

U.S. Fish & Wildlife Service

Lower Suwannee & Cedar Keys National Wildlife Refuges

*Comprehensive Conservation
Plans*



Photo © Bruce Colton

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INTRODUCTION

Mission of the National Wildlife Refuge System

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.



Skimmers
USFWS Ken Litzenberger

Description of the Refuges

Located along the southern edge of the Big Bend Region of Florida's west coast, Lower Suwannee and Cedar Keys National Wildlife Refuges represent two jewels of the National Wildlife Refuge System (Fig. 2). Lower Suwannee National Wildlife Refuge was established on April 10, 1979, for the purpose of protecting, maintaining, and enhancing a rare and beautiful ecosystem. The refuge, which is predominantly wetlands, is bisected by 20 miles of Stephen Foster's famous Suwannee River and includes 20 miles of coastal marsh habitat along the Gulf coast. The salt marshes and tidal flats at the river's mouth are a paradise for shorebirds and fish. The refuge also encompasses an unusual diversity of floodplain hardwoods; cypress-lined sloughs; cabbage palm and cedar islands; cypress domes; hydric, mesic, and xeric hardwood hammocks; and low pine flatwoods.



Iris
USFWS Robert LeMarie

Cedar Keys National Wildlife Refuge was established on July 16, 1929, to protect a breeding ground for colonial nesting migratory birds. Today, the refuge is comprised of 13 islands ranging in size from 1 to 120 acres and totaling 762 acres. Four of the islands, Snake, Seahorse, North and Deadman Keys, are designated Wilderness Areas. Additionally, Atsena Otie Key is state-owned and managed as part of Cedar Keys National Wildlife Refuge through a Memorandum of Understanding. Cedar Keys Refuge ranks as one of the largest nesting areas for colonial wading birds in north Florida.

Purpose of and Need for the Plan

Under the provisions of the National Wildlife Refuge System Improvement Act of 1997, the U. S. Fish and Wildlife Service is required to develop comprehensive conservation plans for all lands and waters of

Introduction

Comprehensive Conservation Plans

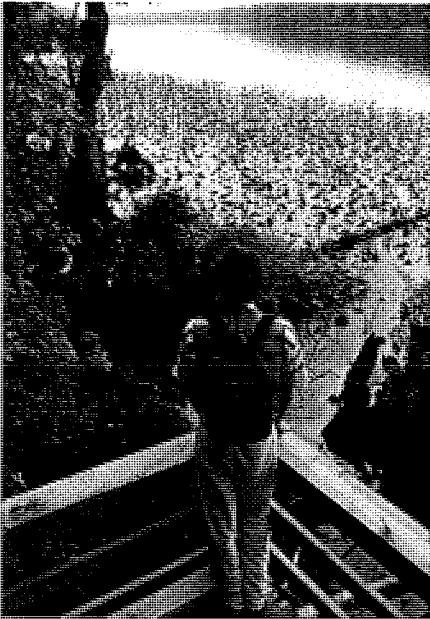
the National Wildlife Refuge System. These plans will guide management decisions and set forth strategies for achieving the purposes of each refuge unit. The National Environmental Policy Act ensures that the Service will assess the environmental impacts of any actions taken as a result of implementing these plans.

The following Comprehensive Conservation Plans and have been prepared for the Lower Suwannee and Cedar Keys National Wildlife Refuges, located in Levy and Dixie Counties, Florida. Their purposes are to identify the roles the refuges will play to support the mission of the National Wildlife Refuge System and the North Florida Ecosystem. The plans outline issues, concerns, and opportunities expressed to the Service during a series of public scoping meetings, workshops, and on comment sheets. They also provide a description of desired future conditions and propose long-range guidance to accomplish the purposes, missions, and visions of the refuges. This guidance is presented for each refuge in a listing of goals, objectives, and strategies resulting from an analysis of possible management alternatives.

The final plans will serve as operational guides for management of these refuges over the next 10 to 15 years.

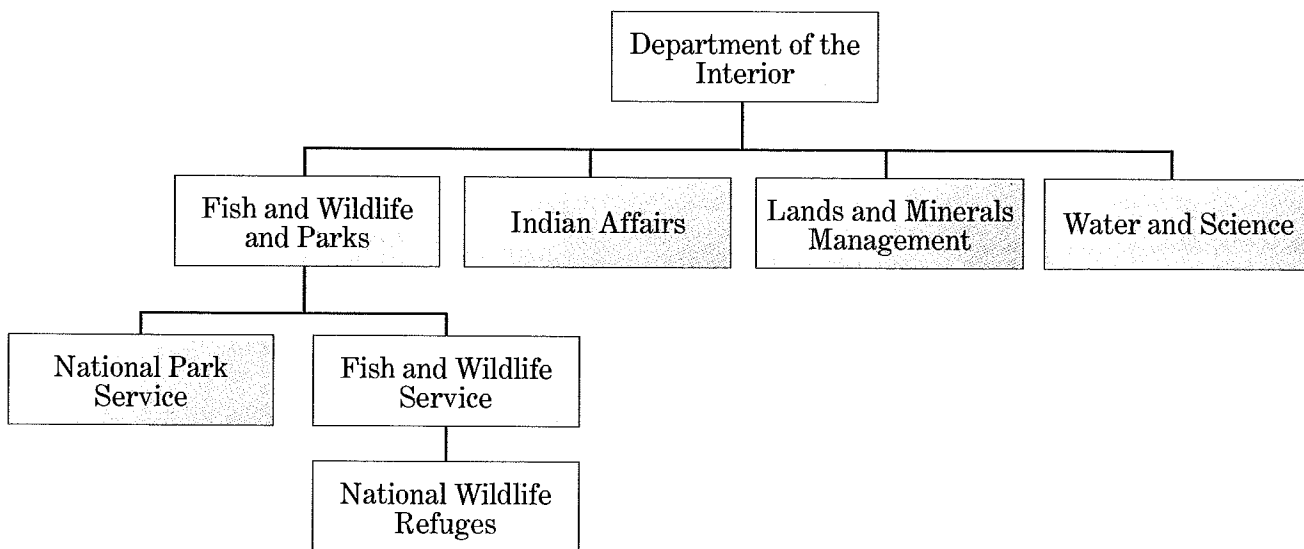
The plans will:

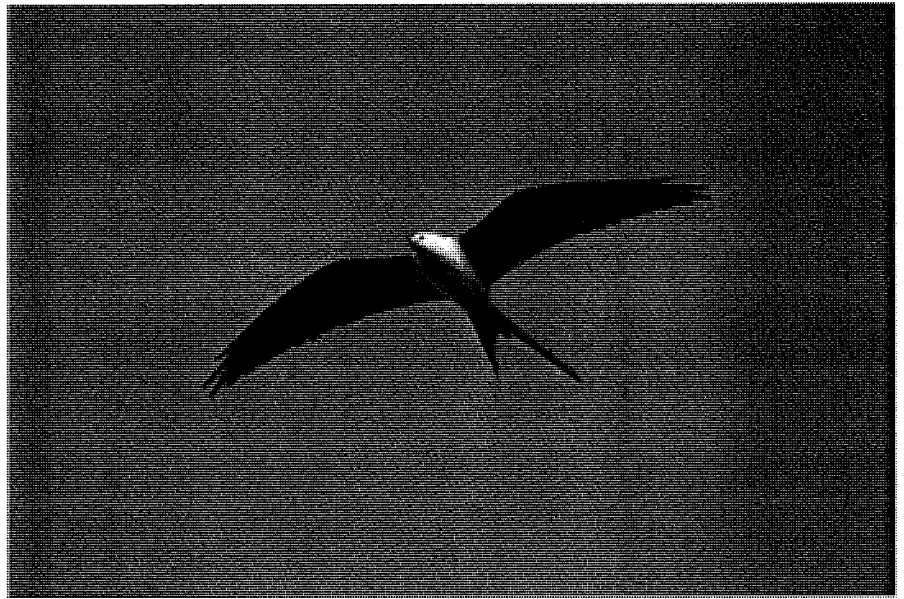
- provide a clear statement of the desired future conditions when refuge purposes and goals are accomplished;
- provide refuge neighbors and visitors with a clear understanding of the reasons for management actions on the refuge;
- ensure management of the refuge reflects policies and goals of the National Wildlife Refuge System;
- ensure refuge management is consistent with federal, state, and county plans;
- provide long-term continuity in refuge management; and
- provide a basis for operation, maintenance, and capital improvement budget requests.



River Trail Overlook
USFWS ©Ken Sourbeer

Figure 1. Organizational Chart of the Fish and Wildlife Service within the U.S. Department of the Interior



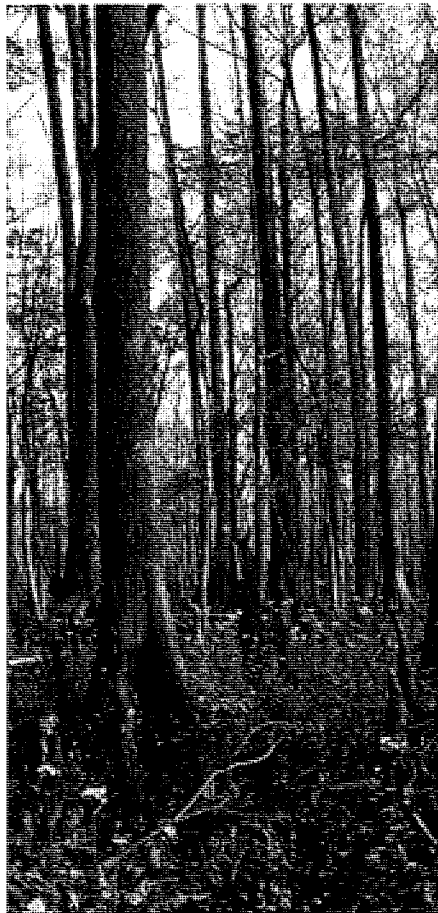


Swallow-tailed Kite
USFWS ©Ken Myers

Overview of the Department of the Interior

The Department of the Interior is the principal landowner of most of our nationally owned public lands and cultural resources. Management responsibilities include fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, managing the National Wildlife Refuge System, and providing for the enjoyment of life through outdoor recreation (Fig. 1).

Cypress Swamp
USFWS ©Ken Sourbeer



Mission of the Fish and Wildlife Service

The Fish and Wildlife Service is the principal organization through which the Department of the Interior carries out its responsibilities of working with others to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of people.

The Service manages the National Wildlife Refuge System, the world's largest collection of lands set aside specifically for the protection of fish and wildlife populations and habitats. More than 520 national wildlife refuges covering more than 93 million acres provide important habitat for native plants and many species of insects, amphibians, reptiles, fish, birds, and mammals. These refuges also play a vital role in preserving threatened and endangered species, as well as offering a wide variety of recreational opportunities. Many refuges have visitor centers, wildlife trails, and environmental education programs. Nationwide, more than 30 million visitors annually hunt, fish, observe and photograph wildlife, or participate in interpretive activities on national wildlife refuges. The Service also manages all national fish hatcheries.

Ecosystem Management and Priorities

For the Service, the North Florida Ecosystem includes portions of south Georgia and most of north and central Florida (Fig 2). The area includes southern temperate and subtropical climates, numerous physiographic districts, and many unique and widely varied habitat types. The northern boundary of this ecosystem includes the watersheds of the St. Mary's and Suwannee Rivers, including the Okefenokee Swamp. The northeast boundary begins at Camden County, Georgia, and proceeds down the east

coast of Florida to the line separating Brevard and Indian River Counties. The ecosystem boundary then turns west and includes Orange, Lake, and Sumter Counties as its southern border. The western boundary includes all Florida counties from Sarasota north through Taylor and Jefferson Counties. In Georgia, the ecosystem is inclusive of all counties east and south of Thomas, Colquitt, Worth, Turner, Ben Hill, Coffee, Ware, Charlton, and Camden Counties.

Habitats found within this ecosystem include barrier islands; xeric scrub; pine flatwoods; freshwater marshes, lakes, streams and 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. The North Florida Ecosystem team currently has three priorities which include restoring scrub habitat, conserving coastal habitat, and protecting the water quality of the Suwannee River Basin.



Boat on River
USFWS Allene Askins

Planning Issues and Opportunities

Legal Policy, Administrative Guidelines, and Other Considerations

Administration of national wildlife refuges is governed by various international treaties, federal laws, Presidential Executive Orders and regulations affecting land and water, as well as by the conservation and management of fish and wildlife resources. Policies for management options for the refuge are further refined by administrative guidelines established by the Secretary of the Interior and policy guidelines established by the Director of the Fish and Wildlife Service.

Select legal summaries of treaties and laws relevant to administration of the National Wildlife Refuge System and management of these refuges are provided in Appendix A.

Overview of the Public Involvement Process

The Comprehensive Conservation Plans for Lower Suwannee and Cedar Keys National Wildlife Refuges have been prepared in compliance with the provisions of the National Wildlife Refuge System Improvement Act of 1997. Plan preparation is in compliance with the National Environmental Policy Act of 1969, which requires the Service to actively seek public involvement in the preparation of environmental assessments and environmental impact statements. It also requires the Service to seriously consider all reasonable alternatives, including a No Action Alternative and a Proposed Alternative. These alternatives are described in Environmental Assessments prepared in conjunction with the comprehensive conservation plans for both Lower Suwannee and Cedar Keys Refuges.



CCP Planning Team
USFWS Allene Askins

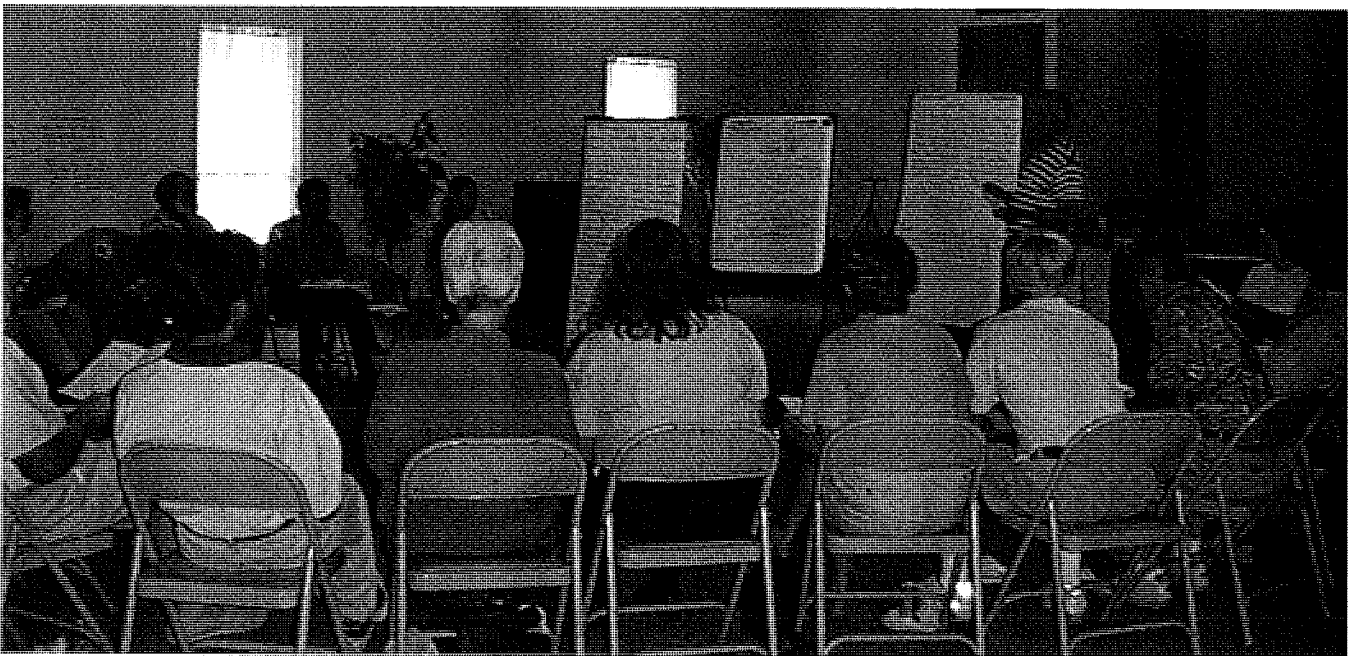
Identification of important issues provides a sound basis for initiating the development of management alternatives, objectives, and strategies. To ensure that the future management of these refuges reflects the issues, concerns, and opportunities expressed by the public, a variety of scoping mechanisms was used. A complete description of the public participation process during the draft and final plan preparation is included in Appendices B and D.

Public Participation Highlights

- A comment packet was used to gather general information on current and potential refuge operations.
- Letters were mailed to affected and interested members of the public to inform them of the planning process and to invite their participation.
- Refuge personnel presented informative programs to community organizations and stakeholder groups.
- A series of stakeholder workshops and public scoping meetings were held to develop components of the draft plans.
- The draft plans were distributed to approximately 300 individuals, organizations, agencies, and Native American tribes.
- More than 80 participants attended a public meeting to discuss the draft plans.
- Both written and oral comments were received during a 60-day comment period.

Scope of Issues, Concerns, and Opportunities

Several key issues and concerns surfaced during two public meetings, two stakeholder workshops, and from written comments. The planning team reviewed the issues and concerns raised by the approximately 100 people who participated in the scoping process. This list was based on the team's knowledge of the area, information gathered during the scoping meetings, and written comments submitted by the public.



CCP Planning Team
USFWS Allyne Askins

**LOWER
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**Comprehensive
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Lower Suwannee

National Wildlife Refuge



Aerial View of the Suwannee River
USFWS Ken Litzenberger

Background Information



Marsh
USFWS ©Ken Sourbeer

Location

Located along the southern edge of the Big Bend Region of Florida's west coast, the Lower Suwannee National Wildlife Refuge is found in the westernmost part of Levy County and the southern tip of Dixie County (Fig. 3). The refuge is approximately 50 miles southwest of Gainesville, Florida.

History

Lower Suwannee National Wildlife Refuge was established on April 10, 1979, under the authority of the Fish and Wildlife Act to protect the lower Suwannee River ecosystem. The initial acquisition in 1979 was 5,300 acres of land at Shired Island. Additional parcels of land were acquired over a 15-year period, until the refuge reached its present size of 52,935 acres. The refuge, which is predominantly wetlands, is bisected by 20 miles of Stephen Foster's famous Suwannee River and includes more than 20 miles of coastal marsh along the Gulf coast. The refuge also encompasses an unusual diversity of floodplain hardwoods; cypress-lined sloughs; cabbage palm and cedar islands; cypress domes; hydric, mesic, and xeric hardwood hammocks; and low pine flatwoods. Each of these diverse vegetative communities contributes to making Lower Suwannee National Wildlife Refuge one of the largest undeveloped river delta-estuarine systems in the United States.

Purpose

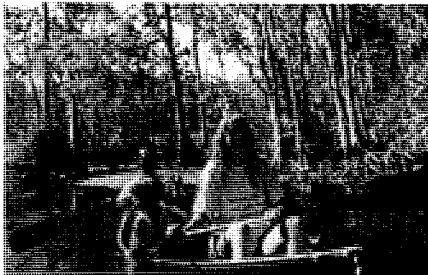
The purpose of Lower Suwannee National Wildlife Refuge is:

"...for the development, advancement, management, conservation, and protection of fish and wildlife resources...." 16 U.S.C. § 742f(a)(4)* and

"...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude...." 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956, 16 U.S.C. § 742f(a)-754, as amended.

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

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Paddling the Refuge Canoe Trail
USFWS Ken Litzberger

Lower Suwannee National Wildlife Refuge was established to protect, maintain, enhance, and where appropriate, restore habitats along the lower reaches of the Suwannee River. The refuge also protects water quality and quantity through sound land resource management and cooperative relationships with state agencies that have jurisdictional authority over the water and aquatic resources therein. Further, the refuge provides habitat for several threatened and endangered species and species of special concern in the State of Florida (Appendix H).

Function within the Ecosystem

Lower Suwannee National Wildlife Refuge, along with Okefenokee National Wildlife Refuge, anchors the Suwannee River Basin - an area consisting of 10,000 square miles across two states. The primary focus of the Service in this ecosystem is to maintain the quality of large, undeveloped forested and wetland habitats in the upper and lower portions of the Suwannee River by linking those areas with a corridor of habitat along the river. The Service is also concerned with maintaining the quantity and quality of river flows and the rich biological heritage of the native plant species within the river basin. The refuge plays an integral role in meeting these ecosystem goals by protecting nearly 53,000 acres of riverine habitat and more than 20 miles of river corridor along the lower reaches of the Suwannee River.

Agreements

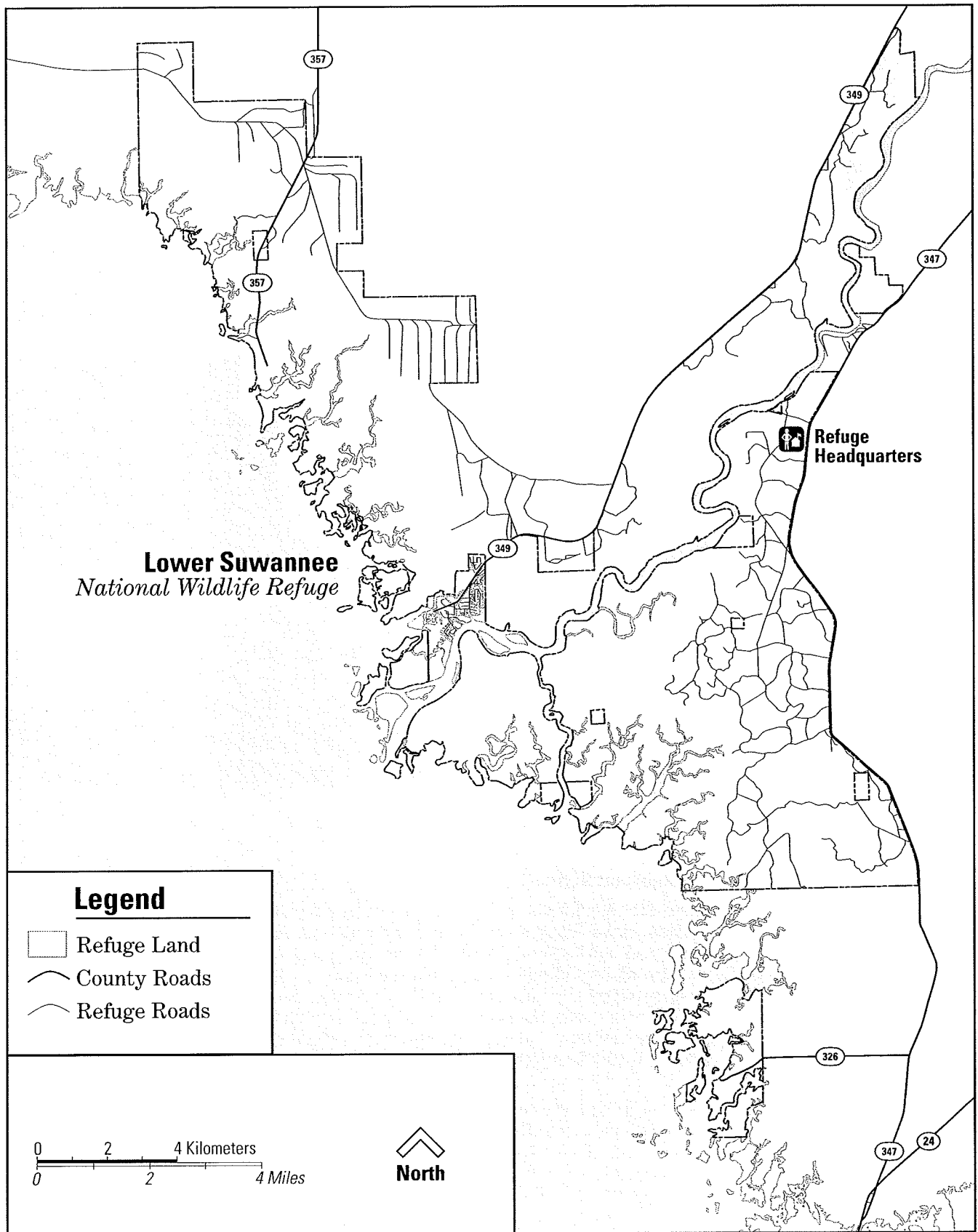
- Memorandum of Understanding with the Suwannee River Water Management District for management of its 420-acre St. Petersburg tract, as part of the Lower Suwannee National Wildlife Refuge.
- Memorandum of Understanding that gives management authority of the 146-acre, Service-owned Canavan tract in Columbia County to the District. This property was a Farmers Home Administration property that the Service acquired and is adjacent to other property owned by the Suwannee River Water Management District.
- Lease agreement with the State of Florida, Division of Lands, for the Service to manage 624 acres in T 12 S, R 11 E, Section 16, as part of the Lower Suwannee National Wildlife Refuge.
- Lease agreement with The Nature Conservancy for the Service to manage the 786-acre, Conservancy-owned, Cummer tract, as part of the Lower Suwannee National Wildlife Refuge.
- Lease agreement with the Dixie County Board of Commissioners for the Commissioners to maintain the Shired Island boat ramp.
- Memorandum of Understanding between the Service and Levy County Sheriff's Department allowing either agency to provide emergency assistance to the other upon request.
- Memorandum of Understanding between the Service and Dixie County Sheriff's Department allowing either agency to provide emergency assistance to the other upon request.
- Memorandum of Understanding between the Service and the State of Florida, Department of Agricultural and Consumer Services, Division of Forestry, to provide wildfire suppression.

Mission

The mission of the Lower Suwannee National Wildlife Refuge is to protect, maintain, and enhance a significant natural ecosystem which encompasses flood plain hardwoods, coastal and freshwater marshes, and upland forests; provide optimum habitat conditions and protection for native wildlife with special emphasis on threatened and endangered species and migratory birds; provide wildlife-oriented recreational/educational opportunities to the public; and preserve significant archaeological sites.

Management Direction

Figure 3. Vicinity Map, Lower Suwannee National Wildlife Refuge



Vision Statement

The watershed and estuary of the Lower Suwannee National Wildlife Refuge contain valuable water resources and fish and wildlife habitat. The refuge will be managed for the conservation of fish and wildlife and their habitat, with special emphasis on the protection and restoration of wetland and upland communities. Education, research, and wildlife-dependent recreational opportunities will be available, insofar as they are compatible with refuge health and preservation. Management will partner with local, state and federal agencies; community organizations; and individuals to ensure the protection and conservation of the vast Suwannee River ecosystem for current and future generations.

Management Alternatives

Once the key issues and concerns were identified, the planning team determined a reasonable range of alternatives for managing the refuge. The Environmental Assessment, which is under a separate cover, contains a full review of the alternatives considered and their impacts on the socioeconomic, environmental, and cultural resources, along with alternatives discussed but not fully developed.



Birders on Canoe Trail
USFWS Ken Lützenberger

Management Action

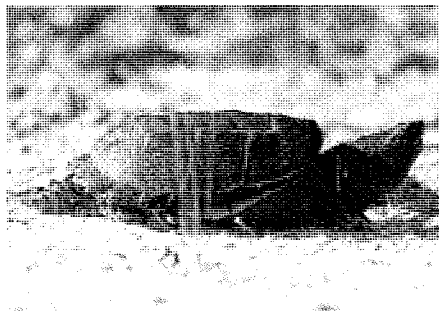
The management action was selected based on conformity with the refuge's mission, vision, ecosystem function, and current uses, as well as on the needs expressed by the public during the scoping process. The action will result in a better understanding of the refuge resources used by threatened and endangered species, migratory birds, and resident wildlife; the protection and enhancement of these resources; the protection of water quality and quantity; the restoration of refuge habitats; and accessibility of the refuge to the public for compatible wildlife-dependent public uses.

An overriding concern reflected in the plan is that wildlife comes first in refuge management. Public uses are allowed and encouraged if they are compatible with wildlife conservation. Wildlife-dependent recreational uses such as hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation are emphasized.

The end result is a set of goals, objectives, and strategies related to key issues that will guide management of the refuge for the next 10 to 15 years.

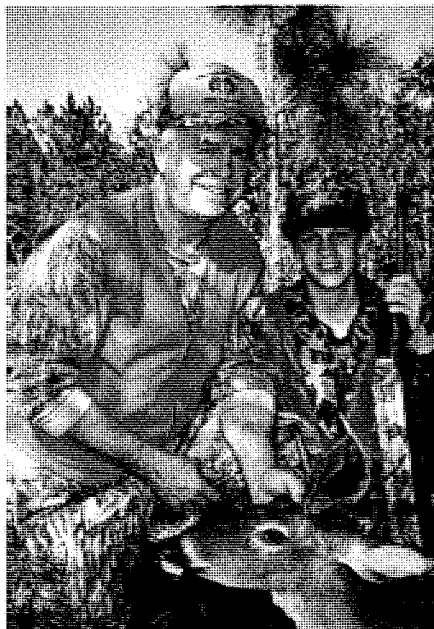
LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

Comprehensive Conservation Plan



Snapping Turtle
USFWS Ken Litaenberger

Youth Hunting
USFWS



Goals, Objectives, and Strategies to Support the Management Action

Five management goals for Lower Suwannee National Wildlife Refuge were developed from several workshops held during the scoping process.

- **Wildlife** Expand scientifically based monitoring and research to support management decisions regarding wildlife habitat and populations.
- **Habitat** Restore, conserve, and enhance the natural diversity, abundance, and ecological function of refuge habitat, with an emphasis on managing habitat to benefit threatened and endangered species and species of special concern in the State of Florida.
- **Resource Protection** Protect the natural and cultural resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.
- **Public Use** Provide opportunities for environmental education and interpretation and wildlife-dependent recreation in accordance with the National Wildlife Refuge System Improvement Act of 1997.
- **Landscape Management** Promote interagency and private landowner cooperation and partnerships for the management and protection of natural and cultural resources within the Big Bend Region of Florida, the Suwannee River Basin, and the North Florida Ecosystem to benefit wildlife, water quality and quantity, and the American people.

The goals, objectives, and strategies are the Service's response to the issues and concerns expressed by the planning team and the general public at the workshops, public meetings, and in the comment packet, and will be used to implement the management action. These goals, objectives, and strategies reflect the refuges's commitment to achieving the missions of the Service and of the National Wildlife Refuge System; ecosystem priorities; refuge purposes, mission and vision; and the expressed needs of the public—provided that necessary funding requirements are met.

Wildlife

Goal

1. Expand scientifically based monitoring and research to support management decisions regarding wildlife habitat and populations.

Objective

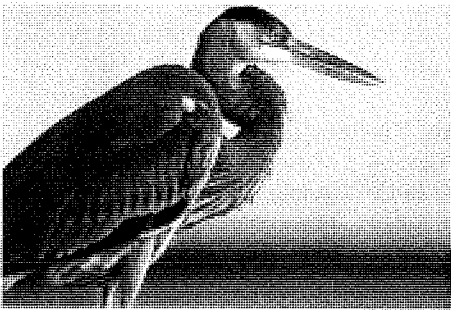
- 1.1 Conduct surveys of vertebrates, invertebrates, and plant species and habitat associations; develop monitoring programs for priority species; and establish targets for population levels. Expand current monitoring programs.

Strategies

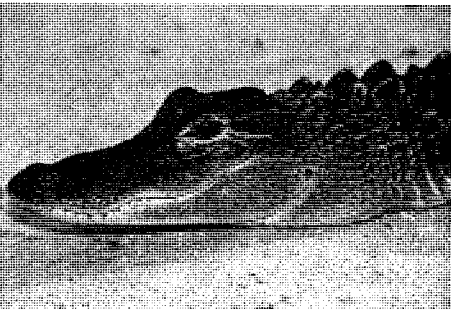
- 1.1.1 Continue current monitoring program for bald eagles during the nesting season using aerial surveys to determine nest status and production. Provide data to the Florida Fish and Wildlife Conservation Commission and the Service to aid in monitoring the delisting of this species.
- 1.1.2 Continue current monitoring program during the osprey nesting season to determine fledgling success and to evaluate overall population trends.
- 1.1.3 Expand the current, sporadic monitoring program for manatees into a regular, consistent monitoring program using aerial surveys of the coastal and riverine habitats of the refuge. Provide data to the Service Manatee Recovery Coordinator to aid in statewide monitoring and recovery efforts.

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

Comprehensive Conservation Plan



Great Blue Heron
USFWS ©Bruce Colin



Alligator
USFWS ©Bruce Colin

- 1.1.4 Continue to support the U.S. Geological Survey and the Service's efforts to monitor threatened Gulf sturgeon that use the Suwannee River and coastal estuary. Provide assistance for storage, transporting, and setting up equipment. Assist in field research as needed.
- 1.1.5 Continue monitoring the population status and health of resident wildlife species (e.g., white-tailed deer and wild turkey) and tailor management activities and hunting regulations to maintain healthy and stable populations of game species. Use Southeastern Cooperative Disease Study Unit at the University of Georgia to monitor health of deer herd on a 5-year basis.
- 1.1.6 By 2001, develop and implement an annual Breeding Bird Survey.
- 1.1.7 By 2001, participate in migratory shore bird surveys in spring and fall and provide data to the Manomet Laboratory.
- 1.1.8 By 2002, conduct a population survey of gopher tortoises and their habitat associations. Trap five tortoises and conduct blood tests to determine if the population harbors the respiratory disease which threatens this species. Beginning in 2005, monitor gopher tortoise populations every 5 years to determine long-term population trends. (Resource Project 4)
- 1.1.9 By 2003, conduct furbearer counts, determine their effects on the ecosystem, and develop population management strategies (e.g., hunting and trapping) to promote diversity and stability among species and their habitats.
- 1.1.10 By 2003, initiate a nesting survey of swallow-tailed kites to be conducted every 5 years to determine long-term population trends.
- 1.1.11 By 2004, identify exotic plant and animal species on the refuge and develop a strategy to eliminate or control them.
- 1.1.12 By 2005, partner with the University of Florida to conduct a survey of herpetofauna and develop a long-term monitoring technique for amphibians.
- 1.1.13 By 2005, partner with the Suwannee River Water Management District and/or the U.S. Geological Survey to conduct an aquatic inventory of fishes and mussels of the lower reaches of the Suwannee River.
- 1.1.14 By 2008, develop a list of significant flora and conduct surveys for rare and endangered plant species.

Objectives

- 1.2 By 2004, revise the Wildlife Inventory Plan into a Wildlife Management Plan which would be based on data gathered during initial surveys. The Wildlife Management Plan would guide all aspects of refuge management and be based on reliable data and sound techniques.

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

Comprehensive Conservation Plan



Pine Lily
USFWS Robert LeMarie

- 1.3 By 2010, conduct a biological review of the refuge. Ideally, this review would have occurred prior to the initiation of this comprehensive conservation plan. It will be necessary to conduct a biological review prior to its revision to determine if biological strategies outlined in the plan and in the Wildlife Management Plan are resulting in good science and sound management practices.
- 1.4 Develop a Geographic Information System database management and mapping system with plant and wildlife communities and management layers. (Resource Project 7).

Strategies

- 1.4.1 By 2003, develop a computerized database for current and past monitoring and research activities using Microsoft Access and input all available records.
- 1.4.2 By 2003, develop a computerized database for current and past forestry and fire activities using Microsoft Access and input all available records.
- 1.4.3 By 2003, maintain database and develop a query system to facilitate data retrieval.
- 1.4.4 By 2004, train professional staff in data collection and usage of Geographic Information System.
- 1.4.5 By 2006, build Geographic Information System databases with several coverages including: roads; land cover types; prescribed burn units; timber sales; inholdings; hydrology; soils; wildfires; boundary maintenance; boundaries; breeding bird survey transects; data points and data; eagle nests; osprey nests; gopher tortoise burrows; gopher tortoise study transects; archaeological and cultural sites; topography; assets (structures and facilities); public use structures and trails; swallow-tailed kite nests; forest compartments and stands; insect/disease/disturbance events; beaver ponds and dams; refuge ponds; blue bird boxes; and wood duck boxes.

Habitat

Goal

2. Restore, conserve, and enhance the natural diversity, abundance, and ecological function of refuge habitats, with an emphasis on managing habitat to benefit threatened and endangered species and species of special concern in the State of Florida.

Objective

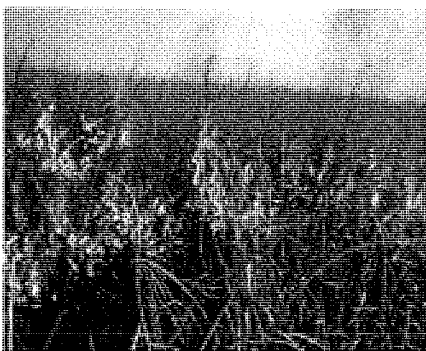
- 2.1 Maintain habitat for migrating, wintering, nesting, and foraging birds, with special emphasis on threatened and endangered species, neotropical migratory birds, and colonial wading birds.

Strategies

- 2.1.1 Maintain existing pine and hardwood habitat for at least 20 pairs of swallow-tailed kites.
- 2.1.2 Maintain existing nesting habitat for 4 pairs of bald eagles.
- 2.1.3 Maintain existing habitat for 30 to 40 nesting pairs of osprey.
- 2.1.4 Provide high quality foraging habitat for colonial

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

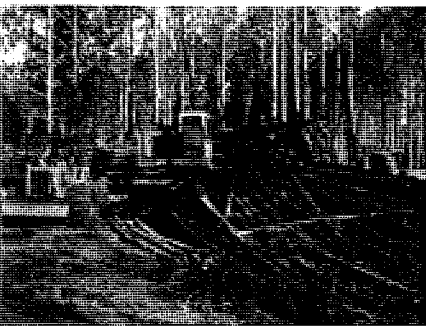
Comprehensive Conservation Plan



Marsh Burning
USFWS Ken Litzenberger



Planting Trees
USFWS Ken Litzenberger



Logging Deck
USFWS Ken Litzenberger

wading birds by manipulating water levels in three existing management areas.

- 2.1.5 By 2002, initiate a research project with the Service's Ecological Services Division, the University of Florida, and the Suwannee River Water Management District to study mercury levels in the river and its tributaries and the effects on foraging wading birds.

Objective

- 2.2 Refine and implement a prescribed fire program to restore and maintain healthy, fire-dependent communities.

Strategies

- 2.2.1 Implement the Fire Management Plan (1997), with annual reviews and updates to incorporate applied research findings.
- 2.2.2 Continue on an annual basis to use prescribed fire on at least 3,000 acres, using a combination of dormant season and growing season burns. Both uplands and marshlands will be burned.
- 2.2.3 By the 2003 fire season, initiate fire research on the effects of burning frequency, seasonality, and spatial distribution on the refuge's pine flatwoods, mixed cypress, and marsh ecosystems. (Resource Project 5)
- 2.2.4 By 2004, investigate the impacts of prescribed fire on isolated wetlands in relation to restoring and maintaining aquatic habitats for herpetofauna threatened by hardwood succession caused by the exclusion of fire. (Resource Project 5)

Objective

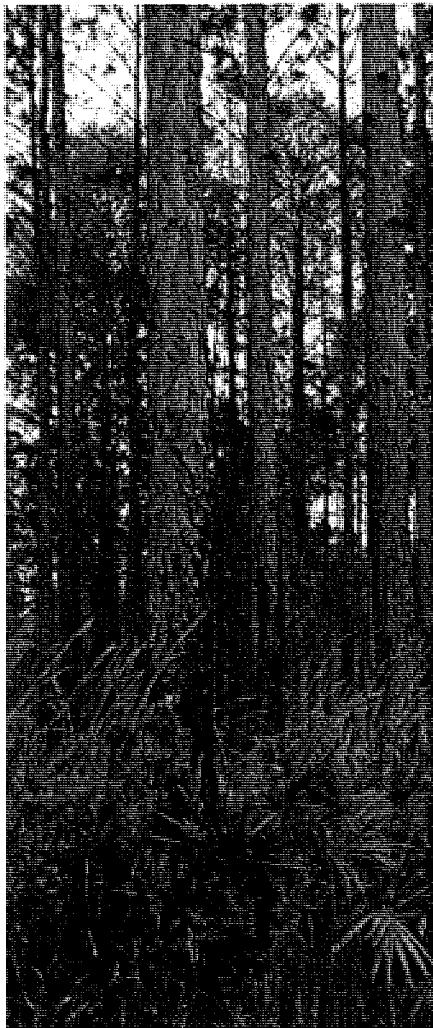
- 2.3 Refine and implement an active forest management program to restore and maintain healthy and diverse forest communities.

Strategies

- 2.3.1 Plant wiregrass plugs in the longleaf pine restoration sites and log decks at a density of 1,000-per-acre with an annual average restoration of 10 acres.
- 2.3.2 Maintain and promote propagation of wiregrass through prescribed fire.
- 2.3.3 In 2001, monitor restoration efforts of native long leaf pine and wiregrass communities on slash pine conversion sites (clearcuts). Conduct seedling survival counts in the restoration areas to determine survival rate.
- 2.3.4 By 2002, update and implement the Forest Management Plan (1989).
- 2.3.5 By 2002, complete inventory preparations for the forested habitats, including inventory schedules, data to be collected, preparation of cruise maps based on refuge management compartment maps, and methods for analyzing data.
- 2.3.6 In 2002, begin inventory of the 32,571 acres of forested habitats to obtain the necessary data to

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Pine Forest
USFWS ©Ken Sourbeer

refine forest and wildlife management strategies. A minimum of 3,000 acres will be inventoried annually. Complete the inventory project in 2011, followed by the necessary revisions to the Forest Management Plan.

- 2.3.7 Use commercial timber sales to thin slash pine plantations to promote the regeneration of early successional understories, provide quality habitat and forage for native wildlife species, and prepare plantations for a shift to growing season fires. Specific harvest schedules will be developed in the Forest Management Plan.
- 2.3.8 Monitor and evaluate the wiregrass restoration effort and determine if the project should continue past 2004.
- 2.3.9 If adequate, wiregrass stands could be used as a seed source. Implement a seed harvest program to expand the restoration process, if previous restoration efforts are successful.

Objective

- 2.4 Protect wildlife habitat and water quality and quantity through land acquisition. (Resource Project 3)

Strategies

- 2.4.1 Protect important habitat for threatened Gulf sturgeon and water quality of the Suwanee River by acquiring, through fee title ownership or easements, the tracts identified in the *Environmental Assessment and Land Protection Plan for the Expansion of the Lower Suwanee National Wildlife Refuge (1995)*.
- 2.4.2 Protect and restore Florida scrub jay habitat and provide contiguous habitat for numerous other species through the acquisition of the Caber Tract, if this land becomes available for purchase.
- 2.4.3 Acquire the 17 remaining privately owned properties (inholdings) within the original approved acquisition boundary of the refuge, as they become available for purchase.

Resource Protection

Goal

- 3. Protect the natural and cultural resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.

Objective

- 3.1 Protect known archaeological and historical sites on the refuge from illegal take or damage in compliance with the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act.

Strategies

- 3.1.1 Conduct law enforcement patrols at all known archaeological and historical sites on a regular basis to inspect for disturbance and illegal digging and/or looting.

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Grading Roads
USFWS Ken Litzenberger

- 3.1.2 By 2003, compile a comprehensive literature review of past archaeological, anthropological, and historical investigations within and near the refuge. Produce an annotated bibliography to document the area's history.
- 3.1.3 By 2006, inventory and GPS the refuge's archaeological sites. (Resource Projects 7 and 14)
- 3.1.4 By 2010, develop and implement a plan to protect identified archaeological sites in consultation with the Service's Archaeologist, the State Historic Preservation Office, Native American tribes, and the professional archaeological community. (Resource Project 14)

Objectives

- 3.2 Annually evaluate a minimum of 15 miles of refuge boundary. Delineate refuge boundaries with signs and paint, as needed.
- 3.3 Continue to protect refuge habitats from wildfire through the fire program, properly trained staff, and equipment readiness. The station will monitor fire conditions and respond according to approved plans and procedures.
- 3.4 Continue to protect bald eagle nests by monitoring for disturbance and, if necessary, by closing areas around nests during the nesting season.
- 3.5 Continue to provide visitor safety, protect resources, and ensure compliance with refuge regulations for more than 100,000 annual visitors through law enforcement patrols and public use contacts.

Strategy

- 3.5.1 By 2005, revise and update the refuge's Law Enforcement Plan.

Objectives

- 3.6 Continue to work cooperatively with local, state, and other federal law enforcement agencies to enhance resource protection.
- 3.7 Maintain present road system containing 50 miles of primary refuge roads by grading, mowing, and replacing culverts, as needed, for public vehicle access and for habitat improvement, protection, and management.
- 3.8 Maintain access to secondary roads system by mowing, boom axing, grading, and replacing culverts, as needed, for habitat protection, management, and improvement for refuge staff and for public foot and bicycle traffic.
- 3.9 Identify additional lands and seek funding to acquire such lands that will improve resource protection and aid in fulfilling the mission and purpose of the refuge.
- 3.10 Maintain more than \$1,000,000 worth of capitalized equipment used in all aspects of refuge management including habitat, wildlife, and public use.



Shired Creek Bridge
USFWS Ken Litzenberger

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- 3.11 By 2006, conduct a wilderness review of the refuge. The purpose of a wilderness review is to determine whether any refuge lands or waters meet the characteristics of wilderness. Any lands determined to meet these criteria will then be nominated for inclusion as Wilderness Areas.

Public Use

Goal

4. Provide opportunities for environmental education and interpretation and wildlife-dependent recreation in accordance with the National Wildlife Refuge System Improvement Act of 1997.

Objectives

- 4.1 By 2003, develop and implement a Visitor Services Management Plan.
- 4.2 By 2002, identify site for a visitor center or visitor contact station to serve both Lower Suwannee and Cedar Keys National Wildlife Refuges. Visitors will learn about the Service, the National Wildlife Refuge System, and both local refuges and the trust resources they protect. Seek funding support from Congressional representatives, local governments, organizations, and individuals. (Resource Project 2)
- 4.3 Develop and implement an environmental education program that will result in a greater understanding and appreciation of refuge flora, fauna, and habitats.



Cub Scouts
USFWS Allyne Askins

Strategies

- 4.3.1 By 2001, quarterly provide ranger- or volunteer-led canoe tours, wildflower and butterfly walks, and birding trips.
- 4.3.2 By 2002, develop environmental education curriculum for the refuge consistent with Florida Department of Education (Sunshine State) standards.
- 4.3.3 By 2002, develop at least three refuge specific messages, complete with a teacher's guide on wetlands and wetlands species for local teachers and community organizations.
- 4.3.4 By 2003, develop teacher workshop materials and host an annual teacher's workshop for environmental education curriculum.
- 4.3.5 Provide and train staff, student interns, and community volunteers to implement an environmental education program. By 2003, increase staff and volunteer presence in the public schools and the community for educational purposes.
- 4.3.6 By 2005, provide temporary housing and transportation for student interns.



Fishbone Creek Observation Tower
USFWS Ken Litaenberger

Objective

- 4.4 Update existing materials and develop new interpretive materials, including brochures, interpretive panels, kiosks, and exhibits that highlight refuge resources.

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Strategies

- 4.4.1 By 2001, replace temporary marsh walkways with elevated, accessible boardwalks. To provide resting spots, place benches along the trail. (Resource Project 9)
- 4.4.2 By 2001, develop interpretive panels which highlight the Dixie County portion of the refuge. The panels will be included on kiosks located near the refuge, on property owned by the county and town of Suwannee.
- 4.4.3 By 2002, develop a self-guided walking trail through the pine forests and marsh at Salt Creek.
- 4.4.4 By 2002, replace visitor's kiosk at River Trail with a new structure, panels, and brochure box. (Resource Project 8)
- 4.4.5 By 2003, develop interpretive panels and build a kiosk at the Shell Mound Unit. Interpretive panels will highlight coastal habitat and associated wildlife. A map will be included to identify refuge lands and public use facilities. (Resource Project 9)
- 4.4.6 By 2003, construct an observation tower at Dennis Creek Landing similar to the tower/disability accessible deck on the River Trail. (Resource Project 9)
- 4.4.7 By 2004, establish a native plants, wildflower, and butterfly garden at the refuge headquarters. Through interpretive signs and an accompanying guide, the area would become an outdoor classroom and serve as a demonstration area for "Backyard Wildlife Management."
- 4.4.8 By 2005, develop interpretive panels and incorporate into kiosks for the Dennis Creek and Shell Mound trails similar to those found along the River Trail. (Resource Project 9)
- 4.4.9 By 2006, construct an observation tower with interpretive panels overlooking an interior freshwater marsh/pond along the visitor loop road in Levy County.

- 4.4.10 Evaluate other areas where walking trails for wildlife observation might be compatible with the purpose and mission of the refuge or refuge system.

Objective

- 4.5 Provide opportunities for hunting and fishing on the refuge in a manner which minimizes conflicts between consumptive and non-consumptive user groups.

Strategies

- 4.5.1 Provide high quality hunting opportunities for small game, big game, and waterfowl consistent with sound biological principles and in accordance with the approved Refuge Hunt Plan (1988).

Hunter
USFWS Ken Litzenberger

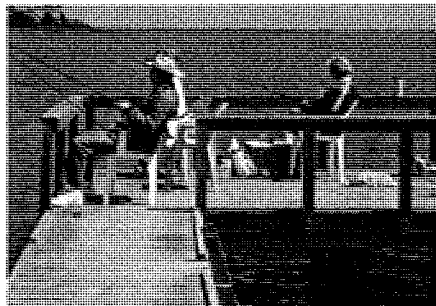


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Mother and Son Fishing
USFWS Ken Litaenberger



Fishing at Shell Mound Pier
USFWS Ken Litaenberger

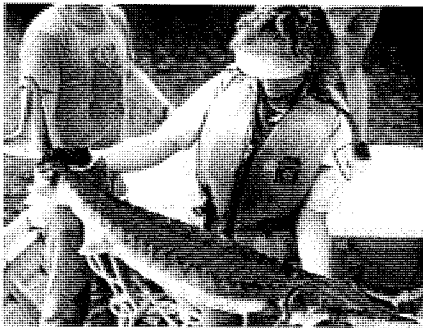


Volunteer with Children
USFWS Ken Litaenberger

- 4.5.1.1 Maintain the archery-only area in Dixie County.
- 4.5.1.2 Continue to staff a centralized check station in each county during the general gun season to collect harvest data and provide a hunter contact point.
- 4.5.1.3 Continue to monitor and evaluate the hunt program annually to determine health of game species. Modify seasons and/or regulations, if necessary, to ensure the hunt program is based on sound biological information and achieving management goals.
- 4.5.1.4 By 2001, increase law enforcement presence during hunting seasons to ensure hunter safety, to provide contact information, and to monitor compliance.
- 4.5.1.5 By 2002, designate non-hunting areas in both counties to minimize potential conflicts between hunters and non-hunters. Potential areas to be included are the property owned by The Nature Conservancy, Shell Mound, Fishbone Creek, and Shired Island. These areas have public use facilities (e.g., trails and boardwalks).
- 4.5.1.6 By 2002, modify deer hunting regulations to increase the number of does harvested. This will achieve a balanced sex ratio and improve overall deer herd health.
- 4.5.1.7 By 2003, evaluate the potential of conducting a youth-oriented deer hunt.
- 4.5.2 Provide high quality fishing opportunities consistent with sound biological principles.
 - 4.5.2.1 By 2001, increase law enforcement patrol of fishing areas to ensure public safety and maintain refurbished facilities.
 - 4.5.2.2 By 2002, construct a disability-accessible fishing platform at Fishbone Creek.
 - 4.5.2.3 By 2004, repair boat launch and resurface parking area at Shired Island. (Resource Project 12)
 - 4.5.2.4 By 2005, explore additional ways to increase land based fishing opportunities by emphasizing access and facility improvements.
 - 4.5.2.5 By 2006, develop and implement a fisheries management plan.
 - 4.5.2.6 By 2008, support National Fishing Week by conducting an annual event.

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Sturgeon Capture
USFWS Jim Clugston



Lily Pads
USFWS ©Bruce Colin

Objective

- 4.6 Develop a volunteer program which offers resource, educational, and maintenance projects to accommodate a diverse volunteer community.

Strategies

- 4.6.1 Create partnerships with community-based organizations to adopt specific refuge trails and/or areas.
- 4.6.1.1 Continue coordinating with the Wetlands Clubs from area high schools to conduct regular clean-up days on the refuge.
- 4.6.1.2 By 2002, partner with the Suwannee River Chamber of Commerce to adopt the Dixie Mainline Trail.
- 4.6.2 Provide volunteer training opportunities.
- 4.6.2.1 Continue to provide training to teach refuge volunteers about the Service, the refuge system, and the local refuges.
- 4.6.2.2 By 2002, provide opportunities for volunteers to attend teacher workshops to develop skills for conducting educational programs.
- 4.6.2.3 By 2003, provide opportunities for volunteers to attend Service-sponsored training on related topics to improve their ability to serve refuge needs.
- 4.6.3 By 2001, provide support and recognition to volunteers for their contributions to refuge operations and programs.
- 4.6.4 By 2003, develop volunteer-led tours of various refuge trails.
- 4.6.5 By 2004, use volunteers to assist with staffing needs for the new refuge visitor center or contact station.

Objective

- 4.7 By 2001, develop a Friends Group for Lower Suwannee and Cedar Keys National Wildlife Refuges.

Landscape Management

Goal

5. Promote interagency and private landowner cooperation and partnerships for the management and protection of natural and cultural resources within the Big Bend Region of Florida, the Suwannee River Basin, and the North Florida Ecosystem to benefit wildlife, water quality and quantity, and the American people.

Objectives

- 5.1 Continue participation on North Florida Ecosystem Team and support team priorities and projects.

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Bicyclists on the Dixie Mainline
USFWS

- 5.2 By 2005, develop partnerships with local school districts and state environmental agencies such as the Suwannee River Water Management District, Florida Department of Environmental Protection, and Florida Fish and Wildlife Conservation Commission to promote and provide environmental education opportunities on and off the refuge.

Strategies

- 5.2.1 By 2003, expand partnership with the Levy County School District to include it as an involved participant in the Interdisciplinary Watershed Education Program.
- 5.2.2 By 2004, expand partnership with the Dixie County School District to assist with the development of environmental education facilities and programs. (Resource Project 10)

Objective

- 5.3 By 2006, develop partnerships to protect water quality and quantity and to promote research on the trust resources of the refuge.

Strategies

- 5.3.1 By 2002, expand partnership with the University of Florida to conduct research on the refuge and provide research sites and field experiences to students.
- 5.3.2 By 2002, expand partnership with the Suwannee River Water Management District and the U.S. Geological Survey to include monitoring water flows and quality in the lower reaches of the Suwannee River, to inventory and study aquatic species, and to protect the Suwannee River corridor from development and activities which could negatively impact water quantity and quality.
- 5.3.3 By 2003, explore potential for working with the Florida Fish and Wildlife Conservation Commission to reintroduce black bear into the Big Bend Region of Florida.
- 5.3.4 Conduct a basin-wide mussel survey to determine species abundance and distribution with emphasis on determining status of the Suwannee moccasinshell mussel for possible listing, by the year 2005. Threats to the Suwannee River Basin include degradation of water quality resulting from increased pesticide and fertilizer use by dairy and poultry operations, contaminants from phosphate mines and pulp mills, and increased ground and surface water consumption (specifically, a proposal to divert water from the Suwannee River to the Tampa area [minimum flows issue]).

Objective

- 5.4 Maintain partnerships with local community organizations and environmental agencies to promote and guide the development of nature-based tourism while maintaining the "wildlife first" requirement of the Refuge Improvement Act.

Strategies

- 5.4.1 Continue to work with the Florida Park Service and other governmental agencies, as well as community organizations, in the sponsorship of the Suwannee River Naturefest, an annual nature-based festival.
- 5.4.2 Continue to partner with local organizations to seek out and apply for grants on collaborative projects.
- 5.4.3 By 2002, work with the Suwannee River and Dixie County Chambers of Commerce to develop interpretive material about the Dixie County portion of the refuge and nature-based recreation opportunities provided by the refuge.
- 5.4.4 By 2003, seek support from community organizations and governmental agencies for the establishment of a Refuge Visitor and Education Center which will serve both refuges and could serve as a central information point for environmental activities in the area.

Objectives

- 5.5 Continue to develop partnerships with national and state organizations to acquire necessary lands for the protection of trust resources and the fulfillment of the purpose and mission of the refuge.
- 5.6 Seek mutual cooperation with recognized Native American tribes in Florida to protect Native American sites on the refuge.

Strategy

- 5.6.1 By 2003, negotiate and implement a long-term archaeological research agreement with the Department of Anthropology at the University of Florida and the Museum of Natural History.

Partnerships

A crucial component to implementing this comprehensive conservation plan is the development and expansion of partnerships with the local community and other environmental agencies. Significant partnerships with the Suwannee River Water Management District and The Nature Conservancy contributed to both the establishment and management of the refuge. Local organizations that have contributed to the operation of the refuge include the Suwannee River and Dixie County Chambers of Commerce, the Suwannee Audubon Society, and the "Save Our Suwannee" organization. Personal contacts and working relationships have been established with other governmental organizations including the following: University of Florida; Florida Fish and Wildlife Conservation Commission; Florida Park Service; Florida Department of Environmental Protection; Florida Division of Forestry; Levy County School District; Dixie County School District; Chiefland City Council; Levy County Commissioners; Dixie County Commissioners; Levy County Development Authority; North Florida Economic Development Council; Levy County Economic Development Council; and North Central Florida Regional Planning Council.

In addition to dynamic partnerships with organizations, the refuge is fortunate to have a small but dedicated group of individuals who volunteer and assist the refuge with various projects. These volunteers will continue to play a pivotal role in the accomplishment of refuge objectives and

*Plan
Implementation*



Swamp Lily
USFWS Robert LeMarie

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strategies. In addition to assisting with refuge projects, this cadre of volunteers serves as an important link with the community at large, promoting refuge messages and garnering additional support for the refuge system.

Partnerships with other environmental agencies, local school districts, and community groups have the greatest potential to benefit refuge resources. Biological and environmental research and monitoring will be improved through enhanced partnerships with the Suwannee River Water Management District, the University of Florida, and the Florida Fish and Wildlife Conservation Commission. Environmental education opportunities will be enhanced through expanded partnerships with both local school districts, the Suwannee River Water Management District and the Florida Fish and Wildlife Conservation Commission. The limiting factor in the advancement of these partnerships is the lack of staffing and funding to nurture these programs and relationships.

Annual Work Plans

Future annual work plans will be developed to reflect the priorities and intent of this comprehensive conservation plan. When discretionary funding and staff time are available, these work plans will be used to implement various components of the plan.

Step-Down Management Plans

The comprehensive conservation plan provides conceptual guidance for potential future expansion, management and development of the refuge. Step-down management plans are individual, subject-specific plans. Examples are fire management, forestry management and hunting management. The refuge's approved step-down plans are listed below. Before implementing the goals and projects of this comprehensive conservation plan, some specific step-down plans may need revisions, while others will need to be developed.

Approved Plans

- **Aircraft Pre-Accident** Aircraft are used for fire control and management, habitat monitoring, and biological surveys. The purpose of the Aircraft Pre-Accident Plan is to outline general procedures to be followed during routine flights and flight emergencies. (Approved 5/6/94)
- **Continuity of Operations** It is important to maintain the capability to perform essential activities and functions under all circumstances and situations, including human-caused, natural, technological, and national security emergencies that may occur with or without notice. This plan identifies functions necessary for the safety and continuity of operations. (Written 8/10/98)
- **Fire Management** The purpose of the Fire Management Plan is to provide objectives and guidelines for managing refuge habitat. The plan provides a detailed program of action to implement fire management policies and objectives in accordance with the Fire Management Preparedness Handbook (621 FW). (Approved 1/8/97)
- **Hurricane Action** The purpose of the Hurricane Action Plan is to outline general procedures to be followed during and after hurricanes and the associated tornadoes which may occur. (Approved 12/17/90)
- **Station Safety** The purpose of the Station Safety and Environmental Health Management Plan is to outline responsibilities and procedures necessary to minimize accidents/incidents which may result in personal injury or property damage to Service employees and the visiting public. Included are guidelines for employees to follow in case of emergencies, correct procedures for reporting accidents, and an emergency action directory. (Approved 10/21/84)



Water Snake
USFWS ©Bruce Colin

Visitors at Shell Mount
USFWS ©Ken Sourbeer



■ **Trapping** The purpose of this plan is to identify methods to reduce beaver impacts on refuge roads and timber in the Dixie County portion of the refuge. The plan does not seek to eliminate beaver from the refuge, merely minimize damage caused to refuge roads and timber by flooding, and thus ensure visitor and staff safety when using these roads. (Submitted 1/12/00)

Approved Plans, Scheduled for Revisions

■ **Forest Management** The purpose of this plan is to provide guidelines which will strive to make the best use of available management techniques to provide suitable habitat for native wildlife in refuge forest lands. This plan is scheduled to be updated by 2002. (Approved 4/19/89)

■ **Law Enforcement** This plan's purpose is to provide refuge staff with a ready reference to Service, regional and state policies, procedures, and programs concerning refuge law enforcement activities. The present plan was approved on March 29, 1988, and is outdated. It will be revised by 2005.

■ **Visitor Services Management Plan (Public Use Management Plan)** The purpose of the Public Use Management Plan, now referred to as the Visitor Services Management Plan, is to outline strategies to accomplish the refuge's public use goals without compromising the original purpose for which the refuge was established. The plan will be revised in 2003. (Approved 6/28/88)

■ **Hunting** The purpose of the Hunting Plan is to establish guidelines for hunting on the refuge which will provide the general public with a quality wildlife-oriented recreational experience, an opportunity to utilize a renewable resource, and the ability to maintain wildlife populations at levels compatible with refuge habitat. This plan will be updated and incorporated into the Visitor Services Management Plan by the 2003-2004 hunt season. (Approved 4/18/88)

■ **Fishing** The purpose of the Fishing Plan is to provide guidelines and objectives for the sportfishing program, which will serve to increase wildlife-dependent recreational opportunities and further the public's opportunity to enjoy a renewable resource. The plan will be updated and included in the Visitor Services Management Plan, which is scheduled to be updated and revised by 2003. (Approved 8/16/88)

■ **Sign (part of Public Use Management Plan)** The sign plan, which is now obsolete, outlined the design and placement of refuge signs to provide information to the public. Sign management will now be included in the Visitor Services Management Plan. (Approved 6/28/88)

■ **Wildlife Management Plan (Wildlife Inventory Plan)** The purpose of the Wildlife Inventory Plan was to establish which species to inventory, standard techniques for conducting the inventories, and projected costs. This plan is now obsolete. A new Wildlife Management Plan will be written to replace this plan. This project is to be conducted by 2004. (Approved 4/21/86)

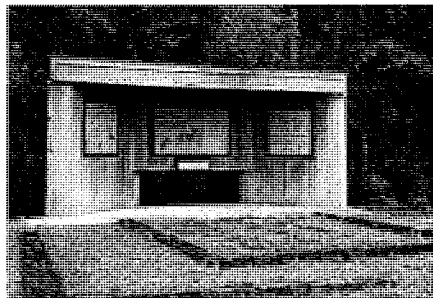
Needed Plans or Reviews

■ **Cultural Resource Management Plan** The purpose of this plan is to clearly delineate the historic preservation process for the refuge, develop strategies to identify and assess the refuge's historic properties, identify appropriate site protection measures, and identify current and potential partners. The plan shall be in place by 2010.

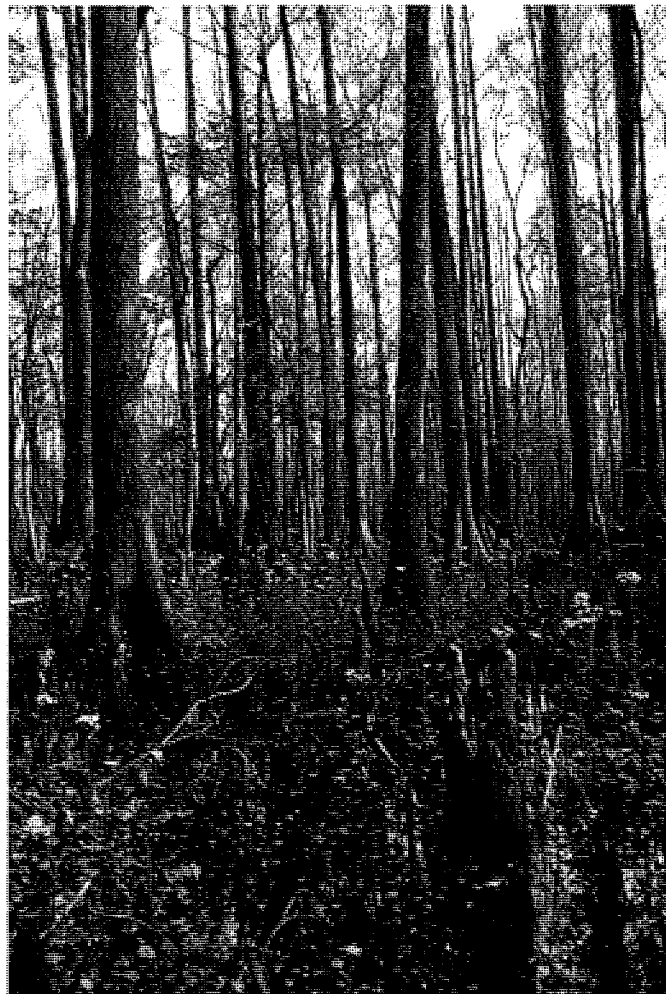
■ **Wilderness Review** The purpose of this review is to determine whether any refuge lands or waters meet the qualifications of a "Wilderness Area." Any areas determined to meet these criteria will then be nominated for inclusion as wilderness. The Wilderness Review will be conducted by 2006.

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River Trail Kiosk
USFWS ©Ken Sourbeer



Cypress Swamp
USFWS ©Ken Sourbeer

- **Fisheries Management Plan** The purpose of this plan is to determine if and what management actions could be conducted to improve fish habitat on refuge waters. Fisheries biologists from the Service's Ecological Field Offices would provide the expertise needed for this evaluation. The fisheries plan will be conducted by 2006.
- **Biological Review** Ideally, this review would have occurred prior to the initiation of this comprehensive conservation plan. It will be necessary to conduct a biological review prior to its revision to determine if biological strategies outlined in this plan and the Wildlife Management Plan are resulting in good science and sound management practices. This review should occur by 2010.

Funding and Staffing

To bring the vision of the Lower Suwannee National Wildlife Refuge to a reality—expanded biological monitoring, enhanced public use opportunities, and construction of related facilities—*appropriate funding and staffing are essential!* Although a portion of this new funding could be from partnership opportunities and grants, the bulk of the funding must be allocated by the U.S. Congress. Current base funding is inadequate to meet staff costs and to complete routine maintenance and upkeep of facilities and equipment.

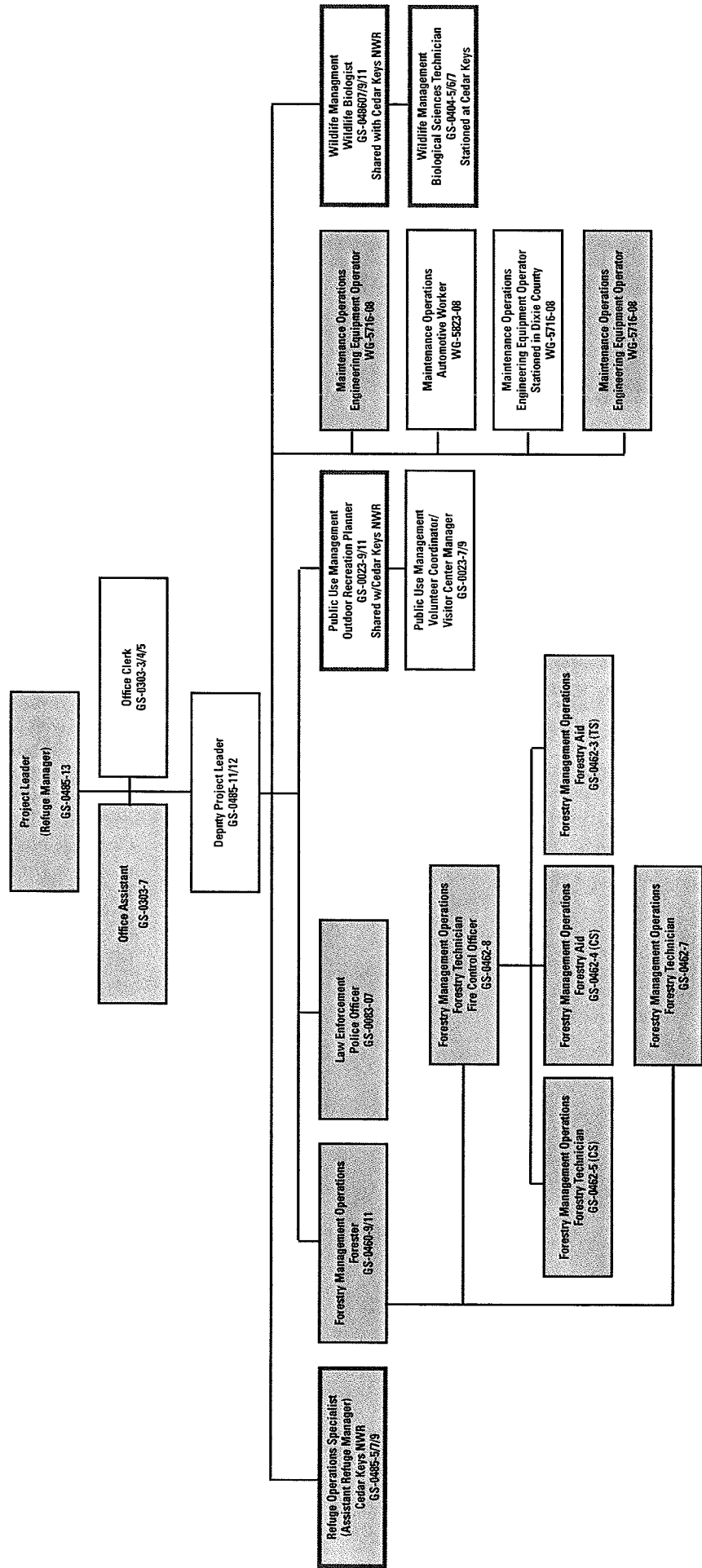
A staff of eight permanent full-time, one permanent half-time, two career seasonals, and one temporary firefighter (Fig. 4) are currently allocated to Lower Suwannee National Wildlife Refuge (gray boxes). To accomplish the goals, objectives, and strategies outlined in this plan, additional staffing is needed. Five additional full-time permanent positions are required to fully implement this plan (white boxes). Additionally, two full-time positions will be shared with Cedar Keys National Wildlife Refuge (white boxes with bold bordering). Finally, the current Assistant Refuge Manager position, GS-0485-5/7/9, will become a Refuge Operations Specialist position with the primary responsibility of overseeing the daily operations of Cedar Keys Refuge. One of the identified new positions will be a Deputy Project Leader position, GS-0485-11/12, which would oversee staff and daily operations of Lower Suwannee Refuge.

If the Service is to succeed in the full implementation of this plan, base funding and minimum staffing must be increased. Along with base funding, maintenance funding must also increase so that the refuge may upgrade and improve facilities and equipment, as needed. Without the financial support from the U.S. Congress, Lower Suwannee National Wildlife Refuge will not be able to successfully manage habitat for threatened and endangered species and trust resources. The refuge will be unable to provide adequate environmental education and outreach. Wildlife-dependent recreational opportunities will be inadequate to meet the needs of society. Finally, the refuge will not endure as a unique resource for future generations.

Resource Projects

The following projects directly support the refuge's goals and objectives. They do not necessarily fit under one goal, but rather support several goals.

Figure 4. Organizational Chart for Lower Suwannee and Cedar Keys National Wildlife Refuges



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Pine Plantation Burn
USFWS Ken Litzenberger

Project 1

Initial Base Funding Additional base funding is needed to hire staff and cover normal, routine expenses. Five new full-time positions for Lower Suwannee National Wildlife Refuge and two new full-time positions to be shared with Cedar Keys National Wildlife Refuge are needed to meet minimum staffing needs. These positions will require equipment and transportation and will also affect utility expenses. The estimated costs for these new positions including salaries, benefits, and operations will total approximately \$700,000 for the first year and \$600,000 for recurring years.

Project 2

Administrative Facilities, Visitor's Services, and Education Center Construction of a headquarter's facility is needed and will include a visitor center with interpretive displays and exhibits; a book store; an environmental education classroom; a large conference room; and six administrative offices. This facility, which will also serve Cedar Keys National Wildlife Refuge, will be in a location that supports both refuges and will serve large numbers of visitors. The construction cost will be approximately \$2,000,000.

In lieu of a visitor center, a smaller administrative office and visitor contact station could be constructed. This facility could still support both refuges and have space for minor exhibits and a meeting room. The cost for this project will be approximately \$400,000.

Project 3

Land Acquisition This land acquisition project has two sections-- inholdings and refuge expansion. Currently, 17 inholdings are within the approved refuge boundary (Fig. 5). Table 1 prioritizes the purchase of these lands if funding becomes available. If all the tracts were to be purchased, the cost will exceed \$10,000,000.

The second part of the land acquisition project concerns the proposed expansion of the Lower Suwannee National Wildlife Refuge. In 1994, several tracts along the Suwannee River, outside the refuge's original acquisition boundary, were identified as nursery and spawning habitat for the endangered Gulf sturgeon. At that time, a Preliminary Project Proposal was conducted and followed with a Land Protection Plan and Environmental Assessment concerning this proposed expansion of the refuge. The project entered the Land Acquisition Priority System and was ranked number two in the country in 1996. It was not funded and in 2000 was ranked 84th in the country. The total acreage of the proposed acquisition is 9,970 acres with an estimated purchase cost of \$15,000,000.

Project 4

Gopher Tortoise Population Study The Gopher tortoise is a species of special concern in the State of Florida. As a keystone species for the sandy soil pine woods ecosystem, gopher tortoise absence can indicate a loss of suitable habitat or unfavorable management conditions. Gopher tortoise burrows serve a variety of other species. The absence of gopher tortoises in the ecosystem can have negative implications for rare, threatened and endangered species. Gopher tortoises are falling victim to a contagious respiratory disease that has the potential to adversely affect the species throughout its range. A study of the refuge's population will provide preliminary data, a population index, and determine the prevalence of the disease among this population. This study may also identify secondary burrow users, such as the endangered eastern indigo snake. The cost of the study is estimated at \$80,000.

Project 5

Fire Effects Research The refuge currently has an active fire management program. However, baseline information and post-burn vegetation analysis are needed to tailor the burn program to meet specific management

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objectives. This project will initiate fire research on the effects of burning frequency, seasonality, and spatial distribution on the refuge's pine flatwoods, mixed cypress, and marsh ecosystems. Additionally, the refuge has large reptile and amphibian populations (e.g., the endangered eastern indigo snake and the gopher tortoise, a species of special concern). Basic research is needed to evaluate how prescribed fire parameters such as season, ignition methods and burn rotation affect refuge herpetofauna. This study will further investigate the impacts of prescribed fire on isolated wetlands. These wetlands may be maintained and possibly restored through the use of periodic prescribed fire to halt hardwood encroachment and succession. In many areas of Florida, fire was excluded from the isolated wetlands and, subsequently, suitable habitat for herpetofauna disappeared. The third treatment of this study will compare herpetofauna response in isolated wetlands where fire is used to those where fire has been excluded. The results from these three studies will provide information for managing habitats and wildlife populations on

Lower Suwannee National Wildlife Refuge, tailor the forestry and fire management programs to meet specific habitat and population objectives, and provide valuable insight about herpetofauna which could be applied by other land managers. The cost of these research projects is estimated at \$200,000.



Bird Watchers
USFWS Ken Litzzenberger

Project 6

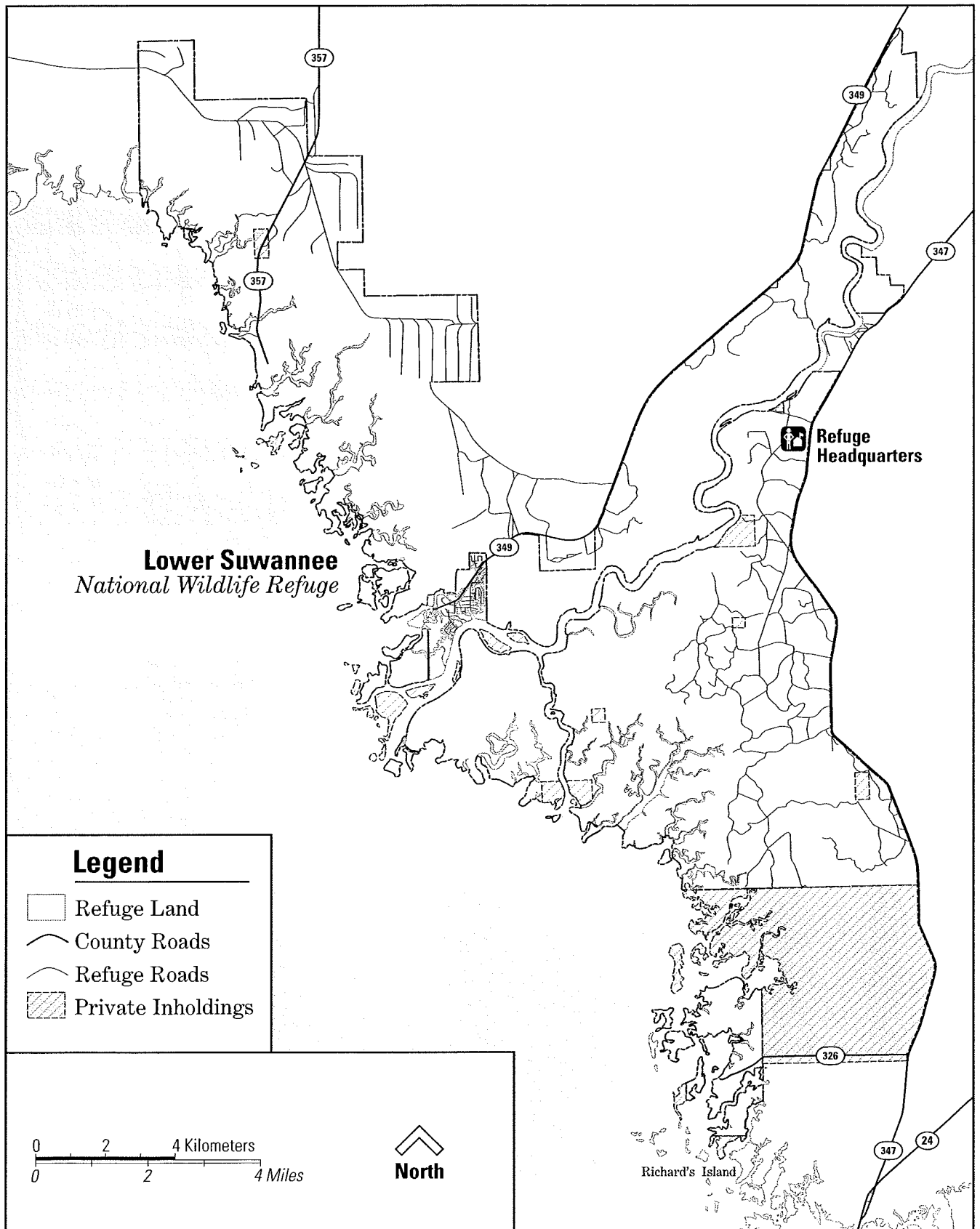
Dixie Compound Garage Facility and Crew Building The Dixie County portion of the refuge is a 1-hour drive from the current headquarters. This portion of the refuge contains approximately 29,000 acres and 40 miles of roads. Equipment such as road graders, trucks, and bulldozers is stored in a pole shed located in the Dixie Compound. Presently, the refuge lacks a shop and a place to store tools. Additionally, a 1979 dilapidated mobile home is located

in the compound. This structure was used as a sub-headquarters, crew room for staff, and temporary quarters for visiting researchers and volunteers. However, it is unsafe and an eyesore. A small garage with a tool room, crew room, and rest room facilities is needed. The cost of this project is estimated at \$240,000.

Project 7

Enhance Resource Assessment through Geographic Information System A Geographic Information System will permit refuge staff to digitize refuge habitats and incorporate biological, archaeological, and public use resources into databases. The refuge currently has a single-user GIS system and one GPS PLGR unit. A digitizer to capture fine scale data and a plotter for printing scales maps are necessary to have a fully functioning GIS system. The project will require new computer hardware, software, training, and a computer specialist to get the system up and running. The position will be a term position, not to exceed 4 years. This person will be required to train staff on how to use and maintain the system. The cost is estimated at \$250,000.

Figure 5. Land Acquisition Map, Lower Suwannee National Wildlife Refuge



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Table 1. Inholdings Within the Approved Boundary of Lower Suwannee National Wildlife Refuge

TRACT	ACRES	ESTIMATED VALUE ¹	WILLING SELLER ²
Asbell	156	150,000	yes
Drummond	75 (2 parcels)	40,000	yes
Roe	13	200,000	no
Caber	5295	8,000,000	unknown
Sowell	80	200,000	unknown
Calton	11	25,000	no
Williams, et al.	74 (camp cabin)	500,000	no
Hicks	5 (home)	200,000	no
Osteen	1 (home)	75,000	no
Abager	91	300,000	yes
Allen	3	10,000	unknown
Coon Island	<3	10,000	yes
Yon	30 (5 upland)	50,000	yes
Phillips	79	150,000	yes
Brown	10	25,000	yes
Batts	72	150,000	yes
Hudson	65	25,000	unknown
TOTALS	6075	10,110,000	

¹The estimated value figures are “best guess” estimates. Appraisals will be conducted to obtain fair market value prices. The Service is not allowed, by law, to pay above appraised value.

²The Service only acquires land from willing sellers.

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Firefighter with Drip Torch
USFWS Ken Litaenberger

Project 8

River Trail and Entrance Drive Enhancements The entrance drive to the refuge, which leads to the administrative complex and an adjacent trail head area, is currently surfaced in limerock. This project proposes to resurface the 0.8-mile drive, the 500-square-foot trail head parking area, and the visitor contact station/administrative office parking lot. Additionally, the kiosk at the trail head is rotten and infested with termites. The information panels are outdated and in poor condition. The trail is approximately 0.5-mile in length with a 400-foot boardwalk and observation platform on the historic and beautiful Suwannee River. Approximately 10,000 people annually use this trail area. A new kiosk and interpretive panels are needed to replace the current structure and to highlight the trail improvements including the boardwalk and observation platform. The estimated costs of the entrance drive resurfacing, paving of two small parking lots, and replacing the information kiosk total \$340,000.

Project 9

Shell Mound Enhancements The Shell Mound Unit of the refuge receives more than 50,000 visitors a year. Current public use amenities include a 1-mile, uninterpreted loop trail, a 0.3-mile loop trail with two information panels, a brochure box and small parking area at the trail heads, a small boat launching area, and a 400-foot disability accessible boardwalk and fishing pier. This project calls for the construction of two marsh boardwalks for the 1-mile trail. Currently, this trail is only fully accessible during low tide, as the marsh areas are wet during high tide. Additionally, an observation tower at Dennis Creek would greatly enhance the user's ability to observe wildlife and scenic vistas. The trail passes through unique coastal habitat and interpretive signs along the trail will educate visitors about the natural features found along the trail. On the Shell Mound Trail, two information panels are outdated and in poor condition. These panels would be replaced with new panels. In the parking area, the refuge sign and brochure box would be replaced with a 3-sided kiosk housing panels about the two trails, natural features and wildlife, for both Lower Suwannee and Cedar Keys Refuges. The estimated cost of this project is \$50,000.



Sunset at Shell Mound
USFWS Ken Sourbeer

Project 10

Develop Education Facilities The Dixie County School District leases 16 acres of land near Fishborne Creek from the State of Florida which is surrounded by the refuge. The school district has plans to construct an environmental education facility on the property, but is short of funding. The Service needs to work cooperatively with the school district to apply for a grant to fund this project. The Service could help with the purchase of materials and provide construction supervision. The county could provide labor, probably from the correctional facility, to build a pole shed type structure. Grant money could be used to purchase a recycling, composting toilet for the site, while installation could also be by inmate labor with refuge supervision. The total estimated cost of the project is \$20,000, with the Service's share being approximately \$10,000, depending on funding or grant specifications.

Project 11

Fire Equipment Storage and Cache The original site plan for the administration area calls for an enclosed equipment building for vehicle storage. Presently, fire cache equipment is stored in several scattered locations due to space constraints. Additionally, equipment such as the engine, pumper unit, fire transport, and dozer are unprotected. This project will include the construction of an enclosed, 5-bay garage, with 4 bays for fire equipment storage and 1 bay for the fire cache. The estimated cost of this project is \$300,000.

Project 12

Shired Island Enhancements Shired Island receives more than 40,000 visitors annually. The boat launch and parking area are in poor condition. This project will involve clearing and leveling the parking area and gravel resurfacing. The boat launch is eroding and needs bank stabilization. Currently, no signs or information panels for the refuge are located at this highly visited area. In addition to the parking area and launch improvements, a kiosk with refuge information and panels highlighting the unique natural features of the area will be constructed. The estimated cost of this project is \$200,000.

Project 13

Boundary Survey Boundary surveys between refuge property and adjacent private property have not been conducted at several locations in Levy and Dixie Counties. These surveys were never conducted because the property was within the original acquisition boundary and it was assumed that these sites would eventually become part of the refuge. Several locations exist in both counties where the property remains in private ownership and the lack of a boundary line has caused management problems related to forest and fire management activities, public use, and law enforcement. Under this plan, the surveys will be conducted. The estimated cost for this project is \$250,000.



Cypress Kness
USFWS Jerry Gamble

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Project 14

Archaeological and Historical Survey A comprehensive archaeological survey of the refuge is needed. The refuge contains archaeological sites that are more than 2000 years old. This project is necessary to identify, protect, and interpret the refuge's cultural resources. The estimated cost is \$200,000.

Project 15

Replacement of Heavy Equipment The refuge currently has two pieces of heavy equipment in need of replacement. The Fiat Allis crawler tractor was obtained by the Service in 1984, as used, excess property from the Army Corps of Engineers. This tractor is used to maintain 50 miles of road right-of-way. It is also used for land clearing, habitat management projects, and fire protection. A Champion brand motor grader, which is more than 20 years old, needs replacing. This grader was received by the refuge in 1979. The grader is used to maintain more than 50 miles of refuge roads for forestry and wildlife management, fire management and protection, and public access. The estimated replacement cost for both pieces of equipment is \$325,000.

Table 2. Funding Needs for Special Resource Projects of Lower Suwannee National Wildlife Refuge

PROJECTS	ONE TIME COST	FIRST YEAR NEED ¹	RECURRING BASE
1. Initial Base Funding		\$700,000	\$600,000
2. Visitor Center et al.	\$2,000,000		50,000
3. Land Acquisition	10,110,000		75,000
4. Gopher Tortoise Study		80,000	5,000
5. Fire Effects	200,000	100,000	
6. Garage and Crew Shop	240,000		5,000
7. GIS System	250,000	100,000	
8. River Trail Projects	340,000		5,000
9. Shell Mound Projects	50,000		
10. Education Facilities	10,000		
11. Fire Equipment Storage	300,000		5,000
12. Shired Island Projects	200,000		5,000
13. Boundary Survey	250,000		5,000
14. Archaeological Survey	200,000		5,000
15. Heavy Equipment	325,000		
TOTAL	14,475,000	980,000	760,000

¹First year need for these projects is included in the one time cost figure.

Volunteers

Volunteer assistance to the refuge has been valuable, particularly in the area of public use. Lower Suwannee Refuge has a small, but dedicated corps of volunteers. One volunteer works more than 200 hours annually at Shell Mound maintaining the trails and collecting litter. He has also assisted with the construction of a boardwalk and a kiosk. Several volunteers assist with data entry and other office work. Other volunteers lead nature walks, canoe tours, wildflower walks, and birding trips for special refuge events such as National Wildlife Refuge Week, and assist in staffing festival exhibits. Still others assist with colonial bird, shorebird, and migratory bird surveys. Volunteers contribute approximately 1,000 hours annually to refuge projects.

Volunteers will continue to play an integral role in assisting staff with fulfilling the mission and vision of this refuge. The current limiting factor in volunteer recruitment is not a lack of community interest, but the lack of staff to nurture and oversee this program. The development of a "Friends" group will provide interested citizens with an outlet to become more involved. However, this program will not fully develop without a staff person to make this dream a reality.

Monitoring and Evaluation

Extensive research and monitoring of natural resources will occur once this plan is implemented and minimum staffing needs are met. This knowledge will give refuge managers and staff specialists the data to judge how habitat management has impacted refuge resources. A major objective of the investigations is not only to provide information to local managers, but to provide a database which will benefit other land managers with similar resources.

This plan will be augmented with detailed step-down management plans to address management actions in support of refuge goals and objectives, and to implement the identified strategies. Annual work guidance and the Maintenance Management System and Refuge Operational Needs System are the annual mechanisms for requesting funding and accounting for completion of the objectives, strategies, and projects identified in the plan. It will be reviewed every 5 years to determine if these goals and objectives are being met and if different strategies are needed to assist the refuge in moving towards fulfilling its vision. Public involvement in the evaluation process and in plan implementation will be encouraged.

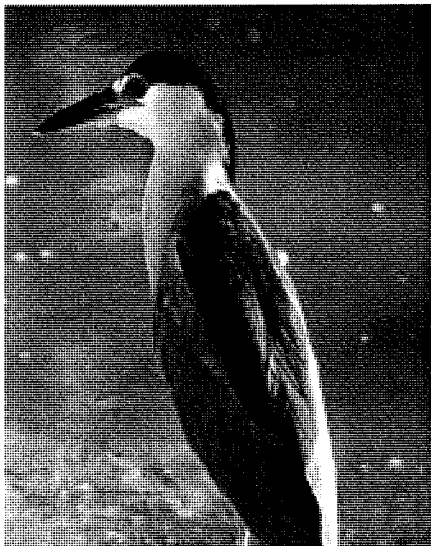
Cedar Keys

National Wildlife Refuge

Background Information



North Key
USFWS Ken Litzenberger



Black-crowned Night Heron
USFWS

Location

Cedar Keys National Wildlife Refuge is located along the western coast of Florida, approximately 90 air miles north-northwest of Tampa and 60 miles southwest of Gainesville. Located in Levy County along the southern edge of the Big Bend Region, the 13 islands that make up the refuge surround the coastal town of Cedar Key, Florida, where State Road 24 terminates at the Gulf of Mexico (Fig. 6).

History

Cedar Keys National Wildlife Refuge was established on July 16, 1929, by Presidential Executive Order 5158, to protect a breeding ground for colonial nesting migratory birds. The Executive Order included North Key, Snake Key, and Bird (Deadman's) Key. A second Executive Order, dated November 6, 1939, added Seahorse Key to the refuge. Congressional legislative mandate number 92-364, dated August 7, 1972, designated Seahorse Key, Snake Key, North Key, and Deadman's Key as National Wilderness Areas under the Wilderness Act of September 3, 1964 (Public Law 88-577). During the late 1970s and 1980s, additional interior coastal islands surrounding the town of Cedar Key were purchased for inclusion in the refuge. In 1998, the Suwannee River Water Management District purchased Atsena Otie Key and added it to Cedar Keys Refuge through a Memorandum of Understanding. Today, Cedar Keys Refuge is comprised of 13 islands ranging in size from 1 to 120 acres and totaling 762 acres.

Purpose

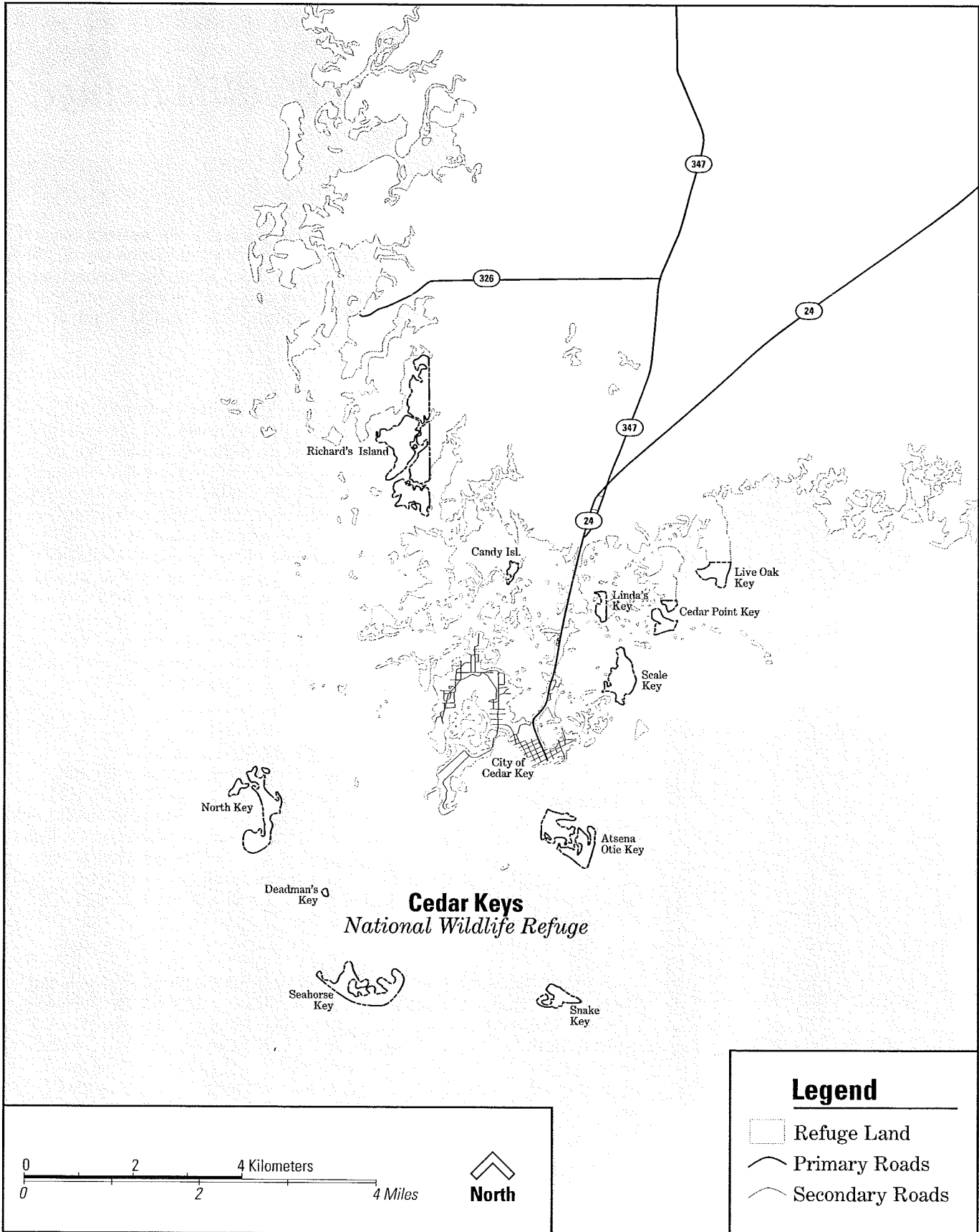
The purpose of Cedar Keys National Wildlife Refuge is:

"..as a refuge and breeding ground for birds and wild animals, subject to valid existing rights...." Executive Order 5158, July 16, 1929;
"...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. § 460k-1; and
"...the Secretary...may accept and use...real...property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors...."
16 U.S.C. § 460k-2, as amended.

Cedar Keys National Wildlife Refuge was established to protect colonial birds during a time when market hunters, desiring feathers for the ladies' apparel industry, were slaughtering millions of birds. Today, the threat is much different - coastal islands are being rapidly developed and habitat is lost forever. Seahorse Key has been designated critical habitat for colonial wading birds. Historically, up to 200,000 birds nested on Snake and Seahorse Keys. Recent data show approximately 10,000 white ibis; great, cattle, and snowy egrets; great blue, little blue, black-crowned night, yellow-crowned night, and tri-colored herons; cormorants; and brown pelicans nest on Seahorse Key annually. Snake Key has not been used for nesting since the late 1960s.

The Suwannee River Water Management District purchased Atsena Otie Key to protect water quality and to provide recreational opportunities in a natural setting. The refuge islands, with their undisturbed, natural plant communities, are important stopover points for migrating neotropical songbirds. They are important loafing and feeding areas to thousands of

Figure 6. Vicinity Map, Cedar Keys National Wildlife Refuge



CEDAR KEYS NATIONAL WILDLIFE REFUGE

Comprehensive Conservation Plan

shorebirds and provide habitat for threatened and endangered species, and species of special concern in the State of Florida. The refuge provides limited public recreation and environmental education.

Function within the Ecosystem

Cedar Keys National Wildlife Refuge includes important coastal barrier island habitat with maritime forests, salt marsh, and the northern most limit of mangrove swamps. About 50 percent of Florida's salt marsh and more than 3,000 square kilometers of seagrass beds occur in the Big Bend Region, providing habitat for migratory birds, anadromous and interjurisdictional fish, and threatened and endangered species. The blend of these estuary and riverine habitats creates a large, complex system which exhibits how watersheds function.

Once a sleepy fishing village, the town of Cedar Key has become a unique nature tourist and sportfishing destination. The refuge protects island habitat that would possibly be developed to accommodate increased tourism. The seagrasses surrounding the islands are important for local shell fisheries and provide valuable habitat for manatees and juvenile sea turtles. Seahorse Key is home to one of the largest colonial wading bird rookeries in north Florida.



Cedar Keys Pier
USFWS Allyne Askins

Agreements

- Memorandum of Understanding with the Suwannee River Water Management District for the Service to manage Atsena Otie Key as part of Cedar Keys National Wildlife Refuge.
- Lease agreement with the State of Florida, Division of State Lands, for the Service to manage a 300-foot buffer zone of state waters surrounding Seahorse Key.
- Special Use Permit with the University of Florida enabling the University to use the Seahorse Key lighthouse and approximately 3 acres around the lighthouse for the purposes of marine science education and research.
- Memorandum of Understanding between the Service and the State of Florida, Department of Agricultural and Consumer Services, Florida Division of Forestry, to provide wildfire suppression.
- Memorandum of Understanding between the Service and Levy County Sheriff's Department allowing either agency to provide emergency assistance to the other upon request.
- Written permission from the Levy County Board of County Commissioners to maintain a kiosk with interpretive information on the county-owned dock in the town of Cedar Key.



Atsena Otie Kiosk
USFWS Allyne Askins



Young Ibis
USFWS ©Ken Sourbeer

Management Direction

Mission

The mission of Cedar Keys National Wildlife Refuge is to protect, maintain, and enhance the unique barrier islands that compose the refuge for the benefit of present and future generations, while protecting the colonial nesting birds.

Vision Statement

The Cedar Keys National Wildlife Refuge is a group of fragile coastal islands that contain significant natural and cultural resources. The refuge will be managed for the conservation of wildlife and wildlife habitat, with special concern for migratory and breeding birds and threatened and endangered species. Management will protect cultural resources and support environmental education, research, and where appropriate, other compatible uses. Management will partner with local, state, and federal agencies; community organizations; and individuals to ensure the protection of these resources for present and future generations.



Great Egret
USFWS ©Bruce Colin

Management Alternatives

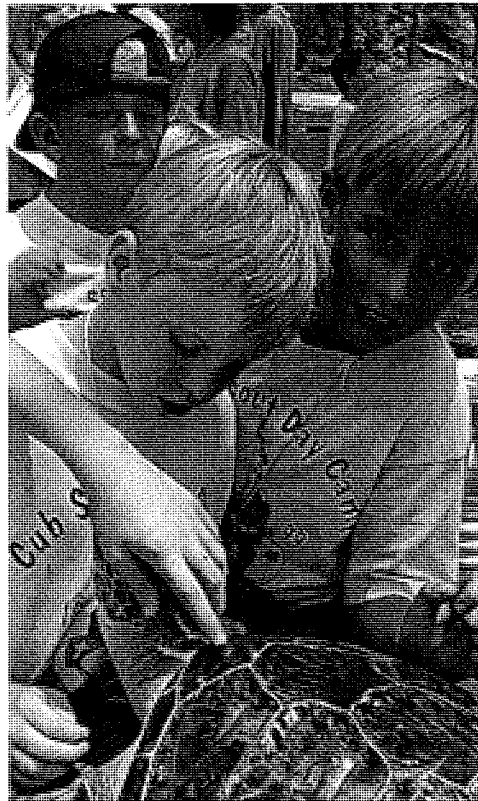
Once the key issues and concerns were identified through the scoping process, it was evident that the number of reasonable alternatives for managing this refuge was limited by its small size and the need to protect critical habitat and the colonial bird rookery. The Environmental Assessment, which is under a separate cover, contains a full review of the alternatives considered and their impacts on the socioeconomic, environmental, and cultural resources along with alternatives discussed but not fully developed.

Management Action

The management action (Enhance Protection with Public Awareness and Education) was selected based on conformity with the refuge's mission, vision, ecosystem function, current uses, and needs expressed by the public during the scoping process. The action will identify biological monitoring and research needs which will result in a better understanding of the use of refuge resources by threatened and endangered species, migratory birds, and resident wildlife. The management action will result in increased protection of these natural resources, cultural resources, and water quality. It will also result in the restoration of refuge habitats, the maintenance of current public use programs and facilities, and the development of an expanded environmental education program.

CEDAR KEYS NATIONAL WILDLIFE REFUGE

Comprehensive Conservation Plan



Cub Scouts
USFWS Allyme Askins

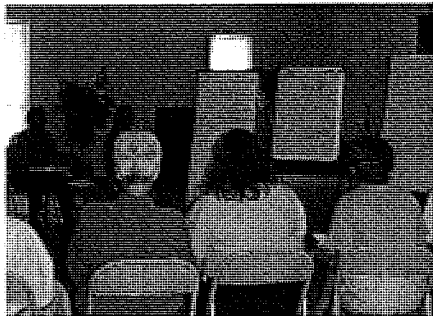
An overriding concern, reflected in the plan, is that wildlife conservation assumes first priority in refuge management. Public uses will be allowed—where compatible, and if they do not negatively affect the fragile flora and fauna of the refuge. Wildlife-dependent uses such as environmental education and interpretation, wildlife observation, wildlife photography, and fishing will be emphasized. Improved outreach and environmental education will inform school students, local citizens, and tourists of the rich cultural and natural history and the need to protect these resources. Extensive wildlife and plant inventories, as well as monitoring programs, will be initiated to develop the biological information needed to make management decisions. Resource protection will be increased through better staffing and outreach. Partnerships will be improved and developed to increase environmental awareness and to achieve wildlife and habitat objectives.

The end result is a set of goals, objectives, and strategies related to key issues that will guide management of the refuge for the next 10 to 15 years.

Goals, Objectives, and Strategies to Support the Management Action

Four management goals for the refuge were developed from several workshops held during the scoping process.

- **Wildlife and Habitat** Manage and conserve the natural diversity, abundance, and ecological function of refuge flora and fauna, with an emphasis on protecting the colonial wading bird rookery of Seahorse Key, threatened and endangered species, and species of special concern in the State of Florida.
- **Resource Protection** Protect natural, cultural, and wilderness resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.
- **Public Use** Provide opportunities for environmental education and interpretation and wildlife-dependent recreation when compatible with the purpose, mission, and vision of the refuge, provided these activities will not negatively affect critical or sensitive habitats.
- **Partnerships** Promote collaboration and partnerships with private citizens and other agencies to increase research and environmental education opportunities and to protect the coastal ecosystem.



Planning Team
USFWS Allyme Askins

The goals, objectives, and strategies are the Service's response to the issues and concerns expressed by the planning team and the general public at the workshops, public meetings, and in the comment packet, and will be used to implement the management action. These goals, objectives, and strategies reflect the refuges's commitment to achieving the missions of the Service and of the National Wildlife Refuge System; ecosystem priorities; refuge purposes, mission and vision; and the expressed needs of the public—provided that necessary funding requirements are met.

Wildlife and Habitat

Goal

1. Manage and conserve the natural diversity, abundance, and ecological function of refuge flora and fauna, with an emphasis on protecting the colonial wading bird rookery, of Seahorse Key, threatened and endangered species, and species of special concern in the State of Florida.

Objective

- 1.1 Continue to monitor colonial bird nesting.

Strategies

- 1.1.1 Conduct colonial bird rookery flight line surveys at Seahorse Key annually from March through June to determine species present and to develop population indices.
- 1.1.2 Conduct an aerial survey of pelican nests on Seahorse Key annually to determine the nesting population.
- 1.1.3 By 2002, develop an unintrusive method to estimate nesting success.

Objectives

- 1.2 Continue efforts to reestablish colonial nesting on Snake Key. Refuge records indicate that Snake Key was the primary refuge island used by white ibis for nesting prior to the late 1960s.

Strategies

- 1.2.1 Continue to remove raccoons (if present) from the island using snares, live traps, and by shooting.
- 1.2.2 Continue to use decoys annually (February through June) to attract colonial birds to the island.
- 1.2.3 By 2002, explore and determine other methods of restoring nesting bird use to the island.

Objective

- 1.3 Continue to monitor bald eagle nests.



Brown Pelicans
USFWS ©Ken Sourbeer

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Ibis
USFWS Ken Litzenberger

Strategies

- 1.3.1 Conduct annual surveys of eagle nests to determine nesting success and number of young fledged.
- 1.3.2 In 2002, locate bald eagle nests using a GPS system. By 2006, develop an eagle management layer on the refuge's GIS data base.

Objective

- 1.4 Continue to monitor osprey nesting.

Strategies

- 1.4.1 Conduct annual surveys of osprey nests on the refuge to determine nesting success and number of young fledged.
- 1.4.2 Annually inspect and evaluate artificial nesting platforms. Repair, add new platforms, relocate, or remove platforms depending on use and need.
- 1.4.3 In 2002, locate all osprey nests and platforms. By 2006, using a GPS system, develop an osprey management layer on the refuge's GIS data base.

Objective

- 1.5 Identify exotic plant and animal species on the refuge and develop strategies to eliminate or control them.

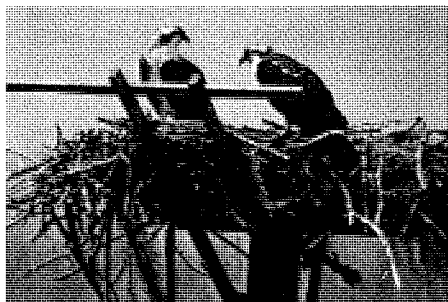
Strategy

- 1.5.1 Continue to actively pursue the elimination of Brazilian pepper trees from the refuge using the recommended herbicide.

Objective

- 1.6 By 2005, develop a list of the flora and fauna present on the refuge.

Osprey on Platform
USFWS





Treating Brazilian Pepper
USFWS Ken Litzenberger



Atsena Otie Beach
USFWS

Strategy

- 1.6.1 By 2006, locate flora using a GPS unit to create a management layer in the GIS database and to monitor habitat changes over time.

Objective

- 1.7 Determine the importance of Cedar Keys Refuge to resident and migratory birds.

Strategies

- 1.7.1 Continue to conduct the annual Audubon Christmas bird count.
- 1.7.2 In 2001, initiate an annual breeding bird survey for the islands.
- 1.7.3 In 2001, initiate a shorebird survey for the islands to be conducted each spring and fall. Data collected will be provided to the Manomet Bird Laboratory for the nationwide shorebird database.
- 1.7.4 By 2003, identify necessary feeding and loafing areas and, if necessary, protect them from disturbance through closure.

Objective

- 1.8 By 2010, conduct a Biological Review. Ideally, this review would have occurred prior to the initiation of this plan. It will be necessary, however, to conduct this review prior to its revision to determine if outlined biological strategies and the wildlife management plan are resulting in good science and sound management practices.

Resource Protection

Goal

- 2. Protect the natural, cultural, and wilderness resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.

Objective

- 2.1 Continue to protect the colonial bird rookery from human disturbance.

Strategies

- 2.1.1 Annually, maintain a Closed Area around the island with a 300-foot buffer zone from March 1 through June 30.
- 2.1.2 Continue to conduct regular law enforcement patrols during the nesting season to enforce the closed area regulations.

Objectives

- 2.2 Protect the bald eagle nests by monitoring disturbance and, if necessary, close areas around the nests to the public during the nesting season.
- 2.3 By 2005, revise and update the refuge's Law Enforcement Plan.
- 2.4 Identify lands that will improve resource protection and aid in fulfilling the mission and purpose of the refuge and seek funding to acquire those lands.

Strategy

- 2.4.1 By 2006, conduct a Wilderness Review. The purpose of a Wilderness Review is to determine if any additional refuge lands or waters meet the qualifications of wilderness. Any lands determined to meet these criteria will then be nominated for inclusion as wilderness areas.

Objective

- 2.5 Protect refuge cultural resources in accordance with federal and state historic preservation legislation and regulations.

Strategies

- 2.5.1 Conduct law enforcement patrols at all known archaeological sites on a regular basis to inspect for disturbance and illegal digging and looting.
- 2.5.2 Maintain historical buildings and sites listed on the National Historic Register in accordance with appropriate guidelines.
- 2.5.3 By 2003, compile a comprehensive literature review of past archaeological, anthropological, and historical investigations within and near the refuge.
- 2.5.4 By 2005, produce an annotated bibliography to document the region's history.
- 2.5.5 By 2006, develop a GIS layer for the refuge's archaeological and historic sites.
- 2.5.6 By 2008, procure funding to inventory, analyze, and curate the archaeological collections from the 1990s excavations of three shell middens located on Seahorse Key.
- 2.5.7 By 2010, develop and implement a plan to protect identified archaeological sites in consultation with the Regional Archaeologist, State Historic Preservation Office, Native American tribes and the professional archaeological community. (Resource Project 6)

Seahorse Key Lighthouse
USFWS





Bird Watching at Cedar Keys
USFWS Ken Litzenberger

Public Use

Goal

3. Provide opportunities for environmental education and interpretation and wildlife-dependent recreation when compatible with the purpose, mission, and vision of the refuge, provided these activities will not negatively affect critical or sensitive habitats.

Objective

- 3.1 Maintain and expand partnerships with the Suwannee River Water Management District, local government, and interested organizations to promote and provide interpretation and wildlife-dependent recreation on Atsena Otie Key.

Strategies

- 3.1.1 Continue, in partnership with Cedar Key Historic Society, to identify historic features of the island and develop outreach materials to interpret them.
- 3.1.2 Maintain existing interpretive kiosk and panels, trail, and restroom to ensure visitor safety and comfort.
- 3.1.3 By 2004, develop interpretive materials for the natural and cultural features of the island. (Resource Project 7)

Objective

- 3.2 Expand partnership with University of Florida to promote environmental education and outreach to 2,000 students annually.

Strategies

- 3.2.1 Continue to hold annual open house tours of the lighthouse and surrounding facilities.
- 3.2.2 By 2005, develop an interpretive video about the refuge to be viewed by user groups of the Marine Laboratory.

Objective

- 3.3 Expand partnership with the Levy County School District for educational opportunities on the refuge.

Strategies

- 3.3.1 By 2002, develop at least three refuge specific lesson plans on wetlands and wetland species for local school teachers and community organizations.
- 3.3.2 By 2003, become more involved with the Interdisciplinary Watershed Education Program by providing refuge projects and programs for the students.
- 3.3.3 By 2004, develop teacher workshop materials and host a teacher workshop at the marine laboratory and lighthouse of Seahorse Key.
- 3.3.4 By 2005, become an active partner with the Levy County School District, the University of Florida, and the Florida Fish and Wildlife Conservation Commission's Cedar Key Marine Lab in the development of a Marine Environmental Education Center in Cedar Key. (Resource Project 5)



National Wildlife Refuge Week Canoe Tour
USFWS

Objective

- 3.4 Provide wildlife observation, interpretation, and photography opportunities throughout the year for 30,000 visitors annually, while protecting important coastal habitat and water quality.

Strategies

- 3.4.1 Continue partnership with Levy County Board of Commissioners and the Suwannee River Water Management District to provide interpretive materials which are located on the county-owned dock in Cedar Key.
- 3.4.2 Continue to maintain and update refuge brochures and web pages to provide the most up-to-date and accurate information possible.
- 3.4.3 In 2001, develop a "Friends of the Refuge" group and expand the volunteer program to assist with educational and outreach efforts.
- 3.4.4 By 2002, develop and provide interpretive materials about the refuge to marinas and commercial boat tour and boat rental operations. This will better inform 10,000 visitors annually about the role of the refuge in the coastal ecosystem.
- 3.4.5 By 2002, identify site for visitor center for Cedar Keys and Lower Suwannee National Wildlife Refuges that would provide both indoor and outdoor environmental education classrooms and display space. (Resource Project 2)

Partnerships

Goal

4. Promote collaboration and partnerships with private citizens and other agencies to increase research and environmental education opportunities and to protect the coastal ecosystem.

Objectives

- 4.1 Continue to seek additional contacts with the University of Florida, Departments of Zoology and Wildlife Ecology to expand refuge-based research. (Resource Projects 3, 4, & 8)
- 4.2 By 2002, through cooperation with the University of Florida Marine Research Lab, identify and secure funding for research projects that will aid in the protection and management of trust resources on and around Cedar Keys. (Resource Project 4)
- 4.3 By 2003, develop and submit a grant to the National Fish and Wildlife Foundation and a matching cooperator for an outreach or educational project.
- 4.4 Seek mutual cooperation with recognized Native American tribes in Florida to protect Native American sites on the refuge.
- 4.5 By 2003, negotiate and implement a long-term archaeological research agreement with the Department of Anthropology at the University of Florida and the Museum of Natural History.

*Plan
Implementation*

Partnerships

A key component to implementing this comprehensive conservation plan is the establishment, development, and expansion of partnerships. Significant existing partnerships that have improved the refuge include the University of Florida, Suwannee River Water Management District, Levy County Board of County Commissioners, and Cedar Key Chamber of Commerce. Local organizations that have contributed to the operation of the refuge include Cedar Key Historical Society, Cedar Key Garden Club, and The Nature Coast Conservancy. In addition, private individuals who volunteer to assist with various projects have been and will continue to be an important partnership factor. Personal contacts and working relations have been established with other organizations including Florida Fish and Wildlife Conservation Commission's Cedar Key Marine Research Laboratory, Cedar Key Schools, Levy County School District, and Cedar Key Town Commissioners.

Partnerships with state environmental agencies, local educational agencies, and local citizens—if strengthened—have the greatest potential to benefit refuge resources. Research, biological, and environmental monitoring programs will be strengthened through closer partnerships with the Suwannee River Water Management District, the University of Florida and the Florida Fish and Wildlife Conservation Commission.

Environmental education and greater ecological awareness will be improved through expanded partnerships with the University of Florida, the Florida Fish and Wildlife Conservation Commission, and the Levy County School District. The limiting factors to educational and biological partnerships are the lack of funding and staffing to nurture these programs.

Many other agencies and organizations exist at the local, regional, and state level that have or can contribute to the refuge through partnerships. The number of partnerships generated is limited only by our imagination and the level of commitment by the Service.

Annual Work Plans

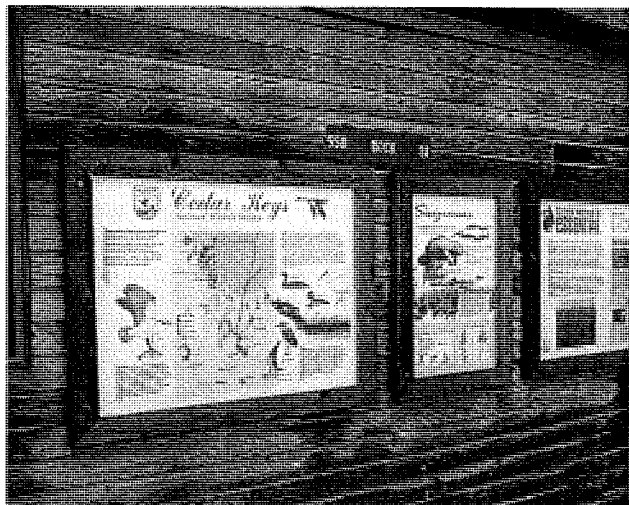
Future annual work plans will be developed to reflect the priorities and intent of this comprehensive conservation plan. When discretionary funding and staff are available, these work plans will be used to implement components of the comprehensive conservation plan.

Step-Down Management Plans

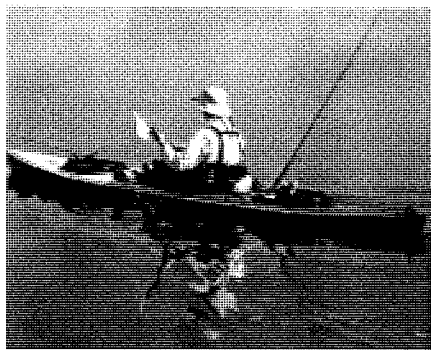
This comprehensive conservation plan provides conceptual guidance for potential future expansion, management, and development of the refuge. Step-down management plans are individual and subject-specific. Examples of step-down plans are fire, forestry, and hunting. The refuge's approved step-down plans are listed below. Before implementing strategies and projects, some of these specific plans may need revisions while others will need to be developed.

Approved Plans

■ **Aircraft Pre-Accident Plan and Hazard Map** Aircraft are used for fire control, habitat monitoring and biological surveys. The objective of this plan is to outline general procedures to be followed during routine flights and flight emergencies. (Revised 5/6/94).



Dock Panels
USFWS Allyme Askins



Fishing
USFWS Ken Litzenberger

- **Continuity of Operations Plan** It is important to maintain the capability to perform essential activities and functions under all circumstances and situations, including human-caused, natural, technological, and national security emergencies that may occur with or without notice. This plan identifies functions necessary for safety and the continuity of operations. (Written 8/10/98)
- **Fire Management** The purpose of the Fire Management Plan is to provide objectives and guidelines for managing refuge habitat. The plan provides a detailed program of action to implement fire management policies and objectives in accordance with the Fire Management Preparedness Handbook (621 FW). The Fire Management Plan for Cedar Keys Refuge is incorporated in the Lower Suwannee Refuge plan. (Approved 1/8/97)
- **Hurricane** The objective of this plan is to outline general procedures to be followed during and after hurricanes which may occur on or near Lower Suwannee and Cedar Keys Refuges. (Approved 12/17/90)
- **Pest Control** The purpose of this plan is to identify methods to reduce or eliminate raccoons on Snake Key in an effort to restore the island to colonial nesting birds. It was revised in January 2000. (Approved 5/21/93)

Approved Plans, Scheduled for Revisions

- **Law Enforcement** This plan is incorporated in the plan for Lower Suwannee National Wildlife Refuge. Its purpose is to provide refuge staff with a ready reference to Service, regional and state policies, procedures, and programs concerning refuge law enforcement activities. The present plan was approved on March 29, 1988, and is outdated. It will be revised by 2005.
- **Visitor Services Management Plan (Public Use Management Plan)** The purpose of the Public Use Management Plan, now referred to as the Visitor Services Management Plan, is to outline strategies to accomplish the refuge's public use goals without compromising the original purpose for which the refuge was established. The refuge's plan is incorporated in the plan for Lower Suwannee National Wildlife Refuge (Approved 1/7/86). It will need to be revised in the year 2003.
- **Fishing** The purpose of the Fishing Plan is to identify public fishing opportunities on the refuge. It was approved on 1/8/85. To be revised by 2001, it will be incorporated in the Visitor Services Management Plan.
- **Wildlife Management Plan (Wildlife Inventory Plan)** The purpose of the Wildlife Inventory Plan is to establish which species to inventory, standard techniques for conducting the inventories, and projected costs (Approved 4/21/86). This plan is now obsolete. A Wildlife Management Plan will be written to replace this plan. This project is to be completed by 2004.

Needed Plans or Reviews

- **Cultural Resource Management Plan** The purpose of this plan will be to clearly delineate the historic preservation process for the refuge, develop strategies to identify and assess the refuge's historic properties, identify appropriate site protection measures, and identify current and potential partners. The plan shall be in place by 2010.
- **Biological Review** Ideally, this review would have occurred prior to the initiation of this comprehensive conservation plan. It will be necessary to conduct a Biological Review prior to revision of the plan to determine if biological strategies outlined in both it and the Wildlife Management Plan are resulting in good science and sound management practices. This review should occur by 2010.
- **Wilderness Review** The purpose of a Wilderness Review is to determine if any additional refuge lands or waters meet the characteristics of wilderness. Any lands determined to meet these criteria will then be nominated for inclusion as wilderness areas. The Wilderness Review will be conducted by 2006.

Funding and Staffing

Cedar Keys National Wildlife Refuge has no staff and receives no funding. All protection, management, biological monitoring, and public outreach are accomplished with funds and staff from Lower Suwannee National Wildlife Refuge, when those resources are available. Cedar Keys Refuge is small and does not require a large staff, but its natural and cultural resources are important, and use of the refuge's pristine beaches and natural maritime forests by the public is increasing. In 1970, there were an estimated 900 visitors to the refuge and 600 of them were associated with the University of Florida's use of the marine science laboratory on Seahorse Key. In 1980, there were 2,800 visitors to the refuge and in 1999, there were approximately 30,000 visitors. To meet this growth and to properly manage and protect these resources, Cedar Keys Refuge must receive funding and staff.

Biological monitoring, research, and coordination with other resource-research-oriented agencies, as outlined in the objectives under goal number one of this plan, can only be accomplished by having a full-time biologist position to oversee the biological program of Cedar Keys Refuge. Concerning environmental education and outreach, only minimal efforts will be made unless a person dedicated full time to nurture these programs is hired. This person would have dual responsibilities for both Lower Suwannee and Cedar Keys Refuges. Tremendous potential exists for programs with local and state partners as well as outreach to many visitors if an outdoor recreation planner/environmental education specialist is hired. In addition to the biologist and outreach positions, a technician is necessary to maintain facilities, signs, and equipment; conduct law enforcement patrol for protection of resources and visitors; and to assist with biological monitoring efforts. The secondary assistant refuge manager, or refuge operations specialist, stationed at Lower Suwannee Refuge for the purpose of career development, will be given the responsibility of overseeing daily operations of Cedar Keys Refuge. A minimum of three staff people and appropriate operational funding is needed in order to complete the objectives and strategies of this plan.

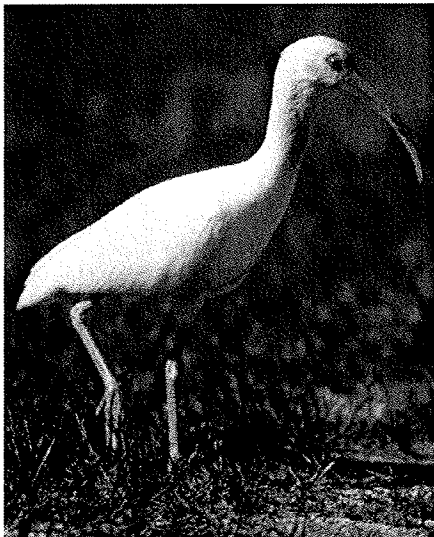
Funding can come through a variety of internal and external sources. Refuge maintenance and operation funds should be allocated. The Service also needs to explore ways to leverage dollars through new and innovative matching grant programs with public and private sources. Without funding, the refuge will continue to operate at its present minimal level with the Service being unable to meet its mandates to protect natural resources and provide public use.

Resource Projects

Several resource projects directly support the refuge's goals and objectives. They do not necessarily fit under one particular goal, but rather support several goals.

Project 1

Initial Base Funding Base funding is needed to employ personnel and cover normal, routine expenses. Three new staff positions and their connection to refuge goals are identified in the funding and staffing section of this plan. These positions will require equipment and transportation and will increase utility expenses (fuel, electricity, telephone). The estimated initial cost for these three full-time positions including salary, benefits, equipment, and operation needs is approximately \$300,000. The recurring annual cost will be approximately \$250,000.



White Ibis
USFWS ©Bruce Colin

Project 2

Administrative Facilities, Visitor Services, and Education Center

Construction of a headquarter's facility is needed to include a visitor center with interpretive displays, exhibits, and book store; an environmental education classroom; a large conference room; and six administrative offices. This facility will be in a location that supports both Cedar Keys and Lower Suwannee Refuges and serves a large number of visitors. The estimated construction cost is \$2,000,000.

In lieu of a visitor center, a smaller administrative office and visitor contact station could be constructed. This facility could still support both refuges and have space enough for minor exhibits and a meeting room. The cost for the project will be approximately \$400,000. (The costs associated with either facility are identified in the projects listed in the Lower Suwannee National Wildlife Refuge Comprehensive Conservation Plan and do not represent additional funding needs.)

Project 3

Study of Mercury Contamination at Seahorse Key Compared with Other Rookeries in Florida

In 1998, the Seahorse Key colonial bird rookery was used as the control site in a comparison of contaminated sites to distinguish the effect of mercury on juvenile survival, as well as to determine the relative importance of mercury in the egg and mercury acquired through food as a nestling. Surprisingly, mercury levels in white ibis and great egret chicks at Seahorse Key were found to be some of the highest in the state. In 1999, the statewide sample was not collected, but the sample at Seahorse Key was continued in an effort to determine the source of the mercury concentration. Mercury levels in 1999 were approximately 63 percent lower than in the previous year. Researchers also conducted following flights to identify where the adult birds were feeding. The data suggest that most birds are feeding in salt marshes. Traditionally, the birds used predominantly freshwater areas for feeding. However, during the 1999 survey the area experienced drought conditions and fresh water was limited. This study will continue the research to determine where the birds from the rookery are foraging and if the source of mercury is from the freshwater wetlands where they forage. The approximate cost of this project is \$50,000.

Project 4

Amphibian and Reptile Population Dynamics

Refuge islands support healthy amphibian and reptile populations, including high densities of venomous snakes. Due to habitat conditions on the islands, the lack of standing fresh water, and dependence on colonial birds for food, these populations and their dynamics and relationships to avian use need to be assessed. An extension of this study will be the mercury contamination study of project number 3. The snakes feed on eggs, young birds, and dropped food that adult birds bring to the nest for their young. The mercury levels of the birds should be reflected in the snakes. The University of Florida is interested in this research and will provide professors and students as principal investigators. The research will take 2-3 years to complete at an estimated cost of \$120,000.

Project 5

Develop Education Facilities

Comments from the public during the scoping process clearly indicated the need for and support of improved environmental education opportunities. The refuge is part of the Aquatic Education Advisory Committee in Cedar Key with Florida's Marine Research facility, the University of Florida, and Levy County Schools. This committee has identified the need for an outdoor classroom facility in Cedar Key, off refuge property. Ideally, it could be located next to the state's research facility, and include a pole shed type structure with

running water, electricity, wet and dry diagnostic tanks; and facilities for lodging and feeding the students. These facilities could serve school children of all ages, not only in the tri-county area, but throughout the state. The Service's share of the cost is estimated at \$100,000.

Project 6

Archaeological and Historical Survey A comprehensive archaeological survey of the refuge should be conducted. A portion of the Cedar Keys Historic and Archaeological District, listed on the National Register of Historic Places, is on the refuge. Included in the district are a number of Native American sites, many dated between 500 B.C. and 12 A.D.; the town of Atsena Otie Key; the Seahorse Key Lighthouse; and several Native American and historic period cemeteries. This project is critical to identifying, mapping, protecting, and interpreting the refuge's cultural resources. The estimated cost is \$200,000 and is included in the Lower Suwannee National Wildlife Refuge Comprehensive Conservation Plan.

Project 7

Atsena Otie Key Enhancements Depending on the tides, the deck of the public dock at Atsena Otie Key is 6 to 8 feet above the water. In order to improve visitor safety, hand rails need to be constructed on both sides of the 400-foot-long dock. In 1999, a kiosk was constructed on Atsena Otie Key. It provides general information about Cedar Keys National Wildlife Refuge and its history. Additional information panels are needed along the trail and a map panel is needed at the kiosk. Interpretive panels will improve the visitor experience and provide information about the natural and cultural resources. The estimated cost for this project is \$20,000.

Project 8

Sea Turtle Population Use The near shore habitat along the north-central Gulf coast of Florida is important summering grounds for three sea turtle species: loggerhead, green, and Kemp's ridley. The Kemp's ridley sea turtle is the most endangered of the seven extant marine turtle species. Grassbed, channel, and flats habitats are important feeding areas for all three species. Such habitat in the Suwannee Sound, including miles of refuge coastline, may be critical to survival of the Kemp's ridley. This study will inventory sea turtles, determine relative abundance, identify patterns of habitat use, and determine seasonal use. The estimated cost for the study is \$50,000.

Table 3. Funding Needs for Special Resource Projects of Cedar Keys National Wildlife Refuge

PROJECTS	ONE TIME COST	FIRST YEAR NEED	RECURRING BASE
1. Initial Base Funding	\$300,000		\$250,000
2. Visitor Center et al.		**1	**
3. Mercury Study		50,000	
4. Amphibian Study	120,000		
5. Educational Facilities	100,000		5,000
6. Archaeological Study	**1		
7. Atsena Otie Key Enhancements	20,000		
8. Sea Turtle Use	50,000		

¹ Project shared with Lower Suwannee Refuge; funding was identified in the Lower Suwannee Refuge Resource Project Funding Table.

Volunteers

Volunteer assistance to the refuge continues to be stable. The number of volunteers is low, but those individuals who do volunteer have made substantial contributions to the refuge. Students, local organizations, and retired individuals have provided volunteer assistance. However, many opportunities exist through the implementation of this comprehensive conservation plan and through staffing to greatly expand volunteer involvement. The formation of an official, registered "Friends Group" for Lower Suwannee and Cedar Keys National Wildlife Refuges will provide a source for recruiting interested citizens, developing meaningful projects for volunteers, and accomplishing refuge goals and objectives.

Monitoring and Evaluation

As indicated throughout this comprehensive conservation plan, the importance of monitoring flora and fauna and evaluating the effects of visitor use is critical to obtaining the stated goals and objectives. This plan will be augmented by revised, step-down management plans that will address specific types of monitoring and targeted species. Every 5 years the plan will be reviewed to document progress and reassess direction. Public involvement in evaluating progress and implementation will be encouraged.

Since Cedar Keys National Wildlife Refuge is a collection of small coastal islands with limited resources, monitoring is very important and achievable. Although not all inclusive, monitoring priorities include:

- colonial bird rookery
- neotropical bird use
- predation
- exotic species control
- natural vegetative communities
- aquatic grass beds
- water quality
- public use and impacts
- cultural resources



Brazilian Pepper
USFWS ©Ken Litzenberger

Appendix A

Legal Mandates

LEGAL POLICY AND ADMINISTRATIVE GUIDELINES

This section outlines current legal, policy, and administrative guidelines for the management of national wildlife refuges. It begins with the more general considerations such as laws and Executive Orders for the Service, and moves toward those guidelines that apply specifically to the Lower Suwannee and Cedar Keys National Wildlife Refuges.

This unit also includes sections dealing with specially designated sites such as historical landmarks and archaeological sites, all of which carry with them specific direction by law and/or policy. In addition, consideration is given to guidance prompted by other formal and informal natural resource planning and research efforts.

All the legal, policy, and administrative guidelines provide the framework within which management activities are proposed and developed. These guidances also provide the framework for the enhancement of cooperation between the two refuges and other surrounding jurisdictions in the ecosystem.

Legal Mandates

Administration of the refuges takes into account a myriad of bills passed by the United States Congress and signed into law by the President of the United States. These statutes are considered to be the law of the land as are Executive Orders promulgated by the President. The following is a list of most of the pertinent statutes establishing legal parameters and policy direction to the National Wildlife Refuge System. For those laws that provide special guidance and have strong implications relevant to the Service or the refuges, legal summaries are also included. Many of the summaries have been taken from *The Evolution of National Wildlife Law* by Michael J. Bean.¹ For the bulk of applicable laws and other mandates, legal summaries are available upon request.

Congressional Acts, Treaties, and other Legal Acts that Relate to Administration of the National Wildlife Refuge System:

1. Lacey Act of 1900, as amended (16 U.S.C. 701).
2. Antiquities Act of 1906 (16 U.S.C. 431).
3. Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711) and 1978 (40 Stat. 755).
4. Migratory Bird Conservation Act, (1929) as amended. (16 U.S.C. 715-715s).
5. Migratory Bird Hunting Stamp Act of 1934, (U.S.C 718-718h).
6. Fish and Wildlife Coordination Act, (1934) as amended (16 U.S.C. 661-666).
7. Historic Sites Act of 1935 (16 U.S.C. 461).

¹ Bean, Michael J., 1983. *The Evolution of National Wildlife Law*, Praeger Publishers, New York.

8. Convention Between the United States of America and the Mexican States for the Protection of Migratory Birds and Game Mammals, (1936) (50 Sta. 1311).
9. Convention of Nature Protection and Wildlife Preservation in the Western Hemisphere, 1940 (56 Stat. 1354).
10. Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742-742j).
11. Refuge Recreation Act, as amended, (Public Law 87-714.76 Sta. 653; 16 U.S.C. 460k-4) September 28, 1962.
12. Refuge Revenue Sharing Act of 1964, (16 U.S.C. 715s) as amended (P.L. 95-469, approved 10-17-78).
13. Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460L-4 to 460L-11), and as amended through 1987.
14. National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee).
15. National Historic Preservation Act of 1966 (16 U.S.C. 470).
16. National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321-4347).
17. Protection and Enhancement of Environmental Quality Executive Order of 1970 (Executive Order 11514, dated March 5, 1970).
18. Environmental Education Act of 1975 (20 U.S.C. 1531-1536).
19. Use of Off-Road Vehicles on the Public Lands Executive Order of 1972, as amended (Executive Order 11644, dated February 8, 1972, as amended by Executive Order 11989, dated May 24, 1977).
20. Endangered Species Act of 1973 (16 U.S.C. 1531-1543 87 Stat. 884) P.L. 93-205). The Endangered Species Act as amended by Public Law 97-304, The Endangered Species Act Amendments of 1982, dated February 1983.
21. Floodplain Management Executive Order of 1977 (Executive Order 11988, dated May 24, 1977). Wetlands Preservation Executive Order of 1977 (Executive Order 11988, dated May 24, 1977).
22. The Archaeological Resource Protection Act of 1979 (P.L. 96-95, 93 Sta. 721, dated October 1979). (16 U.S.C. 470aa - 47011).
23. Fish and Wildlife Conservation Act of 1980 (P.L. 96-366, dated September 29, 1980). ("Nongame Act") (16 U.S.C. 2901-2911; 94 Stat. 1322).
24. Administrative Procedures Act (5 U.S.C. 551-559, 701-706, 1305, 3105, 3344, 4301, 5362, 7521; 60 Stat. 237), as amended (P.L. 79-404, as amended).
25. Bald Eagle Protection Act of 1940 (16 U.S.C. 668-668d; 54 Stat.), as amended.
26. Canadian United States Migratory Bird Treaty (Convention Between the United States and Great Britain (for Canada for the Protection of Migratory Birds. (39 Stat. 1702; TS 628), as amended.
27. Clean Air Act (42 U.S.C. 1857-1857f; 69 Stat. 322), as amended.
28. Convention on Wetlands of International Importance Especially as Waterfowl Habitats (I.L.M. 11:963-976, September 1972).
29. Cooperative Research and Training Units Act (16 U.S.C. 753a-753b, 74 Stat. 733), as amended. P.L. 86-686).
30. Federal Aid in Fish Restoration Act (16 U.S.C. 777-777k, 64 Stat. 430).
31. Federal Aid in Wildlife Restoration Act (16 U.S.C. 669-669i; 50 Stat. 917), as amended.
32. Federal Environmental Pesticide Control Act of 1972 (7 U.S.C. 136-136y; 86 Stat. 975), as amended.

33. Federal Land Policy Management Act of 1976 (43 U.S.C. 1701-1771, and other U.S.C. sections; 90 Stat. 2743). Public Law 94-579, October 1976.
34. Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471-535, and other U.S.C. sections; 63 Stat. 378), as amended.
35. Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251-1265, 1281-1292, 1311-1328, 1341-1345, 1361-1376, and other U.S.C. titles; 86 Stat. 816), as amended.
36. Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421; 92 Stat. 3110) P.L. 95-616, November 1978.
37. Flood Control Act of 1944 (16 U.S.C. 460d, 825s and various sections of title 33 and 43 U.S.C.; 58 Stat. 887), as amended and supplemented.
38. Freedom of Information Act (5 U.S.C. 552; 88 Stat. 1561).
39. Refuge Trespass Act (18 U.S.C. 41; Stat 686).
40. Transfer of Certain Real Property for Wildlife Conservation Purposes Act of May 1948, (16 U.S.C. 667b-667d; 62 Stat. 240), as amended.
41. Water Resources Planning Act (42 U.S.C., 1962-1962a-3; 79 Stat. 244), as amended.
42. Waterfowl Depredations Prevention Act (7 U.S.C. 442-445; 70Stat. 492), as amended.
43. Clean Water Act of 1972, Section 404.
44. The Food Security Act of 1985 (Farm Bill).
45. Native American Graves protection and Repatriation Act of 1990
46. Management and General Public Use of the National Wildlife Refuge System (Executive Order 12996, April 1996). This Executive Order redefines the mission of the National Wildlife Refuge System and sets out four guiding principles for the management and general public use of the system.
47. National Wildlife Refuge System Improvement Act of 1997 (H.R. 1420, 105th Congress). This law is the first “organic” act for the National Wildlife Refuge System. The Act amends portions of the National Wildlife Refuge System Administration Act and the Refuge Recreation Act, and reiterates into law Executive Order 12996.

Service-Wide Policy Directions

Since the early 1900s, the Service mission and purpose have evolved, while adhering to a fundamental national commitment to threatened and endangered wildlife ranging from the endangered bison to migratory birds of all types. The earliest national wildlife refuges and preserves are examples of this. Pelican Island National Wildlife Refuge, the first refuge, was established in 1903 for the protection of colonial nesting birds such as the snowy egret and the endangered brown pelican. The National Bison Range was instituted for the endangered bison in 1906. Malheur National Wildlife Refuge was established in Oregon in 1908 to benefit all migratory birds with emphasis on colonial nesting species on Malheur Lake. It was not until the 1930s that the focus of refuge programs began to shift toward protection of migratory waterfowl (i.e., ducks and geese). As a result of drought conditions in the 1930s, waterfowl populations became severely depleted. The special emphasis of the Service (then called the Bureau of Sport Fisheries and Wildlife) during the next several decades was on the restoration of critically depleted migratory waterfowl populations.

The passage of the Endangered Species Act of 1973 refocused the activities of the Service as well as other governmental agencies. This Act mandated

the conservation of threatened and endangered species of fish, wildlife, and plants, both through federal action and by encouraging the establishment of state programs. In the late 1970s, the Bureau of Sport Fisheries and Wildlife was renamed the U.S. Fish and Wildlife Service to broaden its scope of wildlife conservation responsibilities to include endangered species, as well as game and nongame species. A myriad of other conservation-oriented laws followed, including the Fish and Wildlife Conservation Act of 1980, which emphasized the conservation of nongame species.

Until recently, the Service had no “organic” act to focus upon for the purposes of generating an agency mission. The agency mission has always been derived in consideration of the various laws (as listed in Section 2 of this Unit) and treaties that collectively outlined public policy concerning wildlife conservation. The Department of the Interior Manual states:

“The U.S. Fish and Wildlife Service is responsible for conserving, enhancing, and protecting fish and wildlife and their habitats for the continuing benefit of people through Federal programs relating to wild birds, endangered species, certain marine mammals, inland sport fisheries, and specific fishery and wildlife research activities.”²

The National Wildlife Refuge System is the only existing system of federally owned lands managed chiefly for the conservation of wildlife. The System mission is a derivative of the Service mission. This mission was most recently revised by the President of the United States in Executive Order 12996 to reflect the importance of conserving natural resources for the benefit of present and future generations of people. The Executive Order states:

“The mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation and management of fish, wildlife, and plant resources of the United States for the benefit of present and future generations.”

The Executive Order continues by specifying broad guiding principles describing a level of responsibility and concern for the nation’s wildlife resources for the ultimate benefit of the people. These principles are as follows:

Public Use: The refuge system provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Habitat: Fish and wildlife will not prosper without high-quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The refuge system will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.

Partnerships: America’s sportsmen were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other federal agencies, state agencies, tribes, organizations, industry, and the general public can make significant contributions to the growth and management of the Refuge System.

Public Involvement: The public should be given a full and open opportunity to participate in decisions regarding acquisition and management of our national wildlife refuges.

² Departmental Manual 142 DM 1.1.

Appendix B

The Public Involvement Process

The scoping process concerning the future management of the Lower Suwannee and Cedar Keys National Wildlife Refuges consisted of two meetings, two stakeholder workshops, and a comment packet. The first public scoping meeting was held on July 27, 1999. The participants (24) were invited as potential members of the comprehensive conservation plan stakeholders' team. The second public scoping meeting on September 21, 1999, was widely advertised and the participants (approximately 40) represented user groups and the general public. The scoping meeting goals were to:

- Present background information about the National Wildlife Refuge System and about the Lower Suwannee and Cedar Keys National Wildlife Refuges, in particular;
- Present the mission of the National Wildlife Refuge System to the participating public;
- Present the planning process required to develop the comprehensive conservation plan; and
- Provide opportunities for the public to share their thoughts about the refuge by sharing comments at the scoping meeting and by returning an individual comment sheet.

During the welcoming comments, the refuge managers presented a thorough and engaging overview of the refuges and the comprehensive conservation planning process. These presentations included a video on the National Wildlife Refuge System entitled, "America's National Wildlife Refuge System, Where Wildlife Comes First," and a slide presentation on both Lower Suwannee and Cedar Keys National Wildlife Refuges. Comment sheets on which participants could individually respond to key issues concerning the future management of the refuges were passed out and explained. The refuge managers asked for the comment sheets to be returned by October 21, 1999.

After the presentations, the facilitator asked the participants to work in self-selected sub-groups. Three sub-groups were formed (at both meetings) and each group met for 50 minutes discussing the future management of the refuges. Each sub-group selected a recorder who wrote the major comments of each individual.

Attachment One is a summary of the major issues and concerns raised in both meetings. Attachment Two presents the unedited easel paper notes from the meeting on September 21, 1999, and Attachment Three contains the notes from the July 27, 1999, meeting. Since there was no attempt in the sub-groups to create consensus suggestions, some of the comments generated in the sub-groups were diametrically opposed to each other. During the final comments, participants appreciated the chance to hear the comments of others. Also during the scoping process, two stakeholder workshops were held. The first workshop was held on August 12, 1999, with 26 participants representing the following groups: Fish and Wildlife Service; Florida Fish and Wildlife Conservation Commission; Florida Department of Environmental Protection; Florida's Nature Coast Conservancy; Save Our Suwannee; Cedar Key Garden Club; University

Monitoring the impacts of public use will be accomplished through biological and habitat management programs. For example, an eagle's nest is located on North Key. The beaches of this island are open year round and the nest is located near the beach. If beach use (including wildlife observation, wildlife photography, and fishing) disturbs the nesting pair, then the area around the eagle's nest would be closed during the nesting season to ensure that wildlife use of the area has first priority.

WH5 Management activities should preserve and restore refuge ecosystems.

Many of the lands acquired to establish Lower Suwannee National Wildlife Refuge were severely degraded or were intensively altered by land use practices. Thousands of acres of longleaf, native slash, and scattered loblolly pines were cut and replanted with genetically improved slash pine in plantations that were harvested on a 16- to 20-year rotation. In addition, thousands of acres of mixed pine/hardwood stands were converted to slash pine plantations. Intensive site preparation, which altered the understory vegetation, was needed to make these sites suitable for pine trees. Additionally, an extensive network of roads and ditches was developed to facilitate timber management. Finally, most of the forested land in the swamps and bottoms is second or third generation; there are only a few remnant stands of old growth timber.

The objectives and strategies listed under the habitat management goal outline a plan to restore native ecosystems. Strategies identified include reforestation with longleaf pine and wiregrass, silvicultural thinnings to reduce stand density and create more natural forest conditions, and prescribed fire to reduce woody stems and promote herbaceous understories which were historically present. The Forest Management Plan will address hardwood silvicultural management concerns as well.

Management of refuge habitats on Cedar Keys National Wildlife Refuge is opposite to management of Lower Suwannee National Wildlife Refuge. Cedar Keys Refuge has been protected from development since 1929, and four of the islands are designated as Wilderness Areas. Refuge habitats are pristine and for the most part, unaltered. With the exception of exotic plant removal, management of the islands has been "hands off." The comprehensive conservation plans outline strategies for preserving these delicate coastal ecosystems without using intensive management techniques.

Public Use

PU1-LS Lower Suwannee National Wildlife Refuge should continue to provide the public with compatible consumptive and non-consumptive uses and access in a manner that minimizes conflicts between user groups and does not significantly impact habitat.

The comprehensive conservation plan specifically addresses this need by clustering public use areas and by establishing non-hunting areas in both counties. One of the major concerns expressed by user groups was safety during the hunting season. Currently, the Shell Mound and River Trail areas in Levy County are closed to hunting. These areas are used by an estimated 60,000 visitors a year. The plan proposes closing the Shired Island and Fishbone Creek areas in Dixie County. These areas contain 194 and 58 acres of uplands, respectively, but are mainly characterized as coastal marsh. An estimated 40,000 visitors annually use these two areas. A portion (16 acres) of the Fishbone Creek area

is leased to Dixie County Schools for environmental education. Additionally, Resource Project No. 10 calls for the establishment of environmental education facilities (e.g., pole shed, picnic tables, and restrooms) to be located in this area. Closing this area to hunting would ensure public safety and would minimize conflicts between user groups. Approximately 35,000 acres of suitable habitat will remain open to hunting. The remaining acreage is comprised of marsh and the closed areas referenced above.

PU2-LS Hunter groups requested better management and access for hunting activities on Lower Suwannee National Wildlife Refuge.

As discussed above, approximately 35,000 acres of refuge habitats are open to hunting. To provide access to these areas, the refuge maintains 50 miles of improved limerock roads for public vehicle traffic and an additional 50 miles of secondary roads, which are open to bicycle and foot traffic. The public may also access the refuge via boat from the Suwannee River and its many creeks. Refuge staff believe that this extensive network of roads and river entry provide adequate access opportunities for hunters as well as other user groups.

A few hunters requested access to the refuge via 3- or 4-wheelers. A majority of the public, however, opposed this type of access. When the refuge was established, this activity was found to be an incompatible use. Further, hunters may access the refuge by automobile on primary refuge roads, by foot or bicycle on secondary refuge roads, or by boat from the river. Current hunting regulations provide for special all-terrain vehicle access by mobility impaired hunters. Those hunters that meet the criteria of "mobility impaired" can apply for a Special Use Permit that allows all-terrain vehicle use within designated areas of the refuge.

Hunter groups suggested that the hunting experience could be improved, as well as the overall game species health, by establishing food plots. Many hunters believed that game populations are low on the refuge because inadequate forage is available. While refuge managers support improving habitat conditions for all wildlife species, they do not support the establishment of food plots. The first concern of refuge management is safety. It is the staff's opinion that hunters would be concentrated at food plots, thus increasing the risk of a hunting accident. Additionally, staff believe that habitat management techniques currently employed; e.g., forest thinnings and prescribed fire, stimulate growth of grasses and forbs, offering native forage. In the book entitled "Wildlife Management" Yarrow and Yarrow (1999), it states "Native foods should be inventoried, evaluated, and managed before investing in wildlife food plantings. In most cases, managing existing native wildlife plants constitutes a more practical and cost effective method of enhancing wildlife habitat." Therefore, the staff feels it should inventory and evaluate what is present before establishing food plots. Finally, hunter bag reports are consistent from year-to-year and deer analyzed by the Southeastern Cooperative Disease Study Unit are healthy.

PU3-LS Other user groups requested more opportunities for passive recreational uses on Lower Suwannee National Wildlife Refuge.

There are six priority uses on national wildlife refuges as defined by the National Wildlife Refuge System Improvement Act (1997): hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. Of these, wildlife observation, wildlife photography, and interpretation would be considered passive recreational opportunities. As mentioned previously, Lower Suwannee National Wildlife Refuge has

clustered public use areas in each county. At Shell Mound, 2 short walking trails and a 400-foot boardwalk are available. The River Trail is a 43-mile trail with a 400-foot boardwalk and observation platform on the Suwannee River. In Dixie County, 4 public use areas have been established. At Salt Creek, there is a boardwalk overlooking the salt marsh. Connecting Salt Creek and Shired Island, the Dixie Mainline Trail is a 9-mile driving, bicycle, or foot trail. Spectacular views can be seen from the observation platform on Fishbone Creek. Finally, on Shired Island and at the end of the Duck Pond Road, 3 short walking trails offer views of a small beach, coastal island habitat, and a natural pine forest, respectively. All of these facilities offer opportunities for passive recreation.

In the comprehensive conservation plan, several new public use facilities would be constructed and the areas mentioned above would be enhanced. The trails at Shell Mound would be marked with interpretive panels. At Dennis Creek, an observation platform would be constructed to offer marsh views. On the Levy County Loop Road, an observation platform would offer observers an opportunity to view an interior freshwater marsh and the wildlife therein. At Salt Creek, a loop trail through several different habitats is planned. Finally, kiosks housing refuge information and interpretive materials would be located in the public use areas to improve the visitor's experience. These projects would enhance passive recreational opportunities on the refuge.

- PU4-CK** The public urged Cedar Keys National Wildlife Refuge to continue to provide only limited public uses to protect sensitive wildlife habitat.

The comprehensive conservation plan continues the provisions that guide public use on Cedar Keys National Wildlife Refuge. Currently, all refuge island interiors, except Atsena Otie Key, are closed to public use for the protection of island flora and fauna. Additionally, there are healthy populations of venomous snakes on most of the island interiors. On Atsena Otie Key, the closest island to the town of Cedar Key, a kiosk, restroom, and short hiking trail provide visitors an opportunity to enjoy the natural environment and to learn about the natural and cultural history of the area. The beaches of all the islands, except Seahorse Key, are open year round for activities such as wildlife observation, wildlife photography, and fishing. Seahorse Key and a 300-foot buffer around the island is closed to all public entry from March 1 through June 30, annually, to protect nesting colonial wading birds.

The number of tourists visiting Cedar Key has grown exponentially in the last 10 years. Refuge staff will closely monitor the numbers of people visiting the refuge islands and the impact this visitation may have on the refuge environment and wildlife. Additional closures and other protective measures may be employed to ensure the ecological integrity of these fragile coastal islands.

- PU5** Staff is needed to expand environmental education and interpretation programs and increase involvement with public schools.

The comprehensive conservation plan outlines objectives and strategies to greatly improve our environmental education program and to expand partnerships with the schools, agencies, and organizations that are involved in environmental education in the area of the refuge. However, these objectives and strategies can only be met with additional staffing to develop these programs

and to nurture their growth. The comprehensive conservation plan calls for the employment of an outdoor recreation planner and a volunteer coordinator. These two positions would serve both refuges. In addition to these two positions, a cadre of volunteers would be trained to implement our environmental education program not only in the schools, but in civic organizations (e.g., scouts) as well.

- PU6** Environmental education and outreach should include adult groups as well as youth groups.

While the focus of the environmental education program for the refuges will be involvement with school youth, the comprehensive conservation plan does include programming for adults. An outdoor recreation planner and volunteer coordinator would be employed to facilitate these programs. The plan calls for the establishment of quarterly activities, such as canoe tours, butterfly and wildflower walks, and birding trips. It also continues participation in community events and festivals, such as Naturefest and the Cedar Key Spring Arts and Fall Seafood Festivals. Adults would comprise most of the volunteers recruited by the volunteer coordinator. These volunteers would develop educational programs for the young and young at heart.

- PU7** The public thought staff and facilities should be increased, particularly for Cedar Keys National Wildlife Refuge and the Dixie County portion of the Lower Suwannee National Wildlife Refuge.

Currently, Cedar Keys Refuge is unstaffed and unfunded. Management activities occur when staff and funding are available from Lower Suwannee Refuge. The comprehensive conservation plan identifies the staffing needs of Cedar Keys Refuge. Staff to be hired include a refuge operations specialist (assistant refuge manager) and a biological technician. A biologist and outdoor recreation planner would also be hired and shared between the two refuges.

At Lower Suwannee Refuge, all staff are based out of the Levy County compound and administrative area. The Dixie County portion of the refuge is more than 50 miles from the administration area. Because of a lack of staff presence on a daily basis, vandalism and littering are growing problems. If staff were stationed in this county, maintenance issues could be addressed on a daily basis. Staff could also forge relationships with the local people and work to establish ownership of the refuge by the local people, i.e., wanting to care for the refuge instead of trashing it.

A small administrative area is located in Dixie County. The compound currently includes a 5-bay pole shed, fuel tanks, and an abandoned, dilapidated trailer. The plan calls for the construction of an enclosed shop with a crew room and restroom facility. The maintenance worker stationed in Dixie County would work out of this office.

Finally, with the hiring of additional staff, a new office/visitor contact station is needed. The plan identifies two options: a multi-million dollar visitor center or a new administrative office with a display area. Professional staff from Cedar Keys and Lower Suwannee Refuges would be based out of this office. Technical and maintenance staff would be based out of the existing shop office and crew space. The current office would be converted to housing for volunteers, interns, and visiting researchers as outlined in the plan.

- PU8** Staff should recruit student interns and more volunteers to assist with projects and research.

The comprehensive conservation plan addresses this need by 1) hiring a volunteer coordinator and 2) by providing training opportunities for these individuals. It also calls for the formation of a Friends Group. This group would serve as another mechanism for recruiting volunteers.

Partnerships to Manage and Protect the Refuge

- P1** The refuge should maintain and enhance partnerships with state, county, and community agencies; universities and educational institutions; user groups; natural resource based organizations; and other entities.

The comprehensive conservation plan outlines objectives and strategies to accomplish this need. Specifically, it calls for the hiring of additional staff to conduct day-to-day refuge operations. This would allow the project leader to devote more time to developing and expanding partnerships. Additionally, professional staff over biological and public use programs would also be involved in partnerships. Finally, several partnership projects are proposed.

- P2** Additional land acquisition and/or cooperative management agreements would improve the Service's ability to protect existing and potential refuge resources.

The comprehensive conservation plan proposes an aggressive land acquisition program. The limiting factor in implementing this program is funding. An alternative to purchasing land is to establish management agreements or conservation easements with the landowners to bring in conservation partners like The Nature Conservancy or The Trust for Public Lands. It calls for creative solutions to the ever-growing problem of insufficient funding.

Attachment One

Summary of Public Scoping Comments

Summary of Appreciation and Suggested Changes Comments

Wildlife Habitat Management

- There is a need to conduct more research on species and habitats to enhance the native biodiversity and integrity of both refuges and to maintain traditional public uses.
- There is a need to preserve Cedar Keys Refuge for wildlife, except Atsena Otie Key.
- There is a need to assure that water of sufficient quality and quantity is available to maintain wildlife populations and habitats and to also restore and conserve the natural diversity, abundance, and ecological function of both Lower Suwannee and Cedar Keys Refuges.
- There is a need to reduce the increasing number of exotic and invasive plant and animal species that are negatively impacting wildlife and habitat on both refuges.
- There is a need to assess the feasibility of re-introducing the black bear.
- There is a need to assess the feasibility of developing food plots after tree removal to improve the health of the animals and increase observation opportunities.
- There is a need to assess the feasibility of creating a management plan for wild turkeys.

Public Use

- There is a need to create more compatibility of uses throughout the year between hunting and environmental education and interpretation.
- There is a need for increased access to the Lower Suwannee Refuge for observation of wildlife and its habitat in a quiet environment and for active recreational uses.
- There is a need for Lower Suwannee Refuge to enhance its access for hunting.
- There is a need to expand the environmental education and interpretation programs.
- There is a need to develop outreach programs with the local communities, user groups, and the general public.

Partnerships

- There is a need for both refuges to develop more partnerships with state, county, and community agencies; universities and educational institutions; user groups; and natural resource based organizations.
- There is a need to hold more community functions to assist funding of both refuges.

Administration

- There is a need for more staff, student interns, and volunteers to implement the desired programs identified at the scoping meetings.
- There is a need for funding to implement the program and infrastructure needs identified during the scoping meetings.

Attachment Two

Public Scoping Meeting (September 21, 1999)

Easel Notes (Unedited) of the Three Dialogue Sub-Groups

The listed recommendations were made for actions that individual participants would like to see continued, started, or stopped.

Group One

- Make feeding plots after removing trees to improve the health of the animals and increase observation opportunities.
- Create a controlled checkpoint for hunting access so you know who goes in and out. Utilize student volunteers.
- Increase law enforcement.
- Construct a Refuge Education Center.
- Provide more organized tours of refuge.
- Increase research and monitoring of water quality.
- Buy more lands and increase the size of the refuge.
- Maybe we should plant a wider variety of pines?
- Provide more hunting days.
- Provide fewer hunting days.
- Create a management plan for wild turkeys.
- Post designated hunting areas for visitors.
- Provide more information to public about refuge and its uses via the newspapers, radio, television, and Internet. Most of the public doesn't know the refuge exists.
- Don't over-inform the public so the refuge will not be overused. Wildlife should come first before the public.
- Add more staff and funding, particularly Public Use Specialists, to work with schools and home schoolers.
- Use refuge lands to release "rehabbed wildlife."
- Check toxicity level in birds to know health of habitat.

Group Two

- Maintain the natural habitat.
- Preserve Cedar Key Refuge for wildlife except Atsena Otie Key.
- Maintain and restore the natural drainage.
- Increase the natural plant program.
- Remove invasive and exotic species.
- Continue the excellent hunting program and expand if possible. Have a spring hog season. Pursue the introduction of black bear.
- Allow electric wheelchairs throughout the refuge.
- Increase law and citizen enforcement for actions like stopping noisy and speeding boats off the river.
- Increase litter control.
- Increase access around the cabin.
- Share money and staff between our refuges and other refuges so we can provide more species.

Group Three

- Hold more community functions to assist funding of these two local refuges.
- Need more funds for this refuge for staff and programs. Need more law enforcement and education staff.
- More research on habitat to maintain fisheries and wildlife.
- Provide more education in schools on wildlife management and environment.
- Limit entry from river so we can have stricter enforcement of public property being abused next to refuge. More directions need to be provided to use wastebaskets, etc.
- Extend the general gun season to coincide with state regulation or the first of December.
- Hold hog hunting at the same time as small game hunting season.
- Burn refuge one side of the river at a time and allow hunting on the other side.
- Develop wildlife feedplots.
- More doe tags.
- No introduction of black bear.
- Provide more and better signage at entrances; e.g., weapon uses such as bows, black powder, and guns not loaded in vehicles and on roads.
- Open up more inside access roads.
- Have fewer inside access roads.
- More bike trails.
- More river access to refuge by docks, walks, observation towers, etc.
- Make walks more compatible for people with disabilities and mark benches as to how far apart they are.
- Better maintenance of boat ramps.
- Adequately mark islands as to public access.

Attachment Three

Public Scoping Meeting (July 27, 1999)

Easel Notes (Unedited) of the Three Dialogue Sub-Groups

Group One

Appreciate the refuges for the following:

- Can be alone in the woods.
- Love those wild flowers.
- Road openings create greater access to wild fire.
- A place for wildlife conservation.
- Diverse habitat of flora and fauna.
- Lack of facilities.
- Presence of birds.
- Large area with public access.
- Greater photo opportunities.
- Conserved land with no development.
- Easy access.
- It is free.

Recommend the following changes:

- Pursue the introduction of black bear.
- Greater educational programs.
- More intense deer management for improved harvesting and habitat and herd quality.
- Better boat launching facilities
- No boat launching changes.
- A couple of non-hunting days every week during the hunting season.
- Better communications and exchange of information between agencies developing programs to attract researchers.
- Remove exotic plants.
- Increased state and federal funding.
- Publicity.

Group Two

Appreciate the refuges for the following:

- Appreciate the trails available at the present time (Lower Suwannee).
- Presence and protection of wildlife and habitat (both).
- Appreciate public access at Atsena Otie.
- Serenity and isolation of refuges.
- Appreciate the wildlife but like public access we don't have the feeling that we are kept out.
- Environmental education like the fact that the university has access privileges to refuges and programs.
- Appreciate Water Management District with Atsena Otie.
- Appreciate Ken Litzenberger.
- Appreciate partnerships.

- Appreciate interest of the Office of Greenways and Trails to cooperate interconnecting trails throughout Lower Suwannee.
- Size and diversity of refuge also uniqueness (both).

Recommend the following changes:

- Would like to see a trail down the Levy side.
- Would like to see Cedar Keys linked somehow to Lower Suwannee (ferry, water taxi).
- Need more marked trails on Lower Suwannee (interp. signs).
- Need designated campgrounds (limit number of people and sites) for Lower Suwannee.
- Would like to see compatibility of uses-primarily hunting versus trail/walking/interpretation.
- Establish a wildlife rehabilitative program.
- Expand/strengthen volunteer program (both refuges).
- Increase dollars for research (from grants, government).

Group Three

Appreciate the refuges for the following:

- The fact that it is there.
- Unspoiled beauty.
- Bio-diversity.
- Especially the lack of people.
- General health of the refuge.
- Open for hunting and fishing.
- Remoteness.
- Habitat diversity.
- Water quality and quantity.
- Artistic and photographic paradise.
- Quality of seafood (yummy) shellfish and finfish, etc.

Recommend the following changes:

- Need botanist.
- Need biologist.
- Need more staffing!!!
- Need visitor and interpretive center.
- Partnership with Aquatic Preserve.
- Partnerships with other state and local agencies.

Attachment Four

Comment Packet

The U.S. Fish and Wildlife Service is developing a Comprehensive Conservation Plan for Lower Suwannee and Cedar Keys National Wildlife Refuges that will guide their management for the next 15 years. We would like to know the issues and concerns about the refuge that are important to you.

This Comment Packet is divided into three sections: Background Information, Comment Sheet, and Mailing Request Form. These materials will provide you with information concerning the refuge and planning process. If you would like to give us your ideas, please complete the Comment Sheets. Use additional sheets if the space provided is not adequate to fully address your ideas and concerns. If you wish to be on our mailing list, please complete the Mailing Request Form. You may return some or all of the sections to the refuge mailing address found inside or outside the packet. This packet may be reproduced.

Background Information

National Wildlife Refuge System. The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting, and enhancing the nation's fish and wildlife and their habitat. As a part of its major responsibility for migratory birds and fish, endangered species, and certain marine mammals, the Service manages the National Wildlife Refuge System. The System began in 1903 when President Theodore Roosevelt designated Pelican Island, a pelican and heron rookery in Florida, as a bird sanctuary.

The System, now consisting of more than 500 refuges, is a "network of lands and waters managed for the conservation, management, and where appropriate, restoration of fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge Improvement Act of 1997). In the management of the National Wildlife Refuge System:

- Wildlife has first priority.
- Recreation uses are allowed as long as they are compatible with wildlife conservation.
- Wildlife-dependent recreational activities will be emphasized.

Refuge Environment. Established in 1979, the purpose of Lower Suwannee National Wildlife Refuge is to "develop, advance, manage, conserve, and protect fish and wildlife resources." The refuge encompasses nearly 53,000 acres of bottomland hardwoods, upland pine forests, salt and freshwater marsh, and oak hammocks. The refuge flanks 20 miles of the lower reaches of the Suwannee River and fronts more than 20 miles of the Gulf of Mexico. It provides habitat for migratory birds, wading birds, threatened and endangered species, and several species of special concern, such as the gopher tortoise and swallow-tailed kite.

Refuge Vision. *The watershed and estuary of the Lower Suwannee National Wildlife Refuge contain valuable water resources and fish and wildlife habitat. The refuge will be managed for the conservation of fish and wildlife and their habitat, with special emphasis on the protection and restoration of wetland and upland communities. Educational, research, and wildlife-dependent recreational opportunities will be available,*

insofar as they are compatible with refuge health and preservation. Management will partner with local, state, and federal agencies, community organizations, and individuals to ensure the protection and conservation of the vast Suwannee River ecosystem for current and future generations.

The refuge's diversity of wildlife species, coupled with excellent access roads and public use structures, provides opportunities for hunting, fishing, wildlife observation, photography, environmental education and interpretation.

Refuge Environment. Cedar Keys National Wildlife Refuge was established in 1929 as a "refuge and breeding ground for the birds and wild animals." The refuge contains 13 islands and nearly 800 acres. Four of the islands, Snake, Deadman's, Seahorse and North Keys, are designated wilderness areas. Atsena Otie Key is owned by the Suwannee River Water Management District, but managed by the U.S. Fish and Wildlife Service as part of the refuge. The lighthouse at Seahorse Key is leased by the University of Florida for marine research and environmental education.

The forested habitat contains live oak, red bay, cabbage palm and laurel oak. The lower elevations of the islands, comprising nearly 40 percent of the refuge, are subject to frequent flooding and dominated by salt marsh and mangrove trees. The most significant wildlife resource is the colonial wading bird rookery found on Seahorse Key. Other birds that nest on the islands include pelicans, bald eagles and osprey.

Refuge Vision. *The Cedar Keys National Wildlife Refuge is a group of fragile coastal islands that contain significant natural and cultural resources. The refuge will be managed for the conservation of wildlife and wildlife habitat, with special concern for migratory and breeding birds and threatened and endangered species. Management will protect cultural resources and support environmental education, research and where appropriate, other compatible uses. Management will partner with local, state and federal agencies, community organizations and individuals to ensure the protection of these resources for present and future generations.*

Public use opportunities are limited because the refuge is relatively small and inaccessible and can only sustain limited public use if it is to be maintained for the purpose for which it was established. The refuge provides critical habitat for ibis, herons, and egrets; habitat that is disappearing rapidly throughout Florida. The beaches of the islands, except Seahorse Key, are open year-round for compatible activities such as wildlife observation, photography, fishing, environmental education and interpretation.

Comprehensive Planning. A planning team, consisting of persons from government agencies, state universities, conservation organizations, and community groups, has been assembled to assist in this comprehensive conservation planning effort. They will:

- Gather information about the refuge environment;
- Identify problems affecting the refuge;
- Evaluate the impacts of various management alternatives; and
- Recommend a plan of action to the U.S. Fish and Wildlife Service.

In keeping with the National Environmental Policy Act (NEPA), the U.S. Fish and Wildlife Service will look at, and seriously consider, all reasonable alternatives in the development of the plan. The planning team will actively seek public input in the preparation of the comprehensive plan. To carry out the project, the U.S. Fish and Wildlife Service has begun a six-step planning process:

Step 1. Gather information on the refuge environment

Step 2. Hold a public meeting to identify issues and concerns

Step 3. Identify management alternatives, and evaluate their effects

Step 4. Prepare and release a draft comprehensive plan and environmental assessment

Step 5. Hold a public meeting on the draft plan and environmental assessment

Step 6. Prepare the final comprehensive conservation plan

Involvement Opportunities. The U.S. Fish and Wildlife Service is looking for your ideas concerning the future management of Lower Suwannee and Cedar Keys National Wildlife Refuges. Please give us your ideas at a public meeting on September 21, 1999 at 7:00 p.m. at the Tommy Usher Center. The Center is located at 506 SW 4th Avenue (CR 345), Chiefland. This meeting will give you an opportunity to learn more about the refuge and express your ideas about issues, concerns, and needed management programs.

This packet will be given to everyone who attends the public meeting or requests a copy from the office. If you cannot attend the meeting, your comments will still be considered if you complete the comment sheet and mail it to: Lower Suwannee National Wildlife Refuge, U.S. Fish and Wildlife Service, 16450 NW 31st Place, Chiefland, FL 32626.

The packet provides:

- Background information on the refuge, the refuge system, and the planning process
- A way to share your concerns, ideas, and thoughts on refuge management
- An effective way to make certain your thoughts will be taken into consideration

The comment sheet should be returned to the refuge no later than **October 21, 1999.**

**LOWER SUWANNEE AND CEDAR KEYS
NATIONAL WILDLIFE REFUGES**

COMMENT SHEET

INSTRUCTIONS: The U.S. Fish and Wildlife Service is developing a new management plan that will guide future management of both refuges. Please take a few minutes to give us your ideas about various refuge programs and the course of future management. Your responses are voluntary and completely anonymous.

1. Listed below are some of the issues concerning the future management of the refuges. These issues were generated by the Planning Team, consisting of representatives from local, state, and federal agencies, community organizations and private individuals. Some of the issues overlap, while others are specific to a particular refuge.

To what degree do you agree or disagree with the following statements? Circle the number that best reflects your opinion.

Issues	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
Build a visitor and education center that will be used by both refuges	4	3	2	1	0
Conserve habitat for native wildlife and plants	4	3	2	1	0
Develop a volunteer program	4	3	2	1	0
Expand environmental education and interpretative programs	4	3	2	1	0
Increase law enforcement to protect refuge resources	4	3	2	1	0
Increase staff and funding to support refuge programs (e.g., Biological, Public Use, Maintenance)	4	3	2	1	0
Increase research opportunities and research funding	4	3	2	1	0
Protect the whole biological system	4	3	2	1	0
Protect threatened, endangered species and wildlife of special concern	4	3	2	1	0
Remove and control exotic, invasive species	4	3	2	1	0
Work closely with community organizations	4	3	2	1	0
Maintain water quality and quantity on Lower Suwannee NWR	4	3	2	1	0
Maintain the hunting and fishing programs on Lower Suwannee NWR	4	3	2	1	0
Manage game species more intensively to improve the hunting program on Lower Suwannee NWR	4	3	2	1	0
Pursue the re-introduction of the Florida Black Bear to the Big Bend Area with Lower Suwannee NWR as the core habitat	4	3	2	1	0
Improve public use facilities (e.g., trails, boat launches, boardwalks) on Lower Suwannee NWR	4	3	2	1	0
Limit the amount of new public use facilities (e.g., trails, boardwalks, boat launches) on Lower Suwannee NWR	4	3	2	1	0
Improve accessibility of Lower Suwannee NWR	4	3	2	1	0
Promote Lower Suwannee NWR to increase public knowledge and participation in refuge programs	4	3	2	1	0
Provide more recreational opportunities at Lower Suwannee NWR	4	3	2	1	0

Please answer the following questions. Provide as much information as you like. *Use additional sheets if necessary.*

2. What do you **VALUE** about Lower Suwannee National Wildlife Refuge? (List all that comes to mind).

3. What are your major **CONCERNS** about Lower Suwannee National Wildlife Refuge, current refuge management, or its future direction?

4. Are there other issues about Lower Suwannee National Wildlife Refuge that concern you?

5. Have you ever visited the Lower Suwannee National Wildlife Refuge? Yes No

6. Listed below are **SOME** of the recreational activities occurring Lower Suwannee National Wildlife Refuge. Please check which activities, if any, you would like to do.

<input type="checkbox"/> wildlife observation	<input type="checkbox"/> photography	<input type="checkbox"/> hunting
<input type="checkbox"/> canoeing/kayaking	<input type="checkbox"/> boating	<input type="checkbox"/> hiking
<input type="checkbox"/> fishing	<input type="checkbox"/> bicycling	<input type="checkbox"/> other (list below)
<input type="checkbox"/> interpretation/environmental education (e.g., self-guided trails)		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

7. What activities, if any, should **NOT** be allowed on Lower Suwannee National Wildlife Refuge?

8. Where do you reside **MOST** of the year? City _____ State _____

9. Are you attending the public meeting as a member of an organization? Yes No
If yes, what is its name? _____

10. Where did you obtain the Comment Sheet? _____

Please fill out the next page if you would like to comment on Cedar Keys National Wildlife Refuge.

11. To what degree do you agree or disagree with the following statements? *Circle the number that best reflects your opinion.*

Issues - Cedar Keys NWR	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
Provide more recreational opportunities at Cedar Keys NWR	4	3	2	1	0
Improve public use facilities (e.g., trail, boat dock) at Cedar Keys NWR	4	3	2	1	0
Limit the amount of new public use facilities (e.g., trails, restrooms, boat docks) at Cedar Keys NWR	4	3	2	1	0
Make Cedar Keys NWR more accessible to the public	4	3	2	1	0
Limit public access to Cedar Keys NWR to protect wildlife	4	3	2	1	0
Promote Cedar Keys NWR to increase public knowledge and participation in refuge programs	4	3	2	1	0

12. What do you VALUE about Cedar Keys National Wildlife Refuge? (List all that comes to mind).

13. What are your major CONCERNS about Cedar Keys National Wildlife Refuge, current refuge management, or its future direction?

4. Are there other issues about Cedar Keys National Wildlife Refuge that concern you?

15. Have you ever visited Cedar Keys National Wildlife Refuge? Yes No

16. Listed below are SOME of the recreational activities occurring on Cedar Keys National Wildlife Refuge. Please check which activities, if any, you would like to do.

<input type="checkbox"/> wildlife observation	<input type="checkbox"/> photography	<input type="checkbox"/> fishing
<input type="checkbox"/> canoeing/kayaking	<input type="checkbox"/> boating	<input type="checkbox"/> beachcombing
<input type="checkbox"/> interpretation/environmental education (e.g., self-guided trails)	<input type="checkbox"/> other (list below)	

17. What activities, if any, should NOT be allowed on Cedar Keys National Wildlife Refuge?

THANK YOU VERY MUCH FOR YOUR COMMENTS! Please place the blue and green sheets in the Comment Box at the Public meeting or mail it to: Lower Suwannee National Wildlife Refuge, U.S. Fish and Wildlife Service, 16450 NW 31st Place, Chiefland, FL 32626. Your comments are needed by **October 21, 1999**.

MAILING REQUEST FORM

To place your name and address on our mailing list, we must have your written permission. The reason for this is that federal government mailing lists must be released to the public upon request. If you wish to receive future information about Lower Suwannee and Cedar Keys National Wildlife Refuges Comprehensive Conservation Plan and Environmental Assessment, please complete the information below and return the form to:

Lower Suwannee National Wildlife Refuge
U.S. Fish and Wildlife Service
16450 NW 31st Place
Chiefland, FL 32626

Yes, I wish to be on the mailing list to receive future information about the comprehensive conservation plan for Lower Suwannee and Cedar Keys National Wildlife Refuges. I understand that the names and addresses on federal government mailing lists must be released to the public upon request, under the provision of the Freedom of Information Act of 1974.

Signature _____ Date _____

First Name _____ Last Name _____

Mailing Address: _____

City _____ State _____ Zip _____

If you are acting in an official capacity as the representative of an organization, please complete the following two items:

Organization: _____

Title: _____

Note: After you have completed the Comment Sheet and / or Mail Request Form, simply fold it in half (with the return mailer on the outside), and tape or staple it together. Attach the proper postage and drop it in the mail. Your comment sheet must be received by **October 21, 1999**. Thank you for your comments.

Attachment Five

Planning Update

Planning Update

Lower Suwannee and Cedar Keys National Wildlife Refuges

Public Supports Refuge Planning Process

The U.S. Fish and Wildlife Service initiated Comprehensive Conservation Planning for Lower Suwannee and Cedar Keys National Wildlife Refuges in June 1999. During the summer and the fall, public meetings, workshops and presentations were conducted to explain the master planning process and to solicit input from the public. In addition, a comment packet was distributed to approximately 250 individuals. Of these, 43 packages were returned to the refuge office. This Planning Update reports what participants considered important on the refuges.

The most important value expressed about the refuges was the conservation and management of the land for wildlife. Conserving habitat received the strongest support at public meetings and in the questionnaire. When asked what they valued most about the refuges, diversity of wildlife and habitat on Lower Suwannee and protection of Cedar Keys' plants and animals were the most frequent responses. This strong support for wildlife and habitat will be emphasized in the management plan.

Supporters also expressed a strong interest in having adequate access to the refuges for wildlife-oriented recreation. Their primary purpose for coming to the refuges is to observe wildlife and to enjoy the natural environment. In the Plan, we will include methods to improve visitor opportunities for these kinds of activities. Environmental education also received strong support and ideas for expansion will be incorporated into the Plan. Traditional uses, such as hunting and fishing on Lower Suwannee were also important and will be continued.

The biggest concern that the public had is that the refuges will become overused through increased tourism and that the refuge does not have the staff or budget to monitor and manage these increased demands.

These comments were used to generate issue statements which will be addressed in the Plan. These issues were also used in two public workshops in which participants drafted a vision for each refuge and formulated goals to achieve this vision. The issues, visions and goals are included in this Planning Update.

In this issue...refuge receives public input for management plan; visions and goals formulated for both refuges; becoming involved!

The draft Plan is presently being written. When completed it will be distributed through our mailing list and will also be available on the Internet. Public meetings will be conducted to gather input for changes prior to the final version. We hope to hear from you then. In the meantime, if you would like to be on our mailing list, please fill out the form on the last page of this update and return it to the refuge office. Thank you for your continued support of Lower Suwannee and Cedar Keys National Wildlife Refuges!

Ken Litzenberger
Refuge Manager

Comment Packet Results

1. To what degree do you AGREE or DISAGREE with the following statements. Rated on a scale of 1 to 4 with 1 representing strongly Disagree and 4 representing strongly Agree. The values represent the average for each statement.

Conserve Habitat	3.86
Protect Water Quality	3.81
Protect Endangered Species	3.74
Protect Biological System	3.70
Remove Exotic Species	3.50
Increase Staff and Funding	3.48
Increase Research Funding	3.30
Develop Volunteer Program	3.26
Expand Environmental Education and Programing	3.19
Increase Law Enforcement	3.12
Work With Community Organizations	3.10
Reintroduce Florida Black Bear	3.09
Build a Visitor and Education Center	3.05
Limit New Public Use Facilities	2.88
Increase Public Participation in Refuge Programs	2.88
Improve Public Use Facilities	2.73
Maintain Hunting and Fishing Programs As Is	2.64
Manage Game Species to Improve Hunting	2.24
Provide More Recreational Opportunities	2.21
Improve Accessibility	2.05

2. What do you VALUE most about Lower Suwannee NWR?

COMMENT	%
Diversity of wildlife and habitat	34
Natural, wild beauty	29
Protection of plant and animal life	27
Wildlife Compatible Recreation	22
Peace and Quiet	20
Research and study of habitat	15
Hunting	15
Fishing	7
Photography & Education	5
Quality of the ecosystem & island habitats	2

4. Are there other issues about Lower Suwannee NWR that concern you?

COMMENTS
Need food plots to keep wildlife in area, increase in public use without increase in staff, relations with people in Dixie County, disabled use of motorized vehicles, commitment to river and ecosystem, too few does harvested, should restrict harvest of young bucks, litter, commitment to wildlife, pollution from dairies and other sources, lack of visitor center, not capitalizing assets, safety courses, forest fires, habitat destruction, more interested in roads than habitat, pine beetles, restoration of habitat, reduce timber harvest, add a shooting range, add archery only area in Levy Co., hunting and trapping, improve turkey habitat, poaching, might add A.T.V. trails, adequate law enforcement, irresponsible boaters, keep from becoming a tourist attraction, feral hogs, protecting the manatee

3. What are your major CONCERNS about Lower Suwannee NWR, current management or its future direction?

CONCERNS	%
Increased tourism	39
Increased hunting	17
Maintain or increase staffing	11
Keep in natural state	8
Also mentioned: Community education, decreased hunting rights, looting and vandalism, pollution, becoming too restrictive, pollution, improving biological data, access for disabled, closure during budget cuts, volunteer programs, game decreasing due to adjacent private land management, hunting and trapping, wild turkey management, airboats, may pave roads	

5. Have you ever visited Lower Suwannee National Refuge?

95% of the people answering had visited the refuge.

6. Listed below are SOME of the recreational activities occurring on Lower Suwannee NWR. Please check which activities you would like to do. Number of people responding was 42. Activities in the Other category were written in and are currently not available on the refuge.

ACTIVITY	RESPONSES
Wildlife observation	40
Hiking	31
Canoeing / kayaking	28
Environmental education	27
Photography	26
Fishing	24
Boating	21
Bicycling	21
Hunting	13
Other - Horseback riding, target range, A.T.V. trail.	5

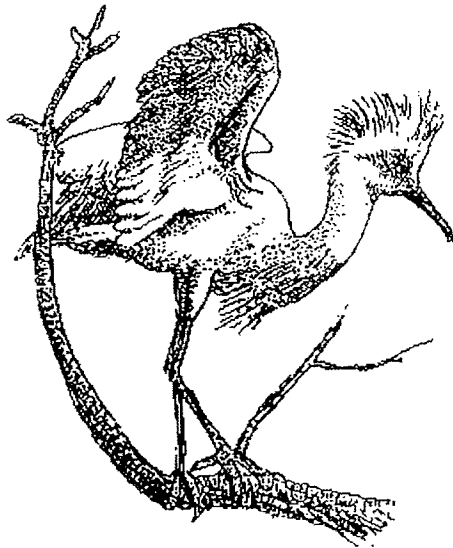


Whitetail Deer

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7. What activities should NOT be allowed on Lower Suwannee NWR? Out of the 43 worksheets, 36 answered this question.

ACTIVITY	RESPONSES
A.T.V.'s, off-road vehicles	14
Hunting	7
Camping	6
Airboats, jet skis	5
Commercial Development, horses, hunting with dogs, motor boating, timbering without replanting	3
Increased hunting, recreational development, swamp buggies	2
All, anything that would adversely impact refuge, bicycling, dirt bikes, fishing, hunting bears, hunting raptors, mining, motorized vehicles (except wheelchairs), night use, pine plantations, planting bait crops, RV's, speeding, trapping	1



Snowy Egret

8. Where do you reside MOST of the year?

Levy County	24
Dixie County	3
Gilchrist County	5
Other - Florida	7
Other - Out of State	3

9. Are you attending the public meeting as a member of an organization?

Yes	10
No	26
Blank	7

10. Where did you obtain the Comment Sheet?

Refuge	10
Mail	8
Public Meeting	10
Internet	4
Person	5
Blank	6

11. To what degree do you AGREE or DISAGREE with the following statements. Rated on a scale of 1 to 4 with 1 representing strongly Disagree and 4 representing strongly Agree. The values represent the average for each statement.

Limit public access to Cedar Keys NWR to protect wildlife	3.42
Limit the amount of new public use facilities (e.g., trails, restrooms, boat docks)	3.38
Promote Cedar Keys NWR to increase public knowledge and participation in refuge programs	2.69
Provide more recreational opportunities at Cedar Keys NWR	2.11
Improve public use facilities (E.g., trail, boat dock)	2.11
Make Cedar Keys NWR more accessible to the public	1.76

12. What do you VALUE about Cedar Keys NWR?

COMMENT	%
Protection of plants, animals, marsh, especially from development	36
Diversity, abundance of wildlife and habitat (birds =27%)	33
Natural, wild beauty	15
Wildlife Compatible Recreation - Observation & Photography	15
Remoteness	12
Peace and Quiet, not crowded	9
Research and study of habitat	9
Water Quality	3
Wildlife Compatible Recreation - Fishing	3

4 Planning Update

13. What are your major CONCERNS about Cedar Keys NWR, current management or its future direction?

COMMENTS	%
Increased tourism, too many people, too commercial, overused	38
Increase staffing to meet growing responsibilities, not enough law enforcement	21
Also mentioned: Hunting and trapping, keep in natural state, loss of beauty, community education on value of refuge, outreach, pollution, erosion and storm damage to nesting areas on Seahorse Key, allow hunting, exotic species removal, too much boat traffic, too many snakes, no concerns	

14. Are there other issues about Cedar Keys NWR that concern you?

COMMENTS
Adequate Law Enforcement, increase in public use without an increase in staff, keep from becoming tourist attraction, maintaining commitment to wildlife, hunting and trapping on the refuge, lack of a visitor center, litter, poachers, need to open lighthouse more often, looting of archaeological sites, not capitalizing on assets, Aisena Otie was made into interpretive area, air boats and jet skis, no concerns

15. Have you ever visited Cedar Keys NWR?

87% of those answering had visited the refuge.

16. Listed below are SOME of the recreational activities occurring on Cedar Keys NWR. Please check which activities you would like to do. Number of people responding was 34. Activities in the Other Category were written in and are currently not available on the refuge.

ACTIVITY	RESPONSES
Wildlife observation	31
Photography	22
Canoeing/kayaking	20
Interpretation/Environmental Education	19
Fishing	15
Boating, beach combing	14
Other- Biking, hiking, hunting	1

17. What activities should NOT be allowed on Cedar Keys NWR? Out of 38 forms returned, 31 answered this question.

ACTIVITY	RESPONSES
Camping	13
Hunting	9
Anything that would adversely impact refuge	6
Other comments: Motor boating, entry to interior of islands, beach activities (wind surfing, swimming, etc.), All activities, commercial development, jet skis, large-scale recreational development, Trapping, fires, poaching, littering	1

Issue Statements

Wildlife Habitat Management



Pine Warbler

- WH1 There is not enough known about the wildlife or habitat of either refuge.
- WH2 There is a need to monitor and manage habitat for endangered species, migratory birds and resident wildlife.
- WH3 There is a need to manage the water flows and water quantity impacts on the habitat of the refuges.
- WH4 There is a need to manage the impacts of human use on wildlife and habitat for the refuges.

WH5 There is a need to preserve and restore the ecosystems of the refuges.

Public Use

- PU1-LS There is a need to provide public consumptive and non-consumptive use and access to Lower Suwannee refuge in a manner that minimizes conflicts between user groups and does not significantly impact habitat.
- PU2-LS There is a need for better management and access for hunting activities on Lower Suwannee refuge.
- PU3-LS There is a need for more opportunities for passive recreational uses on Lower Suwannee refuge.
- PU4-CK There is a need to continue to only provide limited public uses on Cedar Keys refuge to protect sensitive wildlife habitat.
- PU5 There is a need to expand the education and interpretation programs with increased involvement with public schools.
- PU6 There is a need to provide adult education and outreach.
- PU7 There is a need to increase staff and facilities, particularly for Cedar Keys refuge and the Dixie County portion of the Lower Suwannee refuge.
- PU8 There is a need to recruit and train more student interns and volunteers.

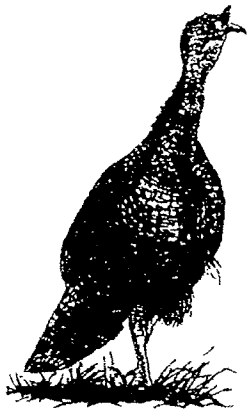
Partnerships to Manage and Protect the Refuge

- P1** There is a need to maintain and enhance partnerships with state, county and community agencies, universities and educational institutions, user groups, natural resource-based organizations and other entities.
- P2** There is a need to protect refuge resources through additional acquisition and/or cooperative management agreements.

- **Landscape Management.** Promote interagency and private landowner cooperation and partnerships for the management and protection of natural and cultural resources within the Big Bend area of Florida, the Suwannee River Basin, and the North Florida Ecosystem to benefit wildlife, water quality and quantity, and the American people.

Lower Suwannee NWR Vision and Management Goals

The watershed and estuary of the Lower Suwannee National Wildlife Refuge contain valuable water resources and fish and wildlife habitat. The refuge will be managed for the conservation of fish and wildlife and their habitat, with special emphasis on the protection and restoration of wetland and upland communities. Educational, research, and wildlife-dependent recreational opportunities will be available, insofar as they are compatible with refuge health and preservation. Management will partner with local, state, and federal agencies, community organizations, and individuals to ensure the protection and conservation of the vast Suwannee River ecosystem for current and future generations.



Wild Turkey

- **Wildlife.** Expand scientifically-based monitoring and research to support management decisions on wildlife habitat and populations.
- **Habitat.** Restore, conserve, and enhance the natural diversity, abundance, and ecological function of refuge habitats, with an emphasis on managing habitat to benefit threatened and endangered species and species of special concern in the State of Florida.
- **Protection of Resources.** Protect refuge natural and cultural resources to ensure their integrity and to fulfill the Mission of the National Wildlife Refuge System.
- **Public Use.** Provide opportunities for environmental education, interpretation and wildlife-dependent recreation in accordance with the National Wildlife Refuge System Act of 1997.

Cedar Keys NWR Vision and Management Goals

The Cedar Keys National Wildlife Refuge is a group of fragile coastal islands that contain significant natural and cultural resources. The refuge will be managed for the conservation of wildlife and wildlife habitat, with special concern for migratory and breeding birds and threatened and endangered species. Management will protect cultural resources and support environmental education, research and where appropriate, other compatible uses. Management will partner with local, state and federal agencies, community organizations and individuals to ensure the protection of these resources for present and future generations.

- **Wildlife and Habitat.** Manage and conserve the natural diversity, abundance, and ecological function of refuge flora and fauna, with an emphasis on protecting the colonial wading bird rookery of Seahorse Key, Threatened and Endangered species, and Species of Special Concern in the State of Florida.
- **Protection of Resources.** Protect refuge natural, cultural and wilderness resources to ensure their integrity and to fulfill the Mission of the National Wildlife Refuge System.
- **Public Use.** Provide opportunities for environmental education, interpretation and wildlife-dependent recreation when compatible with the purpose, mission and vision of the refuge and that will not negatively impact critical or sensitive habitats.
- **Partnerships.** Promote collaboration and partnerships with private citizens and other agencies to increase research and environmental education opportunities and to protect the coastal ecosystem.

Credits: Sandra Palfy, data entry, typing, distribution; Lyne Askins, design, layout, editing; Ken Litzenberger, Editor. All graphics: USFWS.

MAILING REQUEST FORM

To place your name and address on our mailing list, we must have your written request. The reason for this is that federal government mailing lists must be released to the public upon request. If you wish to receive future information about Lower Suwannee and Cedar Keys National Wildlife Refuges Comprehensive Conservation Plan and Environmental Assessment, please complete the information below and return the form to:

Lower Suwannee National Wildlife Refuge
U.S. Fish and Wildlife Service
16450 NW 31st Place
Chiefland, FL 32626

First Name _____
Last Name _____

Mailing Address: _____
City _____
State _____ Zip _____

If you are acting in an official capacity as the representative of an organization, please complete the following two items:

Organization: _____
Title: _____

Yes, I wish to be on the mailing list to receive future information about the comprehensive conservation plan for Lower Suwannee and Cedar Keys National Wildlife Refuges. I understand that the names and addresses on federal government mailing lists must be released to the public upon request, under the provision of the Freedom of Information Act of 1974.

Signature _____ Date _____

US Fish and Wildlife Service
Lower Suwannee National Wildlife Refuge
16450 NW 31st Place
Chiefland, FL 32626

Appendix C

Mailing List of Agencies and Individuals

FEDERAL AGENCIES

Tall Timbers Research Station, Tallahassee, FL
U.S. Fish and Wildlife Service, Folkston, GA
U.S. Geological Survey, Gainesville/Tallahassee/St. Petersburg, FL

FEDERAL OFFICIALS

U.S. Representative F. Allen Boyd, Tallahassee, FL
U.S. Representative Karen Thurman, Inverness, FL
U.S. Senator Bob Graham, Tallahassee, FL
U.S. Senator Connie Mack, Tallahassee, FL
U.S. Senator Bill Nelson, Tallahassee, FL

STATE OFFICIALS

Senator George Kirkpatrick, Gainesville, FL
Senator Rod Smith, Gainesville, FL
Senator Richard Mitchell, Jasper, FL
Representative Janegale Boyd, Monticello, FL
Representative Will Kendrick, Carrabelle, FL
Representative Dwight Stansel, Lake City, FL

STATE AGENCIES

Department of Environmental Protection/Big Bend Seagrass Aquatic Preserve, Crystal River, FL
Department of Environmental Protection/FL Park Service, Chiefland, FL
Department of Environmental Protection/Waccasassa Bay State Preserve, Cedar Key, FL
Department of State, Division of Historical Resources, Tallahassee, FL
Florida Division of Forestry, Bronson, FL
Florida Fish and Wildlife Conservation Commission, Chiefland, Newberry, Lake City, Cedar Key, Tallahassee, FL
Suwannee River Water Management District, Live Oak, FL

CITY/COUNTY/LOCAL GOVERNMENTS

Chiefland City Council, Chiefland, FL
Cross City Council, Cross City, FL
Dixie County School Board, Cross City, FL
Fanning Springs City Council, Fanning Springs, FL

Levy County Development Authority, Bronson, FL
Levy County Planning Department, Bronson, FL

NATIVE AMERICAN TRIBES

Miccosukee Indian Tribe
Seminole Tribe of Florida

ORGANIZATIONS/BUSINESS/CIVIC GROUPS

Alachua County Audubon, Gainesville, FL
Andrews Land and Timber, Chiefland, FL
Animal Protection Institute, Sacramento, CA
Audubon Society of Florida, Miami and Winter Park, FL
Avian Research and Conservation Institute, Gainesville, FL
Bruce Colin Photography, New York, NY
Caribbean Conservation Corporation, Gainesville, FL
Cedar Key Chamber of Commerce, Cedar Key, FL
Cedar Key Clam Farmer Association, Cedar Key, FL
Cedar Key Garden Club, Cedar Key FL
Cedar Key Historical Society, Cedar Key, FL
Code Checkers, Inc., Palm Beach Gardens, FL
Development Advisory Services, Inc., Bell, FL
Dixie County Chamber of Commerce, Cross City, FL
Dixie County Historical Society, Cross City, FL
Florida Defenders of the Environment, Gainesville, FL
Florida Division of the Izaak Walton League of America, Estero, FL
Florida Hunting Coalition, Belleview, FL
Florida Lighthouse Association, Ponce Inlet, FL
Florida Native Plants Society, Paines Prairie Chapter, Gainesville, FL
Florida Nature Coast Conservancy, Cedar Key, FL
Georgia Pacific Corporation, Gulf Hammock, FL
Greater Chiefland Chamber of Commerce, Chiefland, FL
Island Hopper Tours, Cedar Key, FL
Jones & Stokes, San Jose & Sacramento, CA
League of Women Voters of Florida, Gainesville, FL
Miller's Marine, Suwannee, FL
Nature Coast Canoe & Kayak, Cedar Key, FL
North Central Florida Regional Planning Council, Gainesville, FL
Sandfly Hunt Club, Trenton, FL
Save Our Suwannee, Bell, FL
Sierra Club, Lake City, FL
Sunset Meadows Country Animal Clinic, Gainesville, FL
Suwannee River Chamber of Commerce, Suwannee, FL
Suwannee Audubon Society, Old Town, FL

Suwannee Bicycle Association, High Springs, FL

Tennaco Packaging Co., Cross City, FL

The Nature Conservancy, Altamonte Springs, FL

Usher Land and Timber, Chiefland, FL

Wild Florida Adventures, Gainesville, FL

NEWSPAPERS

More than 500 media sources, including print and radio, were informed of the refuge planning effort. A complete list of media contacts is on file at the refuge office.

UNIVERSITIES/COLLEGES/SCHOOLS

University of Florida, Department of Wildlife Ecology, Gainesville, FL

University of Florida, Department of Zoology, Gainesville, FL

University of Florida, Museum of Natural History, Gainesville, FL

INDIVIDUALS

Abendroth, John	Almyda, Leanne	Argo, Caroline
Asbell, Gail	Barlow, Steve	Bennett, Dennis
Billie, James E.	Blitch, Seth	Burden, Lys
Busby, Larry	Butcher, Russ	Camilleri, Ed
Camilleri, Patsy	Cannon, Dana	Cardona, Lannie
Chancey, Gerry	Chancey, Connie	Cline, Evonne
Clugston, Jim	Coffel, Ann	Coffel, Dick
Colin, Bruce	Connors, Jane	Cooke, Betty Rose
Crane, Rob	Cypress, Billy	Deitch, Murray
Dhonau, Patricia	Dhonau, Pete	DiMaggio, Jeff
Dubose, Duke	Durst, Melanie	Ellis, Will
Ellis, Jonie	English, Gary	Fitch, Ken
Gaff, Michael	Galpin, Greg	Georges, Aloise
Gluckman, Mark	Gooding, Carol	Griffin, George
Hancock, Judy	Harding, Michelle	Henderson, Dale
Hensley, Brian	Higginbotham, Jr., W.D	Hines, James
Hitt, Terry	Hunt, George	Jacobs, Joyce
Jerrel, Resa	Johnson, Judy	Judd, Danielle
Kazokas, Aline	LaFlam, Melody	Lagueux, Ron
Langford, Charles	Lawhon, Daniel	Lawhon, James
Leavens, Wendy	Leverette, Anne	Leverette, Tom
Light, Helen	Lillywhite, Harvey	Lindsfold, Svenn
Lunger, Sheila	March, William	Mattson, Rob
McIntosh, Mike	McLeod, Grady	McQueen, Carol
McSherry, December	Merkel, William	Miller, Dawn
Moller, Jack	Moore, Andy	Moore, Barbara
Moser, Keith	Mullikin, Steven	Murrian, Jim
Nemeth, Linda	Nordlie, Frank	Nugent, Harold
Nugent, Susan	Papouchis, Christopher	Paquette, Thomas
Pate, Anthony	Perlette, John	Poore, Garry
Probst, Kay	Probst, Chet	Reiss, Paul
Rimavicus, Paul	Roof, Jayde	Roquemore, Susan

Mailing List

APPENDIX C

Roquemoire, David	Roughton, David	Rozier, Allen
Sachs, Maria	Scardino, Mark	Seaver, Agota
Seaver, William	Smith, Harriet	Sowell, Leo
Spyker, Mark	Starnes, Earl	Steadman, David
Stephens, Joan	Straub, Leslie	Syrjala, Edward S.
Taylor, Nancy	Taylor, Tom	Travers, Richard
Travers, Marilyn	Weitz, Paul	Wesbter, Kirk
Wineman, Warren	Witman, Bob	Zippin, David

Appendix D

Comments and Service Responses to the Draft Comprehensive Conservation Plans

Comment Process

Copies of the Draft Comprehensive Conservation Plans for Lower Suwannee and Cedar Keys National Wildlife Refuges were sent to approximately 300 individuals, as well as to a number of non-profit organizations, non-government agencies, Florida Native Tribes, and the Florida Clearinghouse beginning on May 8, 2001. An introductory letter announced the 60-day period, during which time the refuges would accept comments on the draft plans. This comment period ended on July 6, 2001. The availability of the draft plans and the date for the public meeting to discuss the plans were announced in newspapers, magazines, and radio throughout the state. A flyer with dates of the comment period and the date and location of the public meeting was included in every draft plan and was posted at various locations in the two counties in which the refuge is located. The comment period and meeting dates were also published in the Federal Register.

Refuge staff conducted a public meeting on June 5, 2001, to discuss the plan and accept oral and written comments. The meeting began with a half hour of informal discussion with refuge staff. After meeting protocols were discussed, there was a review of the legislation which requires the development of comprehensive conservation plans for each refuge in the National Wildlife Refuge System and an explanation of the planning process. The staff presented a summary of the Draft Comprehensive Conservation Plans for both refuges and participants were given adequate time for comments and questions. There were 82 people in attendance and all comments and questions were received prior to the end of the meeting. Everyone was allowed to speak and when there were no more comments, the meeting was adjourned. Staff members made themselves available after the meeting to discuss the plans individually with meeting participants.

In addition to the oral comments, there was one written comment received at the public meeting and nine letters received at refuge headquarters with comments about the plans.

Comments and Responses

There were no comments, either oral or written, that questioned the plans' preferred alternatives or suggested that any of the other alternatives not selected by management be adopted.

Public meeting comments

At the public meeting there was overwhelming support for the plans. There were questions about forest management and fire management practices, about cooperation with other organizations and agencies, and about

environmental education. The area that received the most questions and comments was concern for the refuge hunting program. Many of the meeting participants were hunters who did not want to see hunting removed from the refuge. It was explained to them that hunting was one of the priority public uses and the plan clearly supports continued access for hunting on the refuge. However, hunting would not receive a higher priority than other approved public uses.

The one written comment received at the public meeting referred to what effect the commercialization of the Suwannee River would have on the refuge. The comment dealt with concern for planned dredging of Wadley Pass at the mouth of the river. It is the Fish and Wildlife Service's understanding that the planned dredging by the Army Corps of Engineers and the Suwannee River Water Management District is not for commercialization of the river but rather to improve access and safety for boat traffic to enter the river from the Gulf of Mexico. Wadley Pass, which was dredged in the past, has become shallow due to siltation. This makes boat passage during low tides difficult at best and unsafe under less favorable conditions. The Service will be involved in consultation prior to dredging to ensure trust resources such as manatees and Gulf sturgeon are not negatively affected.

The meeting was conducted by a professional facilitator contracted by the Fish and Wildlife Service, and a copy of the official record of the public comments along with the minutes from the meeting have been included in this appendix.

Written comments

Of the nine letters received at the refuge office, two simply identified incorrect spelling of an individual's name or incorrect information in the draft plans. Changes were made in the plans to correct these errors. One writer supported the plans but commented that he would prefer that the Service not wait for willing sellers to acquire additional lands. No response is required for these three letters.

Four letters dealt specifically with public use activities. These comments and the refuge's responses are as follows:

Comment: The refuge should provide primitive camping.

Response: Camping is not one of the six priority public uses identified by President Clinton's Executive Order, or by the National Wildlife Refuge System Improvement Act of 1997, passed by Congress. The plan stresses these six priority public uses and the staff does not consider camping to be essential in order to enjoy the refuge. Commercially operated campgrounds are located close to the refuge and Levy and Dixie Counties operate campgrounds on county owned land within the refuge boundary.

Comment: Do the plans address impacts of boat traffic, specifically airboat noise?

Response: The plan does not address impacts of airboat noise. The waters in which airboats operate are state owned navigable waters. The refuge does not have jurisdiction over such waters to limit airboat use. A 300-foot buffer zone of state owned waters is managed by the refuge to protect nesting colonial birds. During nesting season, March 1 through June 30, no boat is permitted within 300 feet of Seahorse Key.

Comment: Do not change any times or places for hunting or restrict it.

Response: The plan identifies hunting as one of the six priority public uses.

It calls for some modifications to the present hunting program. Specifically, it identifies the reason for adding a youth hunt to the refuge deer gun hunting season and for increasing the doe season harvest. It also identifies the need to close some high visitation areas such as Shired Island to hunting for safety reasons. The comprehensive conservation plan discusses the need to revise the refuge's hunt plan and at the same time address suggested changes and improvements to the hunting program.

Comment: Make places on refuge for wildlife only--no hunters or birders, no facilities or programs.

Response: The plan does cluster public use activities and planned visitor facilities are generally in these high use areas. It does not, however, identify areas for complete closure to public use, except for the interior of the Cedar Keys Refuge islands. Much of the land for both Cedar Keys and Lower Suwannee Refuges is wetlands without road access. These conditions, along with high numbers of biting insects, do limit public access.

Comment: Increased law enforcement presence is needed along with more staff for wildlife monitoring.

Response: Additional staffing needs are identified in the plan. If these positions are filled, both law enforcement and biological monitoring capabilities would increase.

Comment: Environmental education should not be scheduled on Seahorse Key from March through June during the bird nesting period.

Response: Through a Memorandum of Understanding between the University of Florida and the refuge, the university is permitted to use the lighthouse and surrounding grounds. Summer classes, when the marine lab is utilized most, coincides with the closed nesting period. During the period when the island is closed to all entry, March 1 through June 30, the lighthouse and grounds, along with an ingress and egress route, are open for educational purposes. The remainder of the island is closed to all entry. Only a few pelicans nest near the lighthouse, and they seem to be accustomed to human activity near their nests. The remainder of the brown pelicans and other breeding birds nest in areas closed to all public entry. The agreement with the university is a compromise that allows and encourages environmental education on the refuge while protecting wildlife resources.

Comment: Stricter enforcement of closed area around rookery and extend the closed period for public use through July to protect late hatching birds.

Response: The plan does identify the need for staffing of Cedar Keys Refuge. Law enforcement presence and patrols will increase as law enforcement positions are funded. Most of the colonial birds have finished nesting by the beginning of July and it is felt that the present amount of public use on the beach of Seahorse Key does not negatively impact the birds. However, the plan does identify the need to continually monitor public use and its impact on Cedar Keys Refuge and to adjust visitor programs as necessary to ensure wildlife receives first priority.

Comment: Projects 9 and 12, dealing with Shired Island and Shell Mound improvements, should include port-a-potty units to protect shellfish areas near these high visitation areas.

Response: Presently, there are public restroom facilities located at the Levy County campground within two-tenths of a mile of the Shell Mound area and at the Dixie County campground within one-half mile of the

Statement: We all need to write to Congress to implement this plan, as we need our hunting.

Statement: Have you started your volunteer program?

Staff Response: Yes, it is called the "Friends of Suwannee." You can talk with members after the meeting.

Written Statement Received After the Meeting

Statement: What effect will the commercialization of the Suwannee River have on the Lower Suwannee Refuge.

Appendix E

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Appendix F

Glossary of Terms

- Alternative* A refuge management pattern designed to accomplish a desired end result. May be presented in the form of refuge objectives and strategies.
- Biological Diversity*..... The variety of life forms and processes, including the complete natural complex of species, communities, genes, and ecological functions.
- Compatible Use*..... A wildlife-dependent recreational use, or any other use on a refuge that will not materially interfere with or detract from the purposes(s) for which the refuge was established.
- Comprehensive Conservation Plan* ... A document that guides management decisions, and outlines management actions to be used to accomplish the mission of the National Wildlife Refuge System and the purposes of the refuge unit.
- Conservation Easement*..... A legal document that provides specific land-use rights to a secondary party.
- Cultural Resources* The physical remains of human activity (e.g., artifacts, ruins and burial mounds) and conceptual content or context (as a setting for legendary, historic, or prehistoric events, such as a sacred area of native peoples) of an area. It includes historically, archaeologically and/or architecturally significant resources.
- Degradation*..... A process of transition from a higher to a lower quality of fish and wildlife habitat.
- Diversity* Variety; usually used in reference to the number of species or living organisms in a given area, including some reference to their abundance.
- Ecosystem*..... The sum of all interacting parts of plant and animal communities and their associated non-living environment.
- Ecosystem Approach* A strategy or plan to manage the natural function, structure, and species composition of an ecosystem, recognizing that all components are interrelated, as opposed to a strategy or plan for managing individual species.
- Ecosystem Management* Management of an ecosystem that includes all ecological, social, and economic components which make up the whole of the system.
- Endangered Species* Any species of plant or animal defined through the Endangered Species Act as being in danger of

	extinction throughout all or a significant portion of its range, and published in the Federal Register.
<i>Environment</i>	The surroundings of a plant or animal.
<i>Environmental Assessment</i>	A systematic analysis of site-specific or programmatic activities used to determine whether such activities have a significant effect on the quality of the physical, biological, and human environment.
<i>Estuary</i>	An arm of the sea that extends inland to meet the mouth of a river.
<i>Extinct</i>	No longer existing.
<i>Fauna</i>	The animals of a particular region, taken collectively.
<i>Flora</i>	The plants of a particular region, taken collectively.
<i>Fuel</i>	Living and dead plant material that is capable of burning.
<i>Habitat</i>	A place where a plant or animal naturally or normally lives and grows.
<i>Habitat Diversity</i>	In reference to the variety in habitat; structural and compositional variety of habitat.
<i>Habitat Management Plan</i>	A written plan that outlines the management strategy of plant or animal species in the area where they naturally or normally live and grow.
<i>Herbicide</i>	A chemical agent used to kill plants or inhibit plant growth.
<i>Issue</i>	Any unsettled matter that requires a management decision.
<i>Mitigation</i>	Avoiding or minimizing impacts of an action by limiting the degree or magnitude of the action; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact by preservation and maintenance operations during the life of the action.
<i>Mosaic</i>	A variety of different habitats intermixed in a relatively small area. In the same manner, several successional stages intermixed within a vegetation type.
<i>National Environmental Policy Act</i> ..	An act which encourages productive and enjoyable harmony between humans and their environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere, to stimulate the health and welfare of humans, to enrich our understanding of the ecological systems and natural resources important to our Nation, and to establish a council on environmental quality.
<i>Native</i>	This term describes plant and animal species, habitats, or communities that originated in a particular region or area, or those that have

established in a particular region or area without the influence of humans.

- National Wildlife Refuge System* All lands, waters, and interests therein administered by the Fish and Wildlife Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish, wildlife, and plant resources.
- Prescribed Burning* The intentional application of fire to vegetation under specific environmental conditions to accomplish specific management objectives in specific areas identified in approved prescribed fire plans.
- Raptor* A bird of prey such as a hawk, eagle, or owl.
- Refuge Agreements* Agreements between the refuge and other federal, state, and local entities for refuge operations (e.g., a multi-agency visitors' center, law enforcement, and wildfire suppression and prescribed burning).
- Refuge Goals* Statements that describe a desired condition. Refuge goals are expressed in broad, general terms. They provide direction for developing objectives.
- Refuge Objectives* Concise statements that describe, in measurable terms, desired conditions, and thus provide focal points for directing management activities. They describe desired conditions in greater detail than refuge goals. Refuge goals and core problems provide the basis from which objectives are developed.
- Reintroduction* A plant or animal species that is introduced by humans to a range that it formerly occupied.
- RONs* Refuge Operating Needs System - A refuge planning, budgeting, and communication tool.
- Scoping* A process for determining the scope of issues to be addressed in the comprehensive conservation plan and for identifying the significant issues. It is a process whereby the public and federal, state, and local agencies are invited to participate.
- Shrub* A plant usually with several woody stems; a bush. A shrub differs from a tree by its low height.
- Species* A distinctive kind of plant or animal having distinguishable characteristics, and that can interbreed and produce young. A category of biological classification.
- Stakeholder Group* A group of citizens representing a broad spectrum of interests offering business, tourism, conservation, recreation, and historical perspectives.
- Strategies* Specific actions, tools and techniques that could be used to meet refuge goals and objectives, and provide direction for defining and coordinating operational tasks to effectively perform the refuge's purpose.

<i>Threatened Species</i>	Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. A plant or animal identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.
<i>Vegetation</i>	Plants in general, or the sum total of the plant life in an area.
<i>Vegetation Type</i>	A category of land based on potential or existing dominant plant species of a particular area.
<i>Watershed</i>	The entire land area that collects and drains water into a stream or stream system.
<i>Wetland</i>	Areas such as lakes, marshes, and streams that are inundated by surface or ground water for a long enough period of time each year to support, and do support under natural conditions, plants and animals that require saturated or seasonally saturated soils.
<i>Wildlife Diversity</i>	A measure of the number of wildlife species in an area and their relative abundance.
<i>Wildlife Management</i>	The art and science of producing, maintaining, benefitting, and/or enhancing wildlife populations and their associated habitats.

Appendix G

Refuge Operational Needs System

Maintenance Management System

The Refuge Operational Needs System (RONs) is the vehicle through which refuges identify unfunded operational needs. The Maintenance Management System (MMS) is the vehicle through which refuges identify deferred maintenance. The difference between the MMS system and RONs is that MMS is for repair or replacement of existing equipment and RONs if for new operational needs.

Not only are RONs and MMS updated annually to tract a refuge's needs, they are also used throughout the Service's budget justification process. The Department of the Interior, Office of Management and Budget, and Congress may scrutinize RONs and MMS lists before providing funding for a project. In this manner, they are also used to inform the Department and Congress what is accomplished on refuges with the funding that is provided. The RONs and MMS lists reflect the projects, objectives, and strategies identified in the comprehensive conservation plan.

Below is the current RONs list for Lower Suwannee and Cedar Keys National Wildlife Refuges.

	PROJECT NAME	NUMBER
1. *	Wildlife surveys (biotech position)	97001
2.	Kiosk for Salt Creek area	97006
3.	Kiosk for Shell Mound area	97007
4.	Observation tower, loop trail	97011
5.	Closed equipment storage building	97012
6.	Visitor center	97015
7.	Improved maintenance (maintenance person)	98001
8.	Longleaf pine research	98006
9.	Amphibian research	98007
10.	Sea turtle survey	98009
11.	Maintenance shop, Dixie	99001
12.	Fire, pickup truck	99002
13.	Shop mechanic (maintenance person)	00002
14.	Outreach (person)	00003
15.	Comprehensive conservation planning	00005
16.	Hydrology (operations specialist)	00006
17.	Exotic plant survey/control	00007
18.	Gopher tortoise survey	00008
19.	Long term biological studies (biologist)	01001
20.	General administration (office clerk)	01002
21.	Refuge office	01003
22.	Geographic Information System	01004
23.	Refuge video	01005
24.	Fire ecology research	01006
25.	Archaeology inventory	01007

- | | | |
|-----|---------------------------------------|-------|
| 26. | Environmental education partnership | 01008 |
| 27. | Dennis Creek tower and interpretation | 01009 |

* number represents the year and order of entry and not the present priority.

MMS Needs for Lower Suwannee and Cedar Keys National Wildlife Refuges

	PROJECT NAME	NUMBER
1.	Replace Fiat Allis bulldozer	00001
2.	Pave office road	00002
3.	Shired island boat ramp parking lot	00003
4.	Cabin replacement	00005
5.	Mobil home replacement	00007
6.	Replace lowboy trailer	00009
7.	Replace Champion road grader	00010
8.	Replace seawall at Seahorse Key	00011
9.	Replace river trail kiosk	00012
10.	Replace F150 pickup truck	01001
11.	Replace Ford Ranger pickup truck	01002

Appendix H

Lower Suwannee

National Wildlife Refuge

Table 4. Federal And State Listed Species That Occur Or May Potentially Occur

	Common Name	Federal Status +	State Status +	Occurrence Status ++
<i>Fish</i>				
Acipenser oxyrinchus desotoi	Gulf sturgeon	LT	LS	C
Micropterus notius	Suwannee bass	N	LS	C
<i>Amphibians</i>				
Ambystoma cingulatum	flatwoods salamander	LT	N	P
Notophthalmus perstriatus	striped newt	SC	N	P
Pseudobranchius striatus lustricolus	Gulf Hammock dwarf siren	SC	N	P
Rana capito	Gopher frog	N	LS	P
<i>Reptiles</i>				
Alligator mississippiensis	American alligator	T (s/a)	LS	C
Caretta caretta	loggerhead	LT	LT	P*
Chelonia myda	green turtle	LE	LE	P*
Dermodochelys coriacea	leatherback	LE	LE	P*
Drymarchon corais couperi	eastern indigo snake	LT	LT	C
Gopherus polyphemus	gopher tortoise	SC	LS	C
Lepidochelys kempii	Kemp's ridley	LE	LE	P*
Macrolemys temminckii	alligator snapping turtle	SC	N	P
Pituopis melanoleucus mugitus	Florida pine snake	SC	LS	P
Pseudemys concinna suwanniensis	Suwannee cooter	SC	LS	C
Stilosoma extenuatum	short-tailed snake	SC	LT	P
<i>Mammals</i>				
Microtus pennsylvanicus dukecampbelli	salt marsh vole	LE	LE	P
Plecotus rafinesquii	Rafinesque's big eared bat	SC	N	P
Podomys floridanus	Florida mouse	N	LS	P
Sciurus niger shermani	Sherman's fox squirrel	SC	LS	P
Trichechus manatus	manatee	LE	LE	C
Ursus americanus floridanus	Florida black bear	N	LT	P

Lower Suwannee

National Wildlife Refuge

APPENDIX H

Table 4. Federal And State Listed Species That Occur Or May Potentially Occur (Cont'd.)

Scientific Name	Common Name	Federal Status +	State Status +	Occurrence Status ++
<i>Birds</i>				
<i>Aimophila aestivalis</i>	Bachman's sparrow	SC	N	P
<i>Ajaia ajaja</i>	roseate spoonbill	N	LS	P
<i>Ammodramus maritimus peninsulae</i>	Scott's seaside sparrow	N	LS	C
<i>Apelocoma coerulescens</i>	Florida scrub jay	LT	LT	P
<i>Aramus guarauna</i>	limpkin	N	LS	P
<i>Buteo brachyurus</i>	short-tailed hawk	SC	N	C
<i>Charadrius melodus</i>	pipin plover	LT	LT	P
<i>Cistothorus palustris marianae</i>	Marian's marsh wren	N	LS	P
<i>Egretta caerulea</i>	little blue heron	N	LS	C
<i>Egretta thula</i>	snowy egret	N	LS	P
<i>Egretta tricolor</i>	tricolored heron	N	LS	P
<i>Elanoides forficatus</i>	swallow-tailed kite	SC	N	C
<i>Eudocimus albus</i>	white ibis	N	LS	P
<i>Falco peregrinmus tundrius</i>	pergrine falcon	E (s/a)	LE	P
<i>Falco sparverius paulus</i>	Southeastern American kestrel	SC	LT	P
<i>Grus canadensis pratensis</i>	Flrida sandhill crane	N	LT	P
<i>Haliaeetus leucocephalus</i>	bald eage	LT	LT	C
<i>Mycteria americana</i>	wood stork	LE	LE	C
<i>Laterallus jamaicensis</i>	black rail	SC	N	P
<i>Pandion haliaetus</i>	osprey	N	LS	P
<i>Pelecanus occidentalis</i>	brown pelican	N	LS	C
<i>Picoides borealis</i>	red-cockaded woodpecker	LE	LT	P
<i>Rynchops niger</i>	black skimmer	N	LS	P
<i>Speotyto cunicularia floridana</i>	Florida burrowing owl	N	LS	P
<i>Sterna antillarum</i>	least tern	N	LT	P

Lower Suwannee

National Wildlife Refuge

Table 4. Federal And State Listed Species That Occur Or May Potentially Occur (Cont'd.)

Scientific Name	Common Name	Federal Status +	State Status +	Occurrence Status ++
<i>Vascular Plants</i>				
<i>Agrimonia incisa</i>	incised groove-bur	SC	N	P
<i>Asplenium heteroresiliens</i>	Wagner's spleenwort	SC	N	P
<i>Arnoglossum diversifolium</i>	variable-leaved Indian-plantain	N	LT	P
<i>Carex chapmanii</i>	Chapman's sedge	SC	N	P
<i>Drosera intermedia</i>	spoon-leaved sundew	N	LT	P
<i>Forestiera godfreyi</i>	Godfrey's privet	N	LE	P
<i>Glandularia tampensis</i>	Tampa vervain	N	LE	P
<i>Hasteola robertiorum</i>	Florida hasteola	N	LE	P
<i>Leitneria floridana</i>	corkwood	SC	LT	P
<i>Litsea aestivalis</i>	pondspice	SC	LE	P
<i>Lythrum curtissii</i>	Curtiss' loosestrife	SC	LE	P
<i>Matelea floridana</i>	Florida spiny-pod	SC	LE	P
<i>Persea humilis</i>	scrub bay	SC	N	P
<i>Physostegia leptophylla</i>	sleander-leaved dragon-head	SC	N	P
<i>Phyllanthus leibmannianus</i> spp. <i>platykpis</i>	pinewood dainties	SC	LE	P
<i>Pycnanthemum floridum</i>	Florida mountain-mint	SC	N	P
<i>Rhynchospora culixa</i>	Georgia beakrush	SC	N	P
<i>Rhynchospora decurrens</i>	decurent beakrush	SC	N	P
<i>Schwalbea americana</i>	chaffseed	LE	LE	P
<i>Sium Floridanum</i>	Florida water-parsnip	SC	N	P
<i>Spigelia loganioides</i>	pinkroot	SC	LE	P
<i>Thelypteris reptans</i>	creeping fern	N	LE	P
<i>Zephyranthes simpsonii</i>	rain lily	SC	LT	P

Status and Occurrence Explanations

+ *Federal Status*

- LE** Listed as an Endangered Species under the provisions of the Endangered Species Act.
- LT** Listed as a Threatened Species under the provisions of the Endangered Species Act.
- (s/a)** Listed due to similarity of appearance
- N** Not currently listed nor being considered for listing.
- SC** Special Concern: While these species are not federally listed, the Fish and Wildlife Service considers them of management concern and encourages consideration during planning.

+ *State Status*

- LE (Animals)** Listed as Endangered Species by the Florida Fish and Wildlife Conservation Commission.
- LT (Animals)** Listed as Threatened by the Florida Fish and Wildlife Conservation Commission.
- LS (Animals)** Listed as a Species of Special Concern by Florida Fish and Wildlife Conservation Commission.
- LE (Plants)** Listed as Endangered by the Florida Department of Agriculture and Consumer Services under the provisions of Preservation of Native Flora of Florida Act.
- LT (Plants)** Listed as Threatened by Florida Department of Agriculture and Consumer Services under the provisions of the Preservation of Preservation of Native Flora of Florida Act.
- N** Not currently listed nor being considered for listing.

++ *Occurrence Status*

- C** (Confirmed) Occurrence status derived from a documented record in Florida Natural Areas Inventory Database and/or observation by refuge personnel
- C*** (Fish) (Confirmed) to exist in offshore waters.
- P** (Potential) Refuge believed to contain habitat to support species and potential for species to occur exists on the refuge.
- P*** (Sea turtles) Occurs in offshore waters, but no nesting has been known to occur on the refuge.

Cedar Keys

National Wildlife Refuge

APPENDIX H

Table 5. Federal And State Listed Species That Occur Or May Potentially Occur

Scientific Name	Common Name	Federal Status +	State Status +	Occurrence Status ++
<i>Vascular Plants</i>				
Glandularia tampensis	Tampa vervain	N	LE	P
Leitneria floridana	corkwook	SC	LT	P
<i>Fish</i>				
Acipenser oxyrinchus desotoi	Gulf sturgeon	LT	LS	C*
<i>Reptiles</i>				
Caretta caretta	loggerhead	LT	LT	P*
Chelonia mydas	green turtle	LE	LE	P*
Dermochelys coriacea	leatherback	LE	LE	P*
Drymarchon corais couperi	eastern indigo snake	LT	LT	P
Eumeces egregius insularis	Cedar key mole skink	SC	N	P
Gopherus polyphemus	gopher tortoise	SC	LS	C
Lepidochelys kempii	Kemp's ridley	LE	LE	P*
<i>Mammals</i>				
Microtus pennsylvanicus dukecampbelli	salt marsh vole	LE	LE	P
Trichechus manatus	manatee	LE	LE	C

Cedar Keys

National Wildlife Refuge

APPENDIX H

Table 5. Federal And State Listed Species That Occur Or May Potentially Occur (Cont'd.)

Scientific Name	Common Name	Federal Status +	State Status +	Occurrence Status ++
<i>Birds</i>				
<i>Ajaia ajaja</i>	roseate spoonbill	N	LS	P
<i>Ammodramus maritimus peninsulae</i>	Scott's seaside sparrow	N	LS	C
<i>Charadrius melodus</i>	piping plover	LT	LT	P
<i>Cistothorus palustris mariamae</i>	Marian's marsh wren	N	LS	P
<i>Egretta caerulea</i>	little blue heron	N	LS	C
<i>Egretta thula</i>	snowy egret	N	LS	P
<i>Egretta tricolor</i>	tricolored heron	N	LS	C
<i>Elanoides forficatus</i>	swallow-tailed kite	SC	N	C
<i>Eudocimus albus</i>	white ibis	N	LS	C
<i>Falco peregrinus tundrius</i>	peregrine falcon	E (s/a)	LE	P
<i>Falco sparverius paulus</i>	Southeastern American kestrel	N	LT	P
<i>Haliaeetus leucocephalus</i>	bald eagle	LT	LT	C
<i>Laterallus jamaicensis</i>	black rail	SC	N	P
<i>Pandion haliaetus</i>	osprey	N	LS	C
<i>Pelecanus occidentalis</i>	brown pelican	N	LS	C
<i>Picoides borealis</i>	red-cockaded woodpecker	LE	LT	P
<i>Rynchops niger</i>	black skimmer	N	LS	P
<i>Sterna antillarum</i>	least tern	N	LT	P

Table 6. Priority Bird Species for South Atlantic Coastal Plain

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score			Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend	Population			
1a.	Bewick's Wren	35	5	5		C	Nearly extinct	
	Appalachian Kirtland's Warbler ⁵	35	5	5		A	Mostly SC, GA	
	Black-capped Petrel	32	5	5		P	Concentrations off NC	
	Bermuda Petrel ⁵	32	2	5		P	Increasingly regular off NC	
	Red Knot	32	5	5		C	Mostly GA, FL	
	South Atlantic Red-cockaded Woodpecker ⁵	32	5	4	80.4*	R		
	Snowy Plover	31	3	5		D	St. Joseph Peninsula to Dog Island, FL Gulf	
	Southeast Painted Bunting	31	5	5		B	GA, SC, n. FL, se NC	
	Eastern Roseate Tern ⁵	30	3	4		A	Highly Pelagic	
	North American Black-throated Green Warbler	30	5	4	100.0*	B	VA, NC, SC	
	Wayne's (Coastal) Bachman's Sparrow	30	5	5	36.6*	R	Primarily breeding	
	Saltmarsh Sharp-tailed Sparrow	30	5	3		C		
	Wood Stork ⁵	29	4	4	44.3?	D	FL, GA, se SC	
	Southeast Henslow's Sparrow	29	5	4		D	Winters FL, GA, SC(?), local breeding ne NC, se VA	
	Swallow-tailed Kite	28	4	3	10.8	B	SC, GA, FL	
	North American American Kestrel	28	5	4		D		
	Southeastern Piping Plover ⁵	28	4	4		D	Mostly winter, local breeding NC and possibly SC	
	American Oystercatcher	28	5	3		D		

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score			Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend				
lb.	Short-tailed Hawk	27	2	3		B	St. Marks to Lower Suwannee, FL	
	Florida Black Rail	27	4	4		D		
	Sandhill Crane	27	3	3		R	FL, GA	
	Florida Brown-headed Nuthatch	27	5	5	38.7*	R		
	Nelson's Sharp-tailed Sparrow	27	3	3		C		
	Audubon's Shearwater	26	5	3		P		
	Caribbean Yellow Rail	26	4	3		C		
	Wilson's Plover	26	4	3		D	Mostly breeds, irregular in winter in GA, FL	
	Bicknell's Thrush	26	5	3		A		
	Swainson's Warbler	26	4	1	15.9	B		
	Seaside Sparrow	26	5	3		D	Atl. and Gulf pops. may represent different species	
	Whimbrel	25	5	5		A		
	Buff-breasted Sandpiper	25	3	4		A		
	Black-throated Blue Warbler	25	5	3		A		
	Cerulean Warbler	25	2	3		B	Roanoke River, NC; elsewhere?	
	Brown Pelican	24	5	1		R		
	Southeast							
	Marbled Godwit	24	3	4		C		
	Bobolink	24	5	5		A		
	Buff-breasted Sandpiper	24	3	3		A		
	Brant	23	3	5			C Mostly NC	
	King Rail	23	5	4		D		
	Sandhill Crane	23	5	3		C	FL, GA	

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score		Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend			
Ib (cont.)	Greater Silt Sandpiper	23	4	5		A	
	Solitary Sandpiper	23	5	3		A	
	American Woodcock	23	5	4		D	Mostly winter, some breeding
	Wood Thrush	23	3	5	8.5*	B	
	Northern Parula	23	5	5	23.7*	B	
	Cape May Warbler	23	5	3		A	
	Worm-eating Warbler	23	3	2	14.7	B	
	Connecticut Warbler	23	5	3		A	
	Hooded Warbler	23	4	4	15.0*	B	
	Cory's Shearwater	22	5	3		P	
	White Ibis	22	4	4	15.7?	D	
	American Black Duck	22	3	5		D	Breeds VA, NC; formerly wintered to GA
	Clapper Rail	22	5	3		D	
	Semipalmated Sandpiper	22	5	5		A	
	Purple Sandpiper	22	4	2		C	
	Short-billed Dowitcher	22	5	5		A	Many winter
	Short-eared Owl	22	3	5		C	
	Black Tern	22	5	5		A	
	Sedge Wren	22	4	2		C	
	Veery	22	5	5		A	
Yellow-throated Warbler	22	4	3	25.5*	D	Mostly breeding, some winter coastal GA, ne FL	
Prairie Warbler	22	3	4	17.9*	B		
Bay-breasted Warbler	22	3	3		A		
Louisiana Waterthrush	22	4	2	8.1	B		
Field Sparrow	22	5	5		D	Primarily winter	
Le Conte's Sparrow	22	3	2		C	Mostly GA, SC	

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score		Percent of BBS of Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend			
IIa.	American Bittern	21	4	5		D	Most wintering, local breeding
	Canvasback	21	4	4		C	
	Northern Bobwhite	21	4	5		R	
	Black-bellied Plover	21	4	5		A	Many winter
	Willet	21	5	3		D	
	Ruddy Turnstone	21	5	5		A	Many winter
	Sanderling	21	5	5		A	Many winter
	Western Sandpiper	21	5	3		A	Many winter
	Gull-billed Tern	21	5	4	11.57	D	
	Least Tern	21	5	5		B	
	Black Skimmer	21	4	5		D	
	Yellow-billed Cuckoo	21	4	5		B	
	Black-throated Green Warbler all, including Wayne's)	21	5	3		A	
	Grasshopper Sparrow	21	5	5		D	Primarily migration, some breeding and wintering
	Least Bittern	20	5	3		B	
	Lesser Scaup	20	5	5		C	
	Black Scoter	20	4	5		C	
	Northern Harrier	20	4	4		C	
	American Avocet	20	3	3		C	
	Least Sandpiper	20	5	5		A	
	Dunlin	20	4	5		C	
	Sandwich Tern	20	5	3		B	
	Common Ground-Dove	20	3	5	17.67	R	FL to se SC
Palm Warbler	20	3	5		C		
Eastern Towhee	20	5	5	24.5*	D		

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score			Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend	Population			
IIb. (cont.)	Red-throated Loon	19	5	4		C	Major concentrations from Back Bay, VA, to Cape Fear, NC; uncommon to rare elsewhere	
	Common Loon	19	5	3		C		
	Greater Scaup	19	3	5		C		
	Greater Yellowlegs	19	5	3		A	Some winter	
	Pectoral Sandpiper	19	5	3		A		
	Royal Tern	19	5	3	30.6?	D		
	Barn Owl	19	5	3		D		
	Least Flycatcher	19	3	5		A		
	Carolina Chickadee	19	4	4	11.4	R		
	Rusty Blackbird	19	3	5		C		
IIb.	Chuck-will's-widow	21	5	2	21.7*	B		
	Prothonotary Warbler	21	4	1	34.4*	B		
	Acadian Flycatcher	20	4	1	13.7	B		
	White-eyed Vireo	20	5	2	17.8	D	Primarily breeding	
	Yellow-throated Vireo	19	4	1	10.8*	B		
	Pine Warbler	19	5	2	22.2*	D		
	Summer Tanager	19	5	2	18.6*	B		
	Orchard Oriole	19	5	2	12.9*	B		
	Kentucky Warbler	19	2	1	2.5	B		
	Bald Eagle ⁵	17	3	2		D		
IIIa.								
IIIb.								

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Total PIF Priority Species Scores	Concern Score			Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend				
Regional Interest	Great Blue Heron	13	4	1		D		
	Great Egret	14	4	2		D		
	Snowy Egret	14	4	2		D		
	Little Blue Heron	15	4	2		D		
	Tricolored Heron	18	4	3		D		
	Black-crowned Night-Heron	17	4	5		D		
	Yellow-crowned Night-Heron	18	5	2		D		
	Glossy Ibis	17	4	3		D		
	Canada Goose	No Score				C	Mostly NC, SC	
	Atlantic pops. Tundra Swan	20	4	1		C	Mostly ne NC	
	Wood Duck	17	3	2		D		
	Mallard	15	5	3		D	Mostly winter	
	Blue-winged Teal	17	5	3		A	Some winter	
	Northern Pintail	16	3	5		C		
	Redhead		21	3	4		C	
	Ring-necked Duck	19	4	2	4		C	
	Surf Scoter		20	3	3	4	C	Mostly NC
	White-winged Scoter	17	3	4		C	Mostly NC	
	Mississippi Kite	19	3	1		B	Most common FL to SC; Rare and local N	
	Limpkin		16	2	2		R	Iso. pop. Apalachicola, FL
Semipalmated Plover	17	5	3		A	Many winter		
Spotted Sandpiper	18	5	3		A	Many winter		
Lesser Yellowlegs	18	5	3		A	Many winter		
Common Tern	16	3	4		D	Of special concern VA, NC		
Forster's Tern	19	2	3		D			
Whip-poor-will	18	3	1		B			
Red-headed Woodpecker	19	4	2	4.8		D	Primarily breeding	

Table 6. Priority Bird Species for South Atlantic Coastal Plain (Cont'd.)

Priority Entry Criteria	Species	Concern Score			Percent of BBS Population	Local Migratory Status ²	Geographical or Historical Notes
		Total PIF Priority Species Scores	Area Importance	Population Trend			
Regional	Eastern Wood-Pewee	18	4	2		B	
Interest	Eastern Kingbird	18	4	4		B	
(cont.)	Loggerhead Shrike	19	3	4		D	Rare now in NC, VA
	Black-and-white Warbler	14	2	1		D	Primarily breeding, rare winter coastal GA, FL
	Eastern Meadowlark	16	2	5		D	

¹Entry criteria:

- Ia. Overall Highest Priority Species.** Species with total score 28-35. Ordered by total score. Consider deleting species with AI <2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.
- Ib. Overall High Priority Species.** Species with total score 22-27. Ordered by total score. Consider deleting species with AI <2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.
- Ila. Area Priority Species.** Species with slightly lower score total 19-21 with PT+AI=8+. Ordered by total score. These are overall moderate priority species.
- Ilb. Species with High Percent of BBS Population.** Species with score total 19-21 with percent of BBS population above a threshold established (based on relative size of physiographic area), not already listed above, ordered by total score (*signifies highest percentage among physiographic area). These are overall moderate priority species.
- IIla. Additional Species of Global Priority.** Add WatchList species (Partners in Flight-National Audubon Society priority species at national level), not already listed in either I or II, with AI=2+. Order by total score. Consider deleting species with AI=2 if confirmed to be of peripheral occurrence and not of local conservation interest, but retain if a local population is viable and/or manageable. These are also overall moderate priority species.
- IIlb. Additional Federally Listed Species.** Federal listed species if not already included above. Overall low priority, but appropriate legal obligations (“legal priority species”) to protect through appropriate management and monitoring still apply. Only Bald Eagle meets this criterion in some Southeast physiographic areas.
- Other Local or Regional Interest Species.** Includes game or nongame species identified by State Working Groups. Also, may include species often meeting criteria for I or II within other physiographic areas and therefore of regional interest for monitoring throughout the Southeast. These are overall low priority species within physiographic area, but may be more important within one or more States (especially where multiple states have designated some special protective status on the species).

²Local Migratory Status, codes adapted from Texas Partners in Flight as follows:

- A =** Breeds in temperate or tropical areas outside of region, and winters in temperate or tropics outside of region (*i.e.*, passage migrant).
- B =** Breeds in temperate or tropical areas including the region, and winters exclusively in temperate or tropics outside the region (*i.e.*, includes both breeding and transient populations).
- C =** Breeds in temperate or tropical areas outside of region, and winters in both the region and in temperate or tropical areas beyond area (*i.e.*, includes both transient and wintering populations).
- D =** Breeds and winters in the region, with perhaps different populations involved, including populations moving through to winter beyond the region in temperate or tropical areas (*i.e.*, populations may be present throughout year, but may include a large number of passage migrants).
- E =** Species reaching distributional limits within the region, either as short-distance or long-distance breeding migrants, but at population levels above peripheral status.
- F =** Same as E except for wintering (non-breeding) migrants.
- R =** Resident, generally non-migratory species (though there may be local movements).
- RP =** Resident, non-migratory species, reaching distributional limits within the region, but at population levels above peripheral status.
- P =** Pelagic, breeding grounds outside of region, but can occur during breeding season.
- PB =** Post-breeding dispersal or non-breeding resident; species present during breeding season, but not known to be breeding in the region proper.

³Highest percent of breeding population recorded in temperate North America indicated by "3"; ? indicates species widespread outside of temperate North America and/or waterbirds poorly sampled by Breeding Bird Survey within physio. area.

⁴AI or PT score revised from what was derived by BBS data, or lack thereof, based on better local information.

⁵Species listed as either Federal Endangered or Threatened.

Table 7. Species Suites for Lower Suwannee and Cedar Keys National Wildlife Refuges

Priority Level	Open Water/Colonial							
	Southern Pine/Grasslands	Shrub-scrub	Forested Wetlands/Hammocks	Mangroves-Maritime*	Transient Landbirds	Emergent Wetlands	Nesting Waterbirds*	Shorebirds*
<i>Extremely High</i>	Red-cockaded Woodpecker (?)	Florida Scrub-Jay*	Swallow-tailed Kite	Prairie Warbler (FL)		Wood Stork		Snowy Plover (SE)
	Bachman's Sparrow Henslow's Sparrow Am. Kestrel (SE)					Piping Plover		Am. Oystercatcher
<i>High</i>	Brown-headed Nuthatch		Short-tailed Hawk Swainson's Warbler American Woodcock Hooded Warbler Yellow-throated Warbler	Gray Kingbird Black-whiskered Vireo (?)	Black-thr. Blue Warbler Cerulean Warbler Bobolink Wood Thrush Cape May Warbler Worm-eating Warbler Connecticut Warbler Veery Bay-breasted Warbler Louisiana Waterthrush	Black Rail Nelson's Sharp-tailed Sparrow Yellow Rail Seaside Sparrow King Rail Clapper Rail Black Ter Sedge Wren	Brown Pelican Reddish Egret (?) White Ibis	Whimbrel Marbled Godwit Stilt Sandpiper Solitary Sandpiper Semipalmated Sandpiper Short-billed Dowitcher Short-eared Owl
	Field Sparrow LeConte's Sparrow	Northern Parula						
<i>Moderate</i>	Northern Bobwhite	Co. Ground-Dove	Yellow-billed Cuckoo		Black-thr. Green Warbler Kentucky Warbler	American Bittern Canvasback Gull-billed Tern (?) Least Tern Black Skimmer Least Bittern Northern Harrier Common Loon Royal Tern Barn Owl Bald Eagle		Black-bellied Plover Willet Ruddy Turnstone Western Sandpiper American Avocet Least Sandpiper Dunlin Greater Yellowlegs Pectoral Sandpiper
	Grasshopper Sparrow Palm Warbler Carolina Chickadee Chuck-will's-widow Pine Warbler Summer Tanager	Eastern Towhee White-eyed Vireo Orchard Oriole	Rusty Blackbird Chuck-will's-widow Prothonotary Warbler Acadian Flycatcher Yellow-throated Vireo Summer Tanager Bald Eagle					

Table 7. Species Suites for Lower Suwannee and Cedar Keys National Wildlife Refuges (Cont'd.)

Priority Level	Open Water/Colonial						Shorebirds*	
	Southern Pine/Grasslands	Shrub-scrub	Forested Wetlands/Hammocks	Mangroves-Maritime*	Transient Landbirds	Emergent Wetlands		Nesting Waterbirds*
Local or Regional Interest	Red-headed Woodpecker Eastern Kingbird Eastern Meadowlark	Loggerhead Shrike Eastern Wood-Pewee	Wood Duck Limpkin Whip-poor-will Eastern Wood-Pewee Black-and-white Warbler			Mallard Blue-winged Teal Northern Pintail Redhead Ring-necked Duck Common Tern Forster's Tern	Great Blue Heron Great Egret Snowy Egret Little Blue Heron Tricolored Heron Black-crowned Night-Heron Yellow-crowned Night-Heron	Semipalmated Plover Spotted Sandpiper Lesser Yellowlegs

*Cedar Keys National Wildlife Refuge is in Peninsular Florida. Cedar Keys National Wildlife Refuge supports breeding mangrove species (principally Florida Prairie Warbler, possibly Black-whiskered Vireo), most transient shorebirds, and most breeding colonial nesting waterbirds.

Appendix I

Lower Suwannee

National Wildlife Refuge

COMPATIBILITY DETERMINATION

Uses

The following uses were considered for compatibility determination review: environmental education and interpretation, fishing, hunting, forestry practices, refuge resource research studies, wildlife observation, and bicycling. A description and anticipated biological impacts for each use are addressed separately in this Compatibility Determination.

Station Name

Lower Suwannee National Wildlife Refuge

Date Established

April 10, 1979

Establishing and Acquisition Authorities

Lower Suwannee National Wildlife Refuge is located in Levy and Dixie Counties, Florida, and was established by the authority of the Fish and Wildlife Act of 1956.

Purposes For Which the Refuge Was Established

“ . . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . . ” 16 U.S.C. 742f(a)(4) “ . . . for the benefit of the United States Fish and Wildlife Service in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant or condition of servitude . . . ” 16 U.S.C. 742f(b)(1) (Fish and Wildlife Act of 1956, 16 USC 742(a)--754) as amended.

Management Goals

Wildlife. Expand scientifically based monitoring and research to support management decisions on wildlife habitat and populations.

Habitat. Restore, conserve, and enhance the natural diversity, abundance, and ecological function of refuge habitat, with an emphasis on managing habitat to benefit threatened and endangered species and species of special concern in the State of Florida.

Resources Protection. Protect natural and cultural resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.

Public Use. Provide opportunities for environmental education, interpretation, and wildlife-dependent recreation in accordance with the National Wildlife Refuge System Improvement Act of 1997.

Landscape Management. Promote interagency and private landowner cooperation and partnerships for the management and protection of natural and cultural resources within the Big Bend Region of Florida, the Suwannee River Basin, and the North Florida Ecosystem to benefit wildlife, water quality and quantity, and the American people.

Other Applicable Laws, Regulations, and Policies:

- Antiquities Act of 1906 (34 Stat. 225)
- 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; 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)
- National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR Subchapter C; 43 CFR 3101.3-3)
- Emergency Wetlands Resources Act of 1986 (S.B. 740)
- North American Wetlands Conservation Act of 1990
- Food Security Act (Farm Bill) of 1990 as amended (HR 2100)
- 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
- Title 50, Code of Federal Regulations, Parts 25-33
- Archaeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990

Compatibility determinations for each description listed were considered separately. Although for brevity, the preceding sections from “Uses” through “Other Applicable Laws, Regulations and Policies” are only written once within the plan, they are part of each descriptive use and become part of that compatibility determination if considered outside of the comprehensive conservation plan.

Description of Use

Environmental Education and Interpretation

Environmental education and interpretation are those activities which seek to increase the public's knowledge and understanding of wildlife, national wildlife refuges, ecology, and land management, as well as contribute to the conservation of natural resources. If this comprehensive conservation plan is enacted, interpretation and environmental education programs for the refuge would be developed. A visitor center or visitor contact station would be constructed to serve as the hub for public outreach and education. Environmental education curriculum on refuge resources consistent with the Florida Department of Education (Sunshine State) standards would be provided to local schools. Interpretive information would be developed and a kiosk constructed to highlight the Dixie County portion of the refuge. Interpretive panels and a kiosk would be developed for the Shell Mound area. An observation tower and interpretive information would be erected on the Dennis Creek walking trail. Elevated boardwalks would be constructed along the Dennis Creek trail. An observation tower with interpretive panels would be constructed along the visitor loop road in Levy County. A native plants, wild flower, and butterfly garden would be established along with a brochure depicting the common wild flowers present on the refuge. Canoe tours, birding tours, and wild flower and butterfly walks would be conducted at least quarterly.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

Construction of facilities such as boardwalks, kiosks, and observation towers would alter small portions of the natural environment on the refuge. Proper planning and placement of the facilities would ensure that wetlands, threatened or endangered species, or species of special concern are not negatively impacted. Proper permits through the county, state, and federal regulatory agencies would be obtained prior to construction to ensure resource protection. The Dennis Creek boardwalk would reduce human impacts of trampling on the salt marsh. The use of on-site, hands-on, action-oriented activities to accomplish environmental education and interpretive tours may impose a low-level impact on the sites used for these activities. These low-level impacts may include trampling of vegetation and temporary disturbance to wildlife species in the immediate area.

Educational activities held off-refuge would not create any biological impacts on the resource.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

Zoning of visitor activities by time and space, clustering public use facilities, proper monitoring, educating the visitor, and enforcement would ensure compatibility with the purpose of the refuge and the purpose of the National Wildlife Refuge System. Through periodic evaluation of trails and visitor contact points, the outreach program would assess resource

Anticipated Biological Impacts of the Use

It is anticipated that forest habitat management, in accordance with the approved Fire Management Plan, would enhance the existing forested habitats and provide necessary and improved wildlife habitat quality. Habitat management is an inherent, long-term process in which careful consideration and planning of activities must be addressed. The approved Fire Management Plan is the first working document for forest management on the refuge and addresses the initial steps being conducted by refuge staff in order to reach the long-term goals of the refuge and the Service.

Commercial timber-harvest operations, if not tightly controlled and supervised, have the potential to cause adverse impacts on environmental quality. All harvesting operations are conducted in accordance with Service policy and under special harvesting guidelines, which are attached to and made a part of the Special Use Permit granted to the successful contractor. In addition to these controls, harvesting is also conducted in accordance with the guidelines found in the State of Florida's *Best Management Practices* manual and *Management Guidelines for Forested Wetlands*.

The controls placed on harvesting operations minimize possible adverse effects caused by logging equipment, such as excessive surface defacement and negative impacts to surface water quality. However, minimum short-term impacts do occur from harvesting operations such as actual mechanized operation disturbance to wildlife and trampling of the understory vegetation by equipment. The understory vegetation usually recovers in one growing season and most often is more beneficial to wildlife due to increased density and palatability caused by the harvest operation (i.e., decreased competition and increased sunlight reaching the forest floor).

NEPA Compliance:

Categorical Exclusion

Environmental Assessment X

Environmental Impact Statement

FONSI X

Determination: (Check one)

This use is compatible X This use is not compatible_

Stipulation Necessary to Ensure Compatibility

Active forest management activities as directed by the Forest Management Plan for Lower Suwannee National Wildlife Refuge are necessary and fully compatible with the purpose for which the refuge was established. Conducting forest management activities within the scope of approved management plans, Service policy of the National Wildlife Refuge System, and all applicable federal and state laws and regulations ensures both present and future compatibility of use. An Environmental Assessment is on file at the refuge headquarters as part of the Forest Management Plan.

Justification

The forest management actions as set forth in the Forest Management Plan for Lower Suwannee National Wildlife Refuge are in accordance with Service guidelines for the protection, maintenance, and enhancement of habitats for wildlife populations on the refuge. Adherence to the Forest Management Plan promotes the enhancement of habitats for

both threatened and endangered plants, migratory birds, and indigenous wildlife species; promotes habitat restoration; protects cultural resources; and provides opportunities for public recreation and environmental education.

Description of Use

Hunting

Hunting has been permitted since 1982, when the refuge was first approved to offer hunting of migratory birds, and big and small game. The administration as well as special regulations for hunting have changed over time but the majority of the program is the same. The comprehensive conservation plan calls for continued hunting of waterfowl, deer, feral hogs, turkey, and small game. All hunts fall within the framework of the State's open seasons and follow state regulations. There are additional refuge specific regulations to supplement State regulations. These refuge specific regulations are reviewed annually and incorporated into the refuge brochure and permit that hunters are required to have prior to hunting on the refuge. The comprehensive conservation plan, if enacted, would increase law enforcement presence during hunting; would evaluate the hunt program annually and modify seasons or regulations if necessary; would modify deer hunting regulations to increase the number of doe harvests in an effort to better balance the sex ratio and improve overall deer herd health; would evaluate the possibility of conducting a youth-oriented deer hunt; would maintain the archery-only area and present closed areas; and, would designate additional non-hunting areas.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

If left uncontrolled, white-tailed deer can become so numerous that they adversely affect associated plant and animal communities, thus altering ecological diversity and succession. This has been well documented through research and accepted over a period of many years. Necropsy and abomasal parasite counts conducted by wildlife veterinarians from the Southeastern Cooperative Wildlife Disease Study Unit on refuge deer indicate a deer herd that does not need to expand beyond the present population. If the refuge did not have a hunting season there would be negative biological impacts from over population of deer.

Feral hogs are prolific and if not controlled can quickly over populate good habitat. They can cause negative biological impacts by destroying habitat and competing against native wildlife species for the same resources. Although it is not practically possible to remove all hogs from the refuge, hunting has been successful in keeping the population under control.

Environmental impacts from hunting deer, turkey, small game, and migratory birds would be limited to minimal vegetative disturbance and the remote possibility of negative effects on threatened, endangered, or non-target species by hunters through malice or mistake. The hunting program requires a great deal of staff time to administer and ensure visitor safety and hunter compliance.

NEPA Compliance:

Categorical Exclusion

Environmental Assessment X

Environmental Impact Statement

FONSI X

Determination: (Check one)

This use is compatible X This use is not compatible_

Stipulation Necessary to Ensure Compatibility

An active law enforcement program would ensure regulation compliance and protect refuge resources. All hunters would be required to obtain a refuge permit and read the refuge hunt regulations. An annual hunt evaluation would be prepared after each hunting season. Hunters would not be allowed to use all-terrain vehicles, off-road vehicles, or horses, and automobiles would be permitted only on roads open to the general public. Deer herd health checks would be conducted by the Southeastern Cooperative Wildlife Disease Study Unit every 3 or 4 years to evaluate effects of the refuge hunting program. An Environmental Assessment is on file at the refuge headquarters as part of the Hunting Plan.

Zoning of the refuge by time and space would help to reduce conflicts between hunters and non-hunting visitors. Areas of the refuge that support most of the wildlife observation and visitor interpretive facilities that are highly utilized by non-hunting visitors would be designated as "closed to hunting."

Justification

Hunting is compatible with the purposes for which the refuge was established and the mission of the National Wildlife Refuge System. It is one of the public use recreational activities that is specifically identified in the 1996 Executive Order and the 1997 National Wildlife Refuge System Improvement Act to be allowed where possible on refuges. Refuge deer and hog hunts are used as management tools to protect the diverse ecosystem. It has been well documented that hunting mortality from small game or spring gobbler harvests is incidental to overall mortality.

Description of Use

Refuge Resource Research Studies

This activity would allow college students, university professors, and the scientific community access to the natural environment to conduct research. The outcome of this research would result in better knowledge of our natural resources and improved methods to manage, monitor, and protect refuge resources. If the comprehensive conservation plan is enacted, the identified research would include the following: effects of prescribed fire on amphibian and reptile populations, aquatic inventory of fishes and mussels in the lower reaches of the Suwannee River, and a study to determine if the refuge gopher tortoises harbor the respiratory disease which threatens this species. The refuge would support Fish and Wildlife Service and U.S. Geological Survey research of the threatened Gulf sturgeon in the Suwannee River, expand partnership with University of Florida to conduct research of trust resources on the refuge, and expand partnership with the Suwannee River Water Management District to document water quality and quantity needs.

Mandatory 10-year Re-evaluation Date: August 2011

Anticipated Biological Impacts of the Use

There should be no significant negative impacts from scientific research on the refuge. The knowledge gained from the research would provide information to improve management techniques and better meet the needs of trust resource species. Impacts such as trampling vegetation and temporary disturbance to wildlife would occur, but should not be significant. A small number of individual plants or animals may be collected for further study.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

Each request for use of the refuge for research would be examined on its individual merit. Questions of who, what, where, when, and why would be asked to determine if the requested research could best be conducted on the refuge without significantly affecting the resources. If so, the researcher would be issued a Special Use Permit. Progress would be monitored and the researcher would be required to annually submit progress and final reports.

Justification

The benefits derived from sound biological research provide a better understanding of species and the environmental communities present on the refuge. This far outweighs any short-term disturbance or loss of individual organisms.

Description of Use

Wildlife Observation

The observation of wildlife in their natural environment, whether it is an animal as large as a white-tailed deer or as small as a beautiful butterfly, is the number one reason people visit national wildlife refuges. Visitors look for and hope to observe wildlife by driving on open roads, boating the waterways, walking on designated trails, or biking on secondary roads. There are 50 miles of refuge primary roads maintained for public vehicle travel. An additional 50 miles of refuge secondary roads are maintained for management purposes. Only official vehicles are permitted on these secondary roads, however, they are open to individuals wishing to walk or bike for the purpose of observing wildlife. Foot travel is generally allowed anywhere on the refuge but there are 4 trails designated only for walking. Motorized vehicles are restricted to primary roads, while bicycles are allowed on both primary and secondary roads. Boats are permitted in all navigable waters, including the Suwannee River and its tributaries and creeks, as well as the Gulf of Mexico with its many meandering estuarine creeks. If the comprehensive conservation plan is enacted, in addition to the mentioned facilities, a walking trail would be developed through the pine forest and salt marsh at Salt Creek, and wildlife observation towers would be constructed at Dennis Creek and the Wildlife Drive loop road. The observation platforms on the River Trail and Salt and Fishbone Creeks would be maintained.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

Construction of the walking trail and observation towers would alter small portions of the natural environment. Proper planning prior to construction of the public use facilities would reduce negative impacts to wetlands, threatened or endangered species, or species of special concern. Impacts such as trampling vegetation and wildlife disturbance by refuge visitors does occur, but presently is not significant. Other negative impacts are caused by visitors violating refuge regulations such as littering or illegally taking wildlife. Refuge roads are maintained for fire protection, law enforcement, and management programs. Use of the roads by the public does incur added maintenance costs.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

Permits prior to construction would be obtained from local, state, and federal regulatory agencies to reduce the possibility of negatively impacting wetlands or protected species. Horseback riding would not be permitted. Law enforcement patrol of public use areas would continue to minimize violations of refuge regulations. Refuge roads would be closed to the public during extremely wet periods such as flooding or hurricanes to prevent road damage and for visitor safety. Public use for wildlife observation would be monitored to document any negative impacts. If any negative impacts become noticeable, corrective action would be taken to reduce or eliminate the effects on wildlife.

Justification

Wildlife observation is the number one preferred public use of Lower Suwannee National Wildlife Refuge and the National Wildlife Refuge System. The 1996 Executive Order and the 1997 National Wildlife Refuge System Improvement Act identify wildlife observation as a priority public recreational use to be facilitated on refuges. It is through permitted, compatible uses such as this, that the public becomes aware of and provides support for our national wildlife refuges.

Description of Use

Bicycling

The primary refuge roads are surfaced with limerock and the secondary roads are dirt or grass. There are no paved roads on the refuge. Recreational bike riding is difficult to distinguish from riding a bike to observe wildlife. Presently, and under the guidelines outlined in the comprehensive conservation plan, bicycle riding is permitted on refuge primary and secondary roads. There are no plans to develop or designate refuge trails exclusively for bike riding.

Mandatory 10-year Re-evaluation Date: August 2011

Anticipated Biological Impacts of the Use

Recreational bicycle riding is allowed on refuge primary and secondary roads. Currently, average annual use is low with late fall through early spring being the preferred seasons. At the current rate of use, no known negative impacts occur from recreational bicycle riding. While there may be some disturbance to wildlife, it is of a short duration, probably not significant, and similar to disturbance by automobiles. It is not anticipated that the volume of bike riding on the refuge would reach levels to cause significant impacts. The unpaved roads are a deterrent to many bicyclists, especially people who are interested in long distance biking or bike racing. Another deterrent to heavy use is the hot, humid weather and the abundance of biting insects from May to October.

NEPA Compliance

Categorical Exclusion_

Environmental Assessment X

Environmental Impact Statement_

FONSI X

Determination (check one)

This use is compatible X. This use is not compatible_

Stipulation Necessary to Ensure Compatibility

Bicycle riding is not one of the six primary recreational uses on refuges that are identified in the 1997 National Wildlife Refuge System Improvement Act. For this reason, and to ensure compatibility, bicycle riding would not take precedence over other public use or management activities. Organized bike races and off-road riding would not be permitted. Bicycles would not be allowed on designated walking trails such as the River Trail, Shell Mound Trail, and Dennis Creek Trail. No additional trails would be constructed strictly for the purpose of bicycle riding. If bicycle riding on the secondary roads becomes disruptive to wildlife, then refuge management would consider closing some roads to this activity.

Justification

There are abundant locations off-refuge that provide excellent opportunities for bicycle riding and the refuge should not have to provide additional opportunities. However, the refuge has approximately 50 miles of primary roads that are open to the public for motorized traffic and another 50 miles of secondary roads that are maintained for forest and fire management. These secondary roads are for official motorized vehicles; however, walking and bicycling are permitted on these roads. These roads are used by visitors for better access to fishing and hunting areas or wildlife/wildlands observation--all priority public uses. Some people walk these roads, while others leisurely ride bicycles to enjoy the vistas. This type of bike use on the refuge may or may not be considered a means to observe wildlife; however, it is a low impact, low maintenance use that generates good public and community relations.

The signature of approval is for all compatibility determinations considered within the comprehensive conservation plan. If one of the descriptive uses is considered for compatibility outside of the plan, the approval signature becomes part of that determination.

Approval of Compatibility Determination

Signature: Refuge
Manager: Ken Lichtenberger 8/24/01
(Signature and Date)

Review: Regional Compatibility
Coordinator: Thomas J. Puma 8/24/01
(Signature and Date)

Review: Refuge
Supervisor: Richard D. Ingram 8/24/01
(Signature and Date)

Concurrence: Regional
Chief: JMB 8/24/01
(Signature and Date)

Appendix J Cedar Keys

National Wildlife Refuge COMPATIBILITY DETERMINATION

Uses

The following uses were considered for compatibility determination review: environmental education and interpretation, fishing, refuge resource research studies, and wildlife observation. A description and the anticipated biological impacts for each use are addressed separately in this Compatibility Determination.

Station Name

Cedar Keys National Wildlife Refuge

Date Established

July 16, 1929

Establishing and Acquisition Authorities

Cedar Keys National Wildlife Refuge is located in Levy County, Florida, and was established by Presidential Executive Order 5158, dated July 16, 1929. Additional lands have been added since then with funding made available by the Refuge Recreation Act.

Purposes For Which the Refuge Was Established

“... as a refuge and breeding ground for birds and wild animals, subject to valid existing rights.” Executive Order 5158.

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

Management Goals

Wildlife and Habitat. Manage and conserve the natural diversity, abundance, and ecological function of refuge flora and fauna, with an emphasis on protecting the colonial wading bird rookery of Seahorse Key, threatened and endangered species, and species of special concern in the State of Florida.

Resource Protection. Protect natural, cultural, and wilderness resources of the refuge to ensure their integrity and to fulfill the mission of the National Wildlife Refuge System.

Public Use. Provide opportunities for environmental education and interpretation and wildlife-dependent recreation when compatible with the purpose, mission, and vision of the refuge such that these activities will not negatively impact critical or sensitive habitats.

Partnerships. Promote collaboration and partnerships with private citizens and other agencies to increase research and environmental education opportunities and to protect the coastal ecosystem.

Other Applicable Laws, Regulations, and Policies:

- Antiquities Act of 1906 (34 Stat. 225).
- 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; 78 Stat. 890).
- Land and Water Conservation Fund Act of 1965.
- National Historic Preservation Act of 1966 (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)
- The 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).
- National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR Subchapter C; 43 CFR 3101.3-3).
- Emergency Wetlands Resources Act of 1986 (S.B. 740).
- North American Wetlands Conservation Act of 1990.
- Food Security Act (Farm Bill) of 1990 as amended (HR 2100).
- 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.
- Title 50, Code of Federal Regulations, Parts 25-33.
- Archaeological Resources Protection Act of 1979.
- Native American Graves Protection and Repatriation Act of 1990.

Compatibility determinations for each description listed were considered separately. Although for brevity, the preceding sections from “Uses” through “Other Applicable Laws, Regulations and Policies” are only written once within the plan, they are part of each descriptive use and become part of that compatibility determination if considered outside of the comprehensive conservation plan.

Description of Use

Environmental Education

Environmental education activities seek to increase the public's knowledge and understanding of wildlife and to contribute to the conservation of natural resources. Most activities on Cedar Key Refuge will be associated with the University of Florida's Marine Laboratory on Seahorse Key. The lab is used primarily for college level science courses and is operated under a Special Use Permit. Other environmental education activities include workshops and class field trips for students of all ages, as well as teacher groups. If the comprehensive conservation plan is enacted, the Fish and Wildlife Service would develop specific lesson plans on refuge resources for local school teachers, refuge projects and programs would be developed for the countywide high school Interdisciplinary Watershed Education Program, and the Service would host a teacher environmental education workshop on Seahorse Key.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

The use of the marine laboratory on Seahorse Key during the bird nesting season may impact some nesting success for brown pelicans. In the past, the pelicans that nested near the lighthouse seemed to be more tolerant of human presence than other birds. They would sit on their nests even when students were active nearby. The environmental education that takes place in classrooms and off refuge sites will not impact refuge resources. The use of on-site, hands-on, action-oriented activities to accomplish environmental education may have a low level impact on the sites used for these activities.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

All use of Seahorse Key for Service led environmental education or by the University of Florida and its guests during the bird nesting season would be restricted to the 3-acre marine laboratory site. The rest of Seahorse Key is closed to all entry annually from March 1 through June 30, to protect nesting birds. During the remainder of the year, the beaches are open to the public and may be used for environmental education. The interior of the island is closed all year to public entry. Requests for use of the interior of the island for educational purposes would be evaluated on a case-by-case basis. As part of the Special Use Permit to use the refuge for a marine laboratory, the University is required to keep the refuge informed of all use of the lab, and to adhere to the special closed season.

Justification

Environmental education is a preferred public use listed in the 1997 National Wildlife Refuge System Improvement Act. Most environmental education on Cedar Keys Refuge is conducted by non-refuge staff, which

keeps expenses to a minimum. Environmental education provides students with an awareness and understanding on a variety of environmental and ecological subjects and will improve support for the Service's mission to protect our natural resources.

Description of Use

Recreational Fishing

Most fishing is from a boat in state waters around Cedar Keys Refuge. Fishing from the dock at Atsena Otie Key or island beaches is permitted 24 hours a day, year round. The exception to this is the closed period at Seahorse Key when all entry is prohibited. The only control the Service has on state waters is the 300-foot buffer zone around Seahorse Key that the Service closes to all entry from March 1 through June 30. Anglers on the refuge may fish in accordance with State regulations.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

Boaters who trespass into the waters around Seahorse Key during the closed season to fish have the potential to disturb nesting colonial birds. Negative impacts associated with surf and fishing from the Atsena Otie Key dock will occur through illegal activities such as fishermen taking species out of season, or under size fish. Other violations noted that have been associated with fishing have been limited to refuge regulations pertaining to open fires and camping. Litter, especially items such as monofilament line that can injure and kill wildlife, is also a negative impact. Angler numbers on refuge property are relatively low but if use increased substantially, surf fishing could conflict with shorebird and wading bird loafing and feeding.

NEPA Compliance:

Categorical Exclusion

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible **This use is not compatible**

Stipulation Necessary to Ensure Compatibility

Law enforcement patrols, especially around the Seahorse Key closed area would minimize disturbances to nesting birds. Surf fishing would be monitored to ensure compliance with state and federal fishing regulations and to ensure shorebird and wading bird use is not negatively impacted. Additional closed areas would be evaluated on an as needed basis.

Justification

Saltwater fishing in the Gulf of Mexico is regulated by the State of Florida. Fishing is a compatible, wildlife-oriented activity that is listed as a priority public use in the 1996 Presidential Executive Order and the 1997 National Wildlife Refuge System Improvement Act.

Description of Use

Interpretation

Interpretation activities seek to increase the public's knowledge and understanding of wildlife, national wildlife refuges, ecology and land management, as well as contribute to the conservation of natural resources. Activities would include brochures, kiosks, an interpretive walking trail, on-site interpretive tours and off-site programs. If the comprehensive conservation plan is enacted, the Service would partner with the Cedar Key Historical Society to identify historic features on Atsena Otie Key and develop outreach materials to interpret them. The existing kiosk, walking trail, and restroom would be maintained, additional interpretive materials on natural habitat of the islands would be developed, open house and lighthouse tours would be held at least once annually, and an interpretive video about the refuge would be produced.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

Off-site programs would not cause biological impacts on the refuge. On-site visitors may disturb shorebirds and wading birds that utilize the beach, mud flats, and salt marsh for feeding and loafing. Beach users may also trample vegetation. Wildlife may be negatively impacted from ingesting or becoming entangled in litter.

NEPA Compliance:

Categorical Exclusion

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible **This use is not compatible**

Stipulation Necessary to Ensure Compatibility

On-site interpretation would not be permitted on Seahorse Key during the closed period from March 1 through June 30, for the bird nesting season except within the 3-acre University of Florida Marine Research Laboratory. The interior of all islands, except Atsena Otie Key, would remain closed to public use to protect the fragile flora. The interpretive walking trail through the interior of Atsena Otie Key would be maintained and public use monitored.

Justification

Interpretation is identified in the 1996 Presidential Executive Order and the 1997 National Wildlife Refuge System Improvement Act as an activity that should be provided and expanded on refuges. Informing the public through interpretive materials and guided tours about endangered species, wildlife management, ecosystems, and refuges would lead to improved support of the Service's mission to protect our natural resources.

Description of Use

Research Studies

This activity would allow college students, university professors, and the scientific community access to the natural environment to conduct research. The outcome of this research would result in better knowledge of our natural resources and improved methods to monitor and protect refuge resources. If the comprehensive conservation plan is enacted, the Service

would negotiate a long-term archaeological research agreement with the Department of Anthropology at the University of Florida, identify and locate funding for research projects that would aid in the management of trust resources on Cedar Keys, and seek additional contacts with the University of Florida, Departments of Zoology and Wildlife Ecology, to expand refuge-based research.

Mandatory 10-year Re-evaluation Date: August 2011

Anticipated Biological Impacts of the Use

There should be no significant negative impacts from scientific research on the refuge. The knowledge gained should assist the refuge in improving management techniques and helping to better meet the needs of trust resource species. Impacts such as trampling vegetation and temporary wildlife disturbances would occur, but would not be significant.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

Each request for use of the refuge for research purposes would be examined on its individual merit. Questions of who, what, where, when, and why would be asked to determine if the requested research could best be conducted on the refuge without significantly affecting the resources. Special attention would be given to requests for access to Seahorse Key during the closed nesting season. If there were any anticipated disturbances, the research request would be denied until nesting season is completed. If the research were compatible, a Special Use Permit would be issued. All researchers would be required to submit annual progress and final reports.

Justification

The benefits derived from sound biological research would provide a better understanding of species and the communities present on the refuge. These benefits outweigh short-term disturbance or loss of individual organisms.

Description of Use

Wildlife Observation

Observation of wildlife, primarily the numerous shore and water birds that use the refuge, is the number one reason people visit the refuge. Cedar Keys Refuge is comprised of islands that are only accessible by boat. Visitors can observe wildlife and the beautiful, natural vistas by walking along the beaches or by boating around the islands. The one exception to this is Seahorse Key, which has a 300-foot buffer zone extending from Seahorse Key into state waters, which is closed annually to all entry from March 1 through June 30. A lease agreement between the Service and the State of Florida allows this closure of state waters for the protection of a significant colonial bird rookery.

The beaches of the other refuge islands are open year round to foot travel. Seahorse Key beaches are open from July 1 through February 28, each year. The interior of Atsena Otie Key is open to the public for foot travel.

Mandatory 15-year Re-evaluation Date: August 2016

Anticipated Biological Impacts of the Use

There are no structures built for the purpose of viewing wildlife. Impacts such as trampling vegetation and wildlife disturbance by refuge visitors does occur, but presently does not appear to be significant. The biggest concern is that public use of the beach areas would increase to the point of being disruptive to shore and wading birds. Other negative impacts are caused by visitors violating refuge regulations such as trespassing on the colonial rookery and camping or littering.

NEPA Compliance:

Categorical Exclusion X

Environmental Assessment

Environmental Impact Statement

FONSI

Determination: (Check one)

This use is compatible X This use is not compatible

Stipulation Necessary to Ensure Compatibility

The current Lease/Memorandum of Understanding that closes waters around the rookery from March 1 through June 30, would be maintained. Law enforcement patrol of public use areas, and extra patrols during the above-mentioned closed season, would minimize violations of refuge regulations and protect the colonial bird nesting area. Public use of the beach areas would be monitored, and if negative impacts become noticeable, additional closed areas would be established or other corrective action taken.

Justification

Wildlife and wildlands observation is the number one preferred use of Cedar Keys Refuge and the National Wildlife Refuge System. The 1996 Presidential Executive Order and the 1997 National Wildlife Refuge System Improvement Act identify wildlife observation as a priority public recreational use to be facilitated on refuges.

The signature of approval is for all compatibility determinations considered within the comprehensive conservation plan. If one of the descriptive uses is considered for compatibility outside of the plan, the approval signature becomes part of that determination.

Approval of Compatibility Determination

Signature: Refuge
Manager: Ken Lichtenberger 8/24/01
(Signature and Date)

Review: Refuge
Supervisor: Richard D Ingram 8/24/01
(Signature and Date)

Review: Regional Compatibility
Coordinator: Thomas J. Puma 8/24/01
(Signature and Date)

Concurrence: Regional
Chief: JM 8/24/01
(Signature and Date)

Appendix K

Region 4, Intra-Service

Section 7 Biological Consultation

Originating Person: Refuge Manager

Telephone Number: (352) 493-0238 Email: FW4_RWlower_suwannee@fws.gov

Date: March 24, 2000

Project Name: Comprehensive Conservation Plan

Service Program: National Wildlife Refuge

Station Name: Lower Suwannee and Cedar Keys National Wildlife Refuges

Description of Proposed Action:

Activities associated with the Comprehensive Conservation Plan for Lower Suwannee and Cedar Keys National Wildlife Refuges (2000) would increase access and public use, and would implement additional biological studies and monitoring programs. The Comprehensive Conservation Plans and associated Environmental Assessments provide the details for this action.

Pertinent Species and Habitat:

- A. Maps of the refuges and surrounding areas are included in the Comprehensive Conservation Plans for Lower Suwannee and Cedar Keys National Wildlife Refuges.

B. Species Present and Their Status:

Bald Eagle	Threatened
Wood Stork	Endangered
American Alligator	Threatened
East Indian Manatee	Endangered
Kemp's Ridley Sea Turtle	Endangered
Loggerhead Sea Turtle	Threatened
Green Sea Turtle	Threatened
Eastern Indigo Snake	Threatened
Gulf Sturgeon	Threatened
Florida Saltmarsh vole	Endangered

Location:

A. *Ecosystem Area:* North Florida

B. *County and State:* Levy and Dixie Counties, Florida

Determination of Effects:

Explanation of impacts of the proposed action on species and/or critical habitat include direct, indirect, interdependent, interrelated and cumulative impacts.

Direct Effects = those that are an immediate result of the action.

Indirect Effects = those that are caused by the action and are later in time but are still reasonably certain to occur. They include the effects of future activities that are induced by the action and that occur after the action is completed.

Interdependent = those that have no significant independent utility apart from the action that is under consideration.

Interrelated = those that are part of a larger action and depend on the larger action for their justification.

Cumulative Effects = those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area.

Bald eagle: Wintering and nesting bald eagles use the refuges. There are active bald eagle nests on both Cedar Keys and Lower Suwannee National Wildlife Refuges. Comprehensive Conservation Plan actions 1.1.1, 1.2, 1.3.1, 1.3.3, 2.1.2, 3.3, and 3.5 for Lower Suwannee Refuge and actions 1.3.1, 1.3.2, 1.3.3, 2.2, and 2.3, for Cedar Keys Refuge will all benefit bald eagle protection. Nest protection is addressed in the Fire Management Plan and Annual Prescribed Fire Prescriptions. Increased visitation projects 4.4 for Lower Suwannee Refuge, and 3.1, and 3.4 for Cedar Keys Refuge are not planned where there are active nests. When additional nests are located, their protection will be incorporated into management actions.

Woodstork: The woodstork is observed periodically throughout the year on and around both refuges but is not known to nest on refuge lands. Actions 1.7.1, 1.7.2, and 2.3 for Cedar Keys Refuge and actions 1.1.5, and 1.2 for Lower Suwannee Refuge will benefit the woodstork through better monitoring activities. The species should not be impacted by an increase in wildlife-oriented public use activities.

Manatee and Gulf sturgeon: Both of these species use the estuary and Suwannee River. Actions 1.1.3, 1.1.4, 1.1.12, 1.2, 1.2.1, and 2.4.1 for Lower Suwannee Refuge will benefit these species. Maintaining refuge habitat will contribute to water quality. Increased use of the waters could impact manatee and sturgeon, but the waters are controlled by the State of Florida.

Kemp's ridley sea turtle, loggerhead sea turtle, and green sea turtle: These turtles use the Gulf waters around both refuges. There is no sea turtle nesting on the refuges. Expanded research and partnerships to protect water quality should benefit all three sea turtle species. Increased use of the Gulf waters by boaters could impact sea turtles but the waters are controlled by the State of Florida.

American alligator: The alligator is found on the refuges throughout the year. The public visitation projects outlined in the comprehensive conservation plans and subsequent increased numbers of visitors are not assumed to have any impact on the alligators.

Florida saltmarsh vole and eastern indigo snake: The saltmarsh vole has been identified in only one location in Levy County, Florida, just south of refuge lands. Limited searches on and around the refuge have not documented that voles use the refuge. The last sighting of an eastern indigo snake has been years ago. They should be present given that they are secondary

burrow users of gopher tortoises, which are well represented on the refuge. Increased visitation and public use should not affect these species. Actions 1.1, 1.1.7, 1.3.1, 1.3.2, 2.2.1, 2.2.2, 2.2.3, 2.3.4 and 5.3.1 for Lower Suwannee Refuge should directly or indirectly benefit one or both of these species.

Determination of Effects:

Species or Habitat	Determination			Response Requested
	NE	NA	AA	
Bald eagle		NA		Concurrence
Wood stork	NE			Concurrence
American alligator		NA		Concurrence
Manatee		NA		Concurrence
Kemp's ridley sea turtle	NE			Concurrence
Loggerhead sea turtle	NE			Concurrence
Green sea turtle	NE			Concurrence
Eastern indigo snake		NA		Concurrence
Gulf sturgeon		NA		Concurrence
Florida saltmarsh vole	NE			Concurrence

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 and candidate species is "Conference".

Enter the Species, Determination and the Response Requested: May Affect, but is not likely to adversely affect species/adversely modify critical habitat. This conclusion is appropriate when effects to the species or critical habitat are expected to be beneficial, discountable, or insignificant.

Ken Lichtenberger
Signature (originating station)

4/14/00
Date

Refuge Manager
Title

Reviewing Ecological Service Office Evaluation:

A. Concurrence X Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed)

[Signature]
Signature For David Hankla

4/14/00
Date

Field Supervisor
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Appendix L

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