and issues were presented and public input was requested. Comment forms were made available at the meetings, as well as at the refuges' headquarters. The completed forms were submitted to the Service by mail or e-mail. Public input is greatly appreciated and was incorporated into this CCP.

Public Meetings for the Draft CCP/EA

At least 57 persons attended two public meetings held to present the Draft CCP/EA during the open comment period. Refuge staff and other participants at the meetings included the following individuals:

Richard Meyers – Assistant Refuge Manager (Primary Speaker)
Keith Ramos – Refuge Manager, Chassahowitzka NWR Complex
Joyce Kleen – Wildlife Biologist
Ivan Vicente – Public Use Specialist
Craig Cavanna – Refuge Law Enforcement Officer

Several speakers identified themselves as representing the following organizations: The FTBNWR, EKA, and SPAS.

Notices of the Draft CCP/EA's availability and public meetings were sent to over 180 persons on the CCP mailing list, including representatives of the following Indian tribes: The Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians of Alabama, and the Muscogee (Creek) Nation of Oklahoma. A total of 23 comment letters was received by mail or e-mail from 12 persons and the 8 following organizations: FTBNWR, EKA, Tampa Bay Ferry, SPAS, SMC, Tampa Bay Watch, Friends of the Chassahowitzka NWR Complex, Inc., and Audubon of Florida. Additionally, comments were received from the following government agencies: FWC, FDEP-DRP, and FDEP-CAMA.

The Draft CCP/EA was circulated through the Florida State Clearinghouse to state, regional, and local governments: The Tampa Bay Regional Planning Council, Florida Department of Community Affairs, FWC, Florida Departments of State, Transportation, FDEP-DRP, and the Southwest Florida Water Management District. The clearinghouse agencies review documents pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, and the National Environmental Policy Act. FWC replied that the agency had no comments on the Draft CCP/EA. The FDEP-DRP had commented on the Service's Internal Review Draft and all appropriate comments were incorporated into or addressed within the Draft CCP/EA. The Florida State Clearinghouse issued a letter dated June 11, 2009 and signed by Sally B. Mann, Director of the Office of Intergovernmental Programs, DEP. It states that the Draft CCP/EA for Tampa Bay Refuges is consistent with the Florida Coastal Management Program.

Appendix M. Finding of No Significant Impact

Introduction
The U.S. Fish and Wildlife Service (Service) proposes to protect and manage certain fish and wildlife resources in Hillsborough, Pinellas, and Manatee Counties, Florida, through the Tampa Bay Refuges (Egmont Key, Pinellas, and Passage Key NWRs). An Environmental Assessment was prepared to inform the public of the possible environmental consequences of implementing the Comprehensive Conservation Plan for the Tampa Bay Refuges. A description of the alternatives, the rationale for selecting the preferred alternative, the environmental effects of the preferred alternative, the potential adverse effects of the action, and a declaration concerning the factors determining the significance of effects, in compliance with the National Environmental Policy Act of 1969, are outlined below. The supporting information can be found in the Environmental Assessment, which is Section B of the Draft Comprehensive Conservation Plan.

Alternatives
In developing the Comprehensive Conservation Plan for the Tampa Bay Refuges, the Service evaluated three alternatives:

The Service adopted Alternative B, the "Preferred Alternative," as the comprehensive conservation plan for guiding the direction of the refuges for the next 15 years. The overriding concern reflected in this plan is that wildlife conservation assumes first priority in refuge management; wildlife-dependent recreational uses are allowed if they are compatible with wildlife conservation. Wildlife-dependent recreation uses (wildlife observation, wildlife photography, and environmental education and interpretation) will be emphasized and encouraged.

Alternative A. (Current Management – No Action)
Alternative A represents no change from current management of the Refuge. Under this alternative, the no action alternative, present management of the refuge would continue at the current level. The refuge would continue its primary mission of providing habitat for wildlife. Wildlife and habitat would be protected through a variety of management tools, such as area closures, predator control, law enforcement, exotic plant control, erosion control, and cleanup of trash. These activities (except for the closures) would be conducted on an opportunistic basis or under the direction and guidance of others.

The refuge would continue to be managed by one full-time assistant refuge manager, with the support of nine staff members 100 miles driving distance away at the Chassahowitzka NWR Complex. The refuge would continue to be assisted by numerous partners in opportunistically conducting bird and other wildlife surveys, educating visitors, and encouraging wildlife photography and observation. The Service would continue its cooperative management agreement with the FPS to manage Egmont Key NWR, with the State being responsible for most public recreation and interpretation of natural and cultural resources, and the Service being primarily responsible for the management of all wildlife and habitat. Meetings between the two agencies would continue to be held approximately twice a year.

Under this alternative, the existing level of funding and staffing would be maintained. Accordingly, some positions would not be filled when vacated if funds needed to be reallocated to meet rising costs or new priorities.

Alternative B. (Preferred Alternative)
The preferred alternative, Alternative B, is considered to be the most effective management action for meeting the purposes of the refuges. Under Alternative B, the Service would take more of a leadership role by coordinating and/or directing activities done and decisions made by partners that have an impact on the refuge, including coordinating, directing, and conducting bird surveys and Atlantic loggerhead sea turtle surveys; coordinating additional bird surveys and monitoring and conducting research on the gopher tortoises of Egmont Key; and, with partners, identifying, mapping, and protecting state-listed plant species on the refuges. The Service would promote and support increasing the Friends Group to 150+ members.

Under this alternative, Service staff dedicated to the Tampa Bay Refuges would be increased to four full-time permanent employees and one part-time permanent employee, which would include the addition of a law enforcement officer to increase protection of wildlife, habitat, and visitor safety; a biological technician to conduct bird surveys, predator and exotic species control, and beach renourishment activities; a public use specialist to facilitate and create opportunities for environmental education, interpretation, and wildlife photography and observation; and a part-time administrative office assistant. Larger office space to accommodate the increased staff along with the Friends Group would be acquired, as well as facilities for boat storage and use; also, a Visitor Center would be established.

The cooperative agreement with FPS to manage Egmont Key NWR would be enhanced under this alternative by establishing monthly communications and quarterly meetings. Further, the Service would facilitate the transfer of the USCG property on Egmont Key to the Service, and would establish the Service's interest in the Pilots Compound property in the event that occupancy of that property changes. Acquisition of these lands would enable the Service to better conserve, protect, and manage the habitat on Egmont Key.

Alternative C.
Under Alternative C, the Service would take on an even greater leadership role at the refuges, enhancing and expanding the activities proposed under Alternative B. The Service staff dedicated to the Tampa Bay Refuges would be increased to seven full-time permanent employees, including two law enforcement officers, one biological technician, one public use specialist, one maintenance person/equipment operators, and an administrative office assistant. The Service would promote and support increasing the Friends Group to 200-300 members. Additional equipment and facilities would be acquired to support the staff and increased activities on the refuges.

The additional staff members would allow the refuge to increase the frequency of some monitoring (e.g., piping plover); initiate bird research; routinely monitor and research gopher tortoises; enhance protection of wildlife, habitats, and visitor safety; control exotic and invasive vegetation on a routine basis; and provide educational events on a routine basis, including weekly interpretative tours using concessionaire(s) selected and operating under Service contract.
Under this alternative, the Service would own and manage all of Egmont Key without sharing that responsibility with the FPS—an overlay state park managed by FPS would no longer exist, allowing the Service to manage the island in a comprehensive manner.

Selection Rationale
Alternative B is selected for implementation because it directs the development of programs to best achieve the refuges' purposes and goals; emphasizes enhanced Service leadership role on the refuges, collection of habitat and wildlife data, and protection of wildlife; and ensures long-term achievement of Refuge and Service objectives. At the same time, the management actions provide increased and balanced levels of compatible public use opportunities consistent with existing laws,

Service policies, and sound biological principles. It provides the best mix of program elements to achieve desired long-term conditions.

Under this alternative, all lands under the management and direction of the refuges will be protected, maintained, and enhanced to best achieve national, ecosystem, and refuge-specific goals and objectives within anticipated funding and staffing levels. In addition, the action positively addresses significant issues and concerns expressed by the public.

Environmental Effects
Implementation of the Service's management action is expected to result in environmental, social, and economic effects as outlined in the Environmental Assessment (Section B) of the Draft CCP. Habitat management, population management, land conservation, and visitor services management activities on the Tampa Bay Refuges would result in net positive benefits related to native habitat, water quality, wildlife populations, cultural and historical resources, public use, and socioeconomic resources. These effects are detailed as follows:

1. Habitat size and diversity will increase or be maintained due to increased control of exotic and invasive vegetation, increased erosion control, comprehensive beach renourishment efforts, and use of prescribed fire.
2. Habitats will be further protected by increased Service law enforcement presence, extension of Service law enforcement jurisdiction to waters surrounding the refuges, and by use of signs and education.
3. Surveys to identify and map state-listed plant species on the refuges will be a useful tool to ultimately protect these plants.
4. Erosion control activities, and cleanup of monofilament fishing line and trash and education regarding proper disposal of these items will improve water quality by reducing turbidity and pollution.
5. Increased monitoring, surveying, and researching of native and migrating wildlife will help identify trends in populations and diversity and aid in better wildlife management decisions.
6. Wildlife will be protected by closing areas to the public, increased control of predators, increased Service law enforcement presence and jurisdiction, and improved signage and education.
7. Wildlife populations are expected to benefit from increased habitat size and diversity.
8. Cultural and historical resources will be further protected by regular comprehensive beach renourishment, and increased control of encroaching vegetation.
9. Increased law enforcement presence and education will curb vandalism, unpermitted artifact collection, and other destructive behavior that could cause damage to cultural and historic structures.
10. Establishment of the Egmont Key Guard House and Visitor Center will provide additional cultural and historical education and interpretation opportunities; educational and interpretive materials will be updated.
11. Wildlife observation opportunities will be improved by the installation of an observation tower and closed-circuit television for viewing closed areas.
12. Wildlife photography opportunities will be improved by the establishment of a photo blind.
13. Enhanced public use opportunities are expected to increase the number of visitors. The increased number of visitors and increased local Service staffing numbers will both benefit the local economy.

Potential Adverse Effects and Mitigation Measures

Wildlife Disturbance
Disturbance to wildlife at some level is an unavoidable consequence of any public use program, regardless of the activity involved. Obviously, some activities innately have the potential to be more disturbing than others. The management actions to be implemented have been carefully planned to avoid unacceptable levels of impact.

As currently proposed, the known and anticipated levels of disturbance of the management action are considered minimal and well within the tolerance level of known wildlife species and populations present in the area. Implementation of the public use program would take place through carefully controlled time and space zoning, establishment of protection zones around key sites, and routing of roads and trails to avoid direct contact with sensitive areas, such as nesting bird habitat, etc. Monitoring activities through wildlife inventories and assessments of public use levels and activities would be utilized, and public use programs would be adjusted as needed to limit disturbance.

User Group Conflicts
As public use levels expand across time, some conflicts between user groups may occur. Programs would be adjusted, as needed, to eliminate or minimize these problems and provide quality wildlife-dependent recreational opportunities. Experience has proven that time and space zonings, such as establishment of separate use areas, use periods, and restricting numbers of users, are effective tools in eliminating conflicts between user groups.

Effects on Adjacent Landowners
Implementation of the management action would not negatively impact adjacent landowners. Positive impacts that would be expected include higher property values and increased opportunities for viewing more diverse wildlife.

Land Ownership and Site Development
Land acquisition efforts by the Service could lead to changes in land use and recreational use patterns. However, most of the non-Service-owned lands within the refuges' approved acquisition boundaries would retain their current use. If these lands are acquired as additions to the refuges, they would be maintained and managed for native wildlife populations, and opened to wildlife-compatible public uses, where feasible.

Potential development of the buildings, docks, observation tower, and other improvements could lead to minor short-term negative impacts on plants, soils, and some wildlife species. When building the observation towers, efforts would be made to use recycled products and environmentally sensitive treated lumber. All construction activities would comply with the requirements of Section 404 of the Clean Water Act; the National Historic Preservation Act; Executive Order 11988, Floodplain Management; and other applicable regulatory requirements.

The management action is not expected to have significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988.

Coordination
The management action has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

All affected landowners
Congressional representatives
Governor of Florida
Florida Fish and Wildlife Conservation Commission
Florida Department of Environmental Protection – Division of Recreation and Parks
Southwest Florida Water Management District
The Tampa Bay Regional Planning Council
Florida State Historic Preservation Officer
Local community officials
Interested citizens
Conservation organizations

Findings
It is my determination that the management action does not constitute a major federal action significantly affecting the quality of the human environment under the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 C.F.R. 1508.27), as addressed in the Environmental Assessment for the Tampa Bay Refuges:

1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment. (Environmental Assessment, pages 141-159).

2. The actions will not have a significant effect on public health and safety. (Environmental Assessment, page 143).

3. The project will not significantly affect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas. (Environmental Assessment, pages 141-143).

4. The effects on the quality of the human environment are not likely to be highly controversial. (Environmental Assessment, pages 141-143, 158).

5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment. (Environmental Assessment, pages 141-143).

6. The actions will not establish a precedent for future actions with significant effects nor do they represent a decision in principle about a future consideration. (Environmental Assessment, pages 141-159).

7. There will be no cumulatively significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions. (Environmental Assessment, pages 158-159).

8. The actions will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources. (Environmental Assessment, pages 142-143).

9. The actions are not likely to adversely affect threatened or endangered species, or their habitats. (Environmental Assessment, pages 141-159).

10. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment. (Environmental Assessment, pages 141-159).

Supporting References

Fish and Wildlife Service. 2009. Draft Comprehensive Conservation Plan and Environmental Assessment for Tampa Bay Refuges, Hillsborough, Pinellas, and Manatee Counties, Florida. U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region.

Document Availability

The Environmental Assessment was Section B of the Draft Comprehensive Conservation Plan for Tampa Bay Refuges and was made available in April 2009. Additional copies are available by writing: Chassahowitzka National Wildlife Refuge Complex, 1502 S.E. Kings Bay Drive, Crystal River, FL 34429.

Signed

Acting Regional Director

9-25-09

Date