FINAL DRAFT

Avian Conservation Implementation Plan
Biscayne National Park

National Park Service
Southeast Region

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U.S. Fish and Wildlife Service
In cooperation with

BISC Resource Management Staff, National Park Service
And Bird Conservation Partners
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TABLE OF CONTENTS

Introduction 3

Background 3

The North American Bird Conservation Initiative 4

The Southeastern Bird Conservation Initiative: National Park Service 5

Role of NPS in Avian Conservation 5

Park Description 7

Avian Resources of the Subtropical Florida 8

Avian Conservation in BISC 11

Park Identified Needs for Avian Conservation 13

Coordination with Regional Conservation Initiatives 13
- North American Bird Conservation Initiative 13
- North American Waterfowl Management Plan 13
- Partners In Flight 15
- United States Shorebird Conservation Plan 15
- Waterbird Conservation for the Americas 15

Integration of NABCI Goals and Objectives into Park Planning and Operations: NABCI Implementation Recommendations 15
- Inventory 16
- Monitoring 17
- Habitat Restoration 17
- Threat Management 18
- Research 19
- Compliance 19
- Outreach 20
- Partners and Partnerships 21
- Funding Opportunities 21
- Contacts 23

Literature Cited 25

Appendixes
- Subtropical Florida Priority Species
- Southeast Region Waterbird Priorities and Habitat Types
- Florida's Endangered Species and Species of Special Concern
- US Fish and Wildlife Service Species of Conservation Concern for Peninsular Florida (BCR 31)

Introduction

This Avian Conservation Implementation Plan (ACIP) is provided to the staff at Biscayne National Park (BISC) to serve as guidance to identify, document, and undertake bird conservation activities in the park and with neighboring communities, organizations, and adjacent landowners. This plan may identify goals, strategies, partnerships, and perhaps specific projects for the park to participate in existing bird conservation planning and implementation efforts associated with the North American Bird Conservation Initiative (NABCI). Under the auspice of NABCI, appropriate bird and habitat conservation goals may be recommended as identified in the appropriate existing national or regional bird conservation efforts aligned with this initiative: Partners In Flight (PIF), North American Waterfowl Management Plan (NAWMP), US Shorebird Conservation Plan (USSCP), and Waterbird Conservation for the Americas (WCA). For example, parks in the Appalachians and the Cumberland Plateau will have few if any high priority waterbird conservation issues at a regional landscape or greater scale. As such, little information regarding waterbird conservation will be presented in the ACIP, unless there is an identified park need for this species group, or other mandates, such as federal laws. Similarly, because BISC is primarily a marine/estuarine/barrier island park with coastal hammock and mangrove forests recommendations will be provided in the ACIP for landbirds and coastal birds and their habitats. However, all high priority bird conservation issues for BISC will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with BISC staff 2) BISC bird conservation partners 3) the PIF Subtropical Florida Bird Conservation Plan Executive Summary (Partners In Flight 2000?) 4) NPS databases, and 5) personal communications with bird conservation specialists throughout North America, especially in the southeastern United States. This plan has been reviewed by BISC resource management staff and managers, South Florida/Caribbean Inventory and Monitoring (SFC I&M) staff, and bird conservation partners and approved by BISC management. Optimally, this plan will be incorporated into the park's Resource Management Plan (USDI NPS 1995) and updated annually to reflect completed projects, newly identified needs, and shifts in bird conservation priorities in the region.

BISC is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to BISC to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which BISC is a primary participant in the proposed actions.

Background

During the past thirty years, monitoring programs across North America have documented declines of certain bird species populations and their habitats, often severe (Sauer et al. 2000). The decline has caused great concern among scientists, biologists,

biodiversity proponents, ecologists, land managers, etc., and the bird conservation community in general. Birds are recognized as critical components of local and global genetic, species, and population diversity, providing important and often critical ecological, social, and cultural values. Their overall decline has stimulated a worldwide focus on conservation efforts and North American interest in bird conservation is rapidly becoming a focus of government, non-government, industry, and private interests and expenditures.

Many state, federal, and non-governmental wildlife agencies and organizations (NGO's) have recognized this alarming bird decline trend and have joined forces in several extensive partnerships to address the conservation needs of various bird groups and their habitats. The primary initiatives are:

- North American Waterfowl Management Plan
- Partners in Flight
- U.S. Shorebird Conservation Plan
- Waterbird Conservation for the Americas

While efforts associated with these plans have generated some successes, it has been increasingly recognized that the overlapping conservation interests of the; se initiatives can be better served through more integrated planning and delivery of bird conservation. The *North American Bird Conservation Initiative (NABCI* ;http://www.nabci-us.org/main2.html*)* arose out of this realization. The vision of NABCI is simply to see ***"populations and habitats of North America's birds protected, restored and enhanced through coordinated efforts at international, national, regional, state and local levels, guided by sound science and effective management."*** NABCI seeks to accomplish this vision through (1) broadening bird conservation partnerships, (2) working to increase the financial resources available for bird conservation in the U.S., and (3) enhancing the effectiveness of those resources and partnerships by facilitating integrated bird conservation (U.S. NABCI Committee 2000). Together, the four bird conservation initiatives mentioned above, as well as several other local and regional partnerships, work collectively to pursue this vision.

NABCI is guided by a set of principles that establish an operational framework within which the Initiative and its partners may conduct integrated bird conservation in the U.S. These will articulate a common understanding of the relationship between NABCI, the individual bird conservation initiatives, and all partner entities to ensure recognition of existing federal legislative and international treaty obligations, state authorities, and respect for the identity and autonomy of each initiative. The fundamental components of the conservation approach to be used by NABCI are expressed within its goal:

> ***To deliver the full spectrum of bird conservation through regionally-based, biologically-driven, landscape-oriented partnerships.***

The Southeastern Bird Conservation Initiative: National Park Service: In 2000, the Southeast Region of the National Park Service (NPS) recognized the importance of coordinating existing bird conservation goals into planning and operations of national park units in the southeast, that is, integration of NABCI. In support of this recognition, the Southeast Regional Office NPS approved and allocated eighty-eight thousand dollars, cost sharing 1:1 with the US Fish and Wildlife Service (FWS) Region 4 (Southeast) to hire a biologist to conduct this two-year project (Interagency Agreement FS028 01 0368). This project is unique in the NPS, and perhaps the nation, and represents a potential model for better coordinating regional bird conservation programs and activities within and outside the NPS. It further represents a progressive action toward institutionalizing bird conservation as a programmatic priority in the Southeast Region of NPS, and potentially the nation.

As envisioned, the integration of NABCI into the Southeastern NPS involves:

1) Development and delivery of Avian Conservation Implementation Plans (ACIP),
2) Coordination with NPS Inventory and Monitoring Program,
3) Development of a web based project site,
4) Establishment or enhancement of bird conservation partnerships,
5) Identification and exploration of potential funding opportunities, and
6) Technical guidance and assistance as needed or requested.

This ACIP fulfills one aspect of the plan outlined above, and serves as a basis for future bird conservation actions in BISC and with adjacent partners or landowners. Concurrently, the development of a Memorandum of Understanding (MOU) between the FWS and the NPS to implement Presidential Executive Order (EO) 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds**, calls for integration of programs and recommendations of existing bird conservation efforts into park planning and operations. Complementing each other, the MOU and the Southeastern Bird Conservation Initiative will advance bird conservation in the Southeast Region of the NPS beyond current regional NPS efforts.

Role of NPS in Avian Conservation

The interagency agreement that facilitates this partnership supports both FWS and NPS management policies. Specifically for the NPS, the agreement supports and advances the **Strategy for Collaboration** (March 2000), a visionary document developed and signed by the Southeast Natural Resource Leaders Advisory Group (SENRLAG), a consortium of 13 land and resource management agencies in the Southeastern United States whose vision is to encourage and support cooperation in planning and managing the region's natural resources. Furthermore, the agreement is aligned with and implements a variety of NPS Management Polices (2001) including but not limited to External Threats and Opportunities (Chapter 1.5), Environmental Leadership (Chapter 1.6), Cooperative Planning (Chapter 2.3.1.9), Land Protection (Chapter 3), and especially Natural Resource Management (Chapter 4) that details policy and

management guidelines which apply to bird conservation. Important policies in this chapter include:

- Planning for Natural Resource Management (4.1.1)
- Partnerships (4.1.4)
- Restoration of Natural Systems (4.1.5)
- Studies and Collection (4.2)
- General Principles for Managing Biological Resources (4.4.1)
- Plant and Animal Population Management Principles (4.4.1.1)
- Management of Native Plants and Animals (4.4.2)
- Management of Endangered Plants and Animals (4.4.2.3)
- Management of Natural Landscapes (4.4.2.4)
- Management of Exotic Species (4.4.4)
- Pest Management (4.4.5)
- Fire Management (4.5) and
- Water Resource Management (4.6)

The NPS is the fourth largest landowner in the United States, consisting of over 380 national park units covering 83 million acres of land and water with associated biotic resources (www.nps.gov). The 64 units in the Southeast Region of the NPS represent 16% of the total number of park units in the national park system and cover approximately 5% of the total land base in the entire system. Park units in the Southeast Region include national seashores (Canaveral National Seashore, Cape Hatteras National Seashore), national parks (Great Smoky Mountains National Park, Everglades National Park), national recreation areas (Big South Fork National River and Recreation Area), national preserves (Big Cypress National Preserve), national battlefields (Cowpens National Battlefield, Fort Donelson National Battlefield), national monuments (Ocmulgee National Monument), and others such as the Blue Ridge Parkway, Obed Wild and Scenic River, and Timicuan Ecological and Historic Preserve.

Southeast NPS units provide habitat for over 400 species of migrating, breeding, and wintering birds and include a wide range of Federal and State listed threatened and endangered species. Likewise, these units also provide nest, migration, and winter habitat for most of the eastern species identified in the national bird conservation plans in need of conservation attention.

Additionally, the NPS attracts over 280 million visitors to the parks each year, 120 million of these in the Southeast Region, affording excellent recreational bird watching and opportunities to strengthen bird conservation interpretation, outreach, and education programs. These opportunities, the NPS mission, policies, and organization all lead to the conclusion that the NPS is an extremely valuable partner and contributor to bird conservation in the region.

Nationally, the status of birds in national parks is largely unknown, although many parks have adequate knowledge regarding bird occurrence in the parks

(http://www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm). Parks often play a role in ongoing regional bird conservation efforts. Indeed many of these parks are often important to regional, national, or international bird conservation, and many have been designated as Important Bird Areas (IBA's) by the National Audubon Society. To date, there are approximately 64 NPS units that are designated IBA's, 35 of which are considered of global importance (http://abcbirds.org/iba/aboutiba.htm). In the Southeast Region, the NPS has 13 global IBA's.

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The **NPS Inventory and Monitoring (I&M) Program** has been developed to provide management driven scientific information to national park managers so that resources can be adequately protected within national parks. One of the first phases of this program is to inventory vertebrates, including birds, within the 260 national park units in the program. Once completed, data from the inventories will provide an account of the occurrence and abundance of birds in all the national parks in the program. These records will be stored in the NPS I&M NPSpecies database http://www.nature.nps.gov/im/apps/npspp/). Coordination with I&M network staff is important to developing long-term bird monitoring programs that fulfill both park and NABCI objectives.

Park Flight is a NPS international partnership initiative that directs funding toward a variety of NPS programs that involve conservation of neotropical migratory birds whose life history range covers a US national park and a Latin American protected area. A relatively new program, Park Flight offers parks the opportunity to partner with a Latin American national park or protected area to cooperate on developing bird conservation and education projects (NPS 2002).

Recent increases in NPS base funded programs such as inventory and monitoring, exotic species management, habitat restoration, and fire management all indicate that national park managers recognize that park lands are increasingly subject to a variety of threats and conditions that must be improved to provide the quality of national park experience articulated in the NPS Organic Act (1916). Programmatic funding in these areas will increase the ability of national parks to provide quality habitat and conditions for increased wildlife conservation, including birds. Furthermore, private interests and non-profit conservation organizations have initiated programs, including grant programs, to provide much needed funding to national parks to meet backlogs of identified yet unfunded needs.

Park Description

Biscayne National Park was established in 1969 as Biscayne National Monument with expansions in 1974 and 1980 when it was re-designated Biscayne National Park. The park is located in southeast Florida, within sight of a major metropolitan area, the City of Miami, and heavily influenced by growth within metro Miami-Dade County. The Park is comprised of 70,000 total ha (172,924 acres) of which 63,000 ha (155,631 acres) are submerged. Biscayne National Park's enabling legislation charges the National Park Service to keep a rare combination of terrestrial, marine, and amphibious life for the

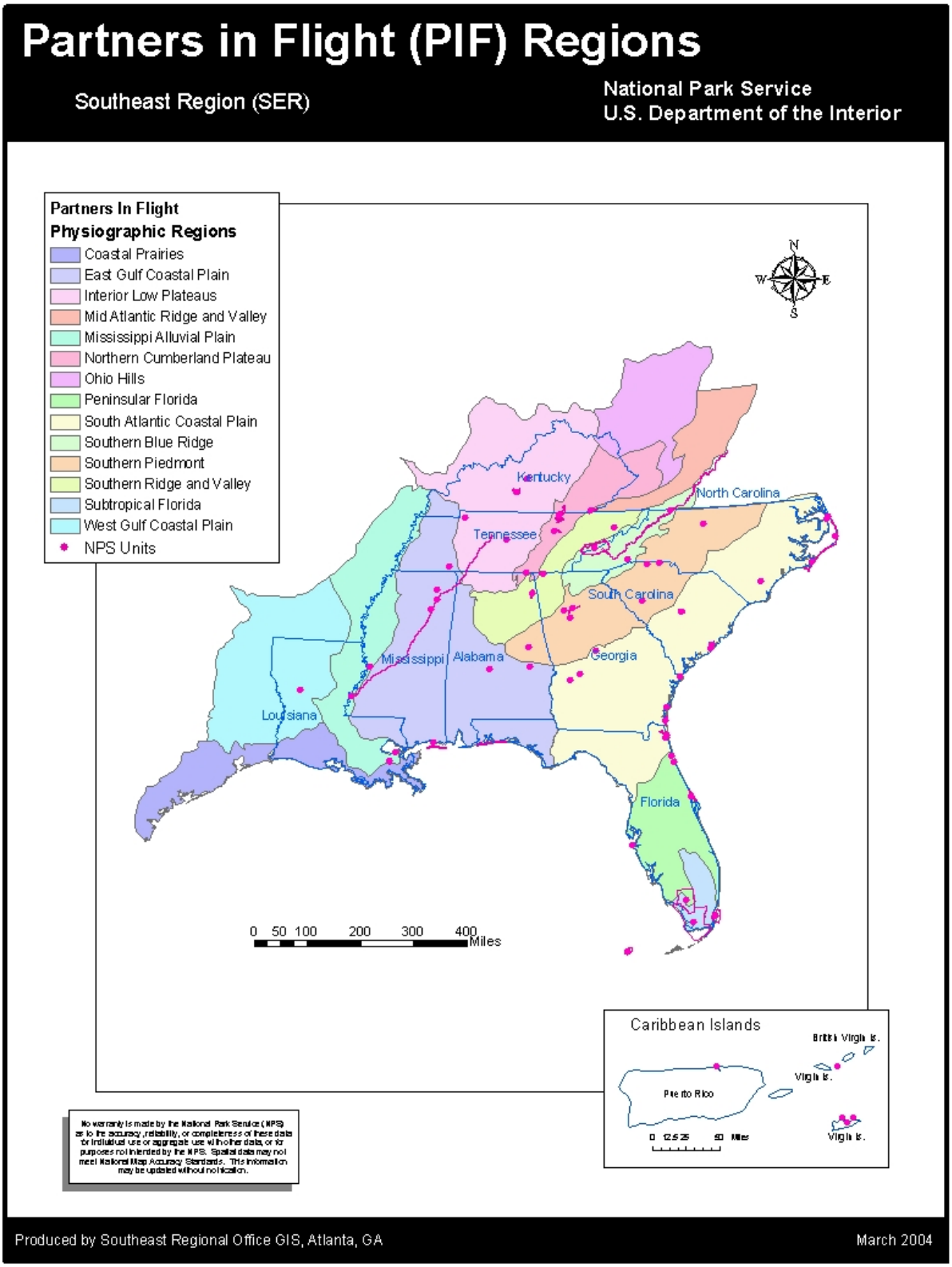
inspiration and enjoyment of present and future generations. The park preserves an entire coastal island ecosystem (upland to oceanic), and is home to over eleven federally threatened and endangered species, and over 28 state listed plants and animals in addition to the federally listed species (Sasso and Patterson 2000).

Avian Resources of Subtropical Florida

The physiographic area is entirely contained within Florida, and extends from the northern edge of Lake Okeechobee south through the Florida Keys (see PIF and NPS location maps below). The region has very little topographic relief, but slight changes in elevation have important consequences for vegetation and the diversity of habitat types. The highest points of elevation are less than 2 meters and correspond with fairly recent shorelines (less than 5,000 years before present). Underlying sediments consist of freshwater marl, peat, freshwater lake and marine sediments, and to a lesser extent, sand deposited during the Pleistocene and Holocene. The subtropical Florida region can be divided into four smaller sub-regions: 1) the everglades, 2) Big Cypress, 3) Miami Ridge and Atlantic Coastal Strip, and 4) Southern Coasts and Islands. The Everglades is the most extensive of these areas, followed by the Big Cypress, Miami Ridge and Southern Coasts. Across all subregions, much of the physical and ecological characteristics of the region resemble tropical ecosystems where seasonal changes are reflected by changing rainfall patterns rather than by dramatic temperature changes. Distinctive dry (winter/spring) and wet (summer) seasons occur annually, and the nesting cycles of many birds are tied to these changes. At least two major forms of disturbance play key roles in the ecology of the region. Fire is an important feature in many pine dominated communities and many marsh and prairie communities. Frequent fires are essential in pine-dominated stands and prairies if understory conditions suitable to many nesting birds are to be maintained. However, the ideal fire frequency in some pine communities is not known. Hurricanes are a second form of disturbance that less frequently but predictably provide early successional habitats or open forest cover (Partners in Flight 2000?).

Bird conservation priorities for Subtropical Florida have been stratified by habitat type. Recognized habitat types where high priority conservation actions are needed for both birds and habitats are pine forests (including pine rocklands, pine Flatwoods, sand pine scrub), grassland/grassland-scrub (including dry prairie and coastal strands), subtropical deciduous forest, everglades, brackish saltwater and freshwater marsh, and mangrove swamps. Species associated with each of these habitats and identified as high priority for conservation needs are given below.

Florida Scrub Jay, Red-cockaded Woodpecker, Southeastern American Kestrel, Brown-headed Nuthatch, Bachman's Sparrow, Palm Warbler and Sedge Wren are associated with the pine forests. Both Florida Scrub Jay and Southeastern American Kestrel have been extirpated in Subtropical Florida and the Brown-headed Nuthatch and Bachman's


Partners in Flight (PIF) Regions
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Partners In Flight
Physiographic Regions
Coastal Prairies
East Gulf Coastal Plain
Interior Low Plateaus
Mid Atlantic Ridge and Valley
Mississippi Alluvial Plain
Northern Cumberland Plateau
Ohio Hills
Peninsular Florida
South Atlantic Coastal Plain
Southern Blue Ridge
Southern Piedmont
Southern Ridge and Valley
Subtropical Florida
West Gulf Coastal Plain
NPS Units
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North Carolina
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Alabama
Georgia
Louisiana
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Miles
Caribbean Islands
British Virgin Is.
Virgin Is.
Puerto Rico
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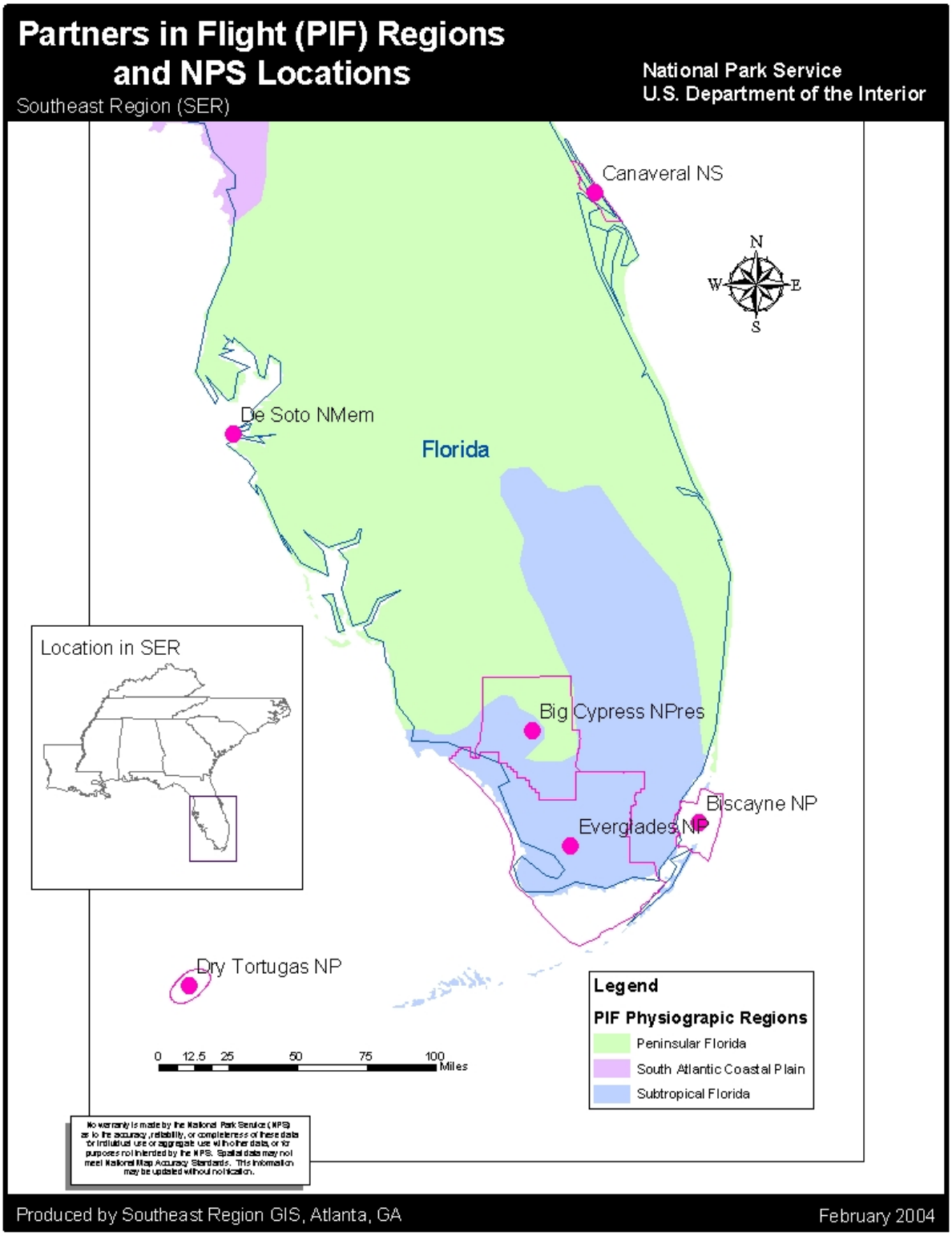
March 2004


Partners in Flight (PIF) Regions
and NPS Locations
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Canaveral NS
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Florida
Location in SER
Big Cypress NPres
Biscayne NP
Everglades NP
Dry Tortugas NP
Legend
PIF Physiograpic Regions
Peninsular Florida
South Atlantic Coastal Plain
Subtropical Florida
0 12.5 25 50 75 100
Miles
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February 2004

Sparrow are nearly extirpated here. Both Palm Warbler and Sedge Wren are present only in the non-breeding seasons.

Grasshopper Sparrow, Crested Caracara, Burrowing Owl, Sandhill Crane and Mottled Duck are all species associated with grassland to grassland scrub habitats. Grasshopper Sparrow has been extirpated in South Florida.

In the subtropical deciduous forest, Short-tailed Hawk, Swallow-tailed Kite, White-crowned Pigeon and Gray Kingbird are high priorities for conservation.

In the Everglades, brackish saltwater and freshwater marshes, Snail Kite, Cape Sable Seaside Sparrow, Wood Stork, Black Rail, Reddish Egret, Yellow Rail, White Ibis, and Clapper Rail are species in of conservation attention.

Prairie Warbler, Yellow Warbler, Black-whiskered Vireo, and Mangrove Cuckoo, species associated with Mangrove swamps and forests, and are of high priority conservation concern.

Human population growth has been phenomenal in subtropical Florida for the last 40 years. The impacts of such tremendous growth include increased infrastructure that directly reduces habitat availability, but also secondary impacts to bird habitats, such as pollution. Other land uses include production of sugarcane, winter vegetables, and citrus. Drastic changes in hydroperiod and natural water cycles are secondary impacts of increasingly intensive agriculture. However, among the best opportunities in the Southeast to work with existing public lands occur in Subtropical Florida, where over 54% of the area is publicly owned. Therefore, primary conservation programs include efforts to reduce impacts from adjacent or nearby lands on management of existing public lands. Many programs have been developed and are in various phases of implementation. These include the Save our Everglades program, the Surface Water Improvement and Management Act, Florida's Everglades Forever Act and the development of the South Florida Ecosystem Restoration Task Force as well as aggressive acquisition programs. These and other programs serve the basis for bird conservation efforts in the region.

Avian Conservation in BISC

Avian Biodiversity: BISC has a complete avian inventory (> 90% avifauna known) but has not developed a checklist of birds that is available for the public. Managers recognize the need to update the inventory and checklist. BISC has recorded over 215 species in the park, including many rare vagrants that often show up on the barrier islands of the park, attracting many birding enthusiasts.

Verified records of birds in BISC have been entered into the NPS I&M program's database, NPSpecies, and may be viewed via the internet at http://www.nature.nps.gov/im/app/npspp with a user identification and password

combination authorized by the NPS for NPS personnel and NPS cooperators. Many other avian observational data need to be verified and entered into the database.

Threatened and Endangered Species: Several federally listed threatened species occur in BISC, Bald Eagle, Wood Stork, Roseate Tern, and the Piping Plover. Only the Bald Eagle and Wood Stork are known to breed in BISC. The Roseate Tern is a migrant, and the Piping Plover is a winter resident. Critical habitat for Piping Plover has been established at BISC.

Several species in BISC are listed on the Florida Fish and Wildlife Conservation Commission (FFWCC) list of Endangered Species, Threatened Species, and Species of Special Concern. Prominent among these are Osprey, White-crowned Pigeon, Least Tern, Black Skimmer, Snowy Plover, and Peregrine Falcon (Arctic subspecies).

Additionally, BISC has several species that have been identified as high priority for conservation by Partners In Flight. These are Cuban Yellow Warbler, Black-whiskered Vireo, Mangrove Cuckoo, Florida Prairie Warbler, Gray Kingbird, Reddish Egret and White Ibis.

Park Priorities: Park staff and consultants have identified the Brown Pelican, Least Tern, and Piping Plover as species of significant management concern and high priority for conservation.

Inventory: The park's avian inventory has been recognized as important information for park managers and is considered complete within the framework of the NPS I&M Program. BISC is one of seven parks in the NPS South Florida/Caribbean I&M Network for which a plan to conduct high priority inventory projects has been prepared (Sasso and Patterson 2000). At this time, no inventory efforts are planned for BISC.

Monitoring: Currently, several avian monitoring projects are being conducted at BISC. These are:

- Breeding surveys are conducted for Least Tern, Wilson's Plover, and Killdeer
- Christmas Bird Count have been reinstated after a lapse in the late 1980's and 1990's
- Bald Eagle and Osprey nest monitoring
- Migration monitoring is occasionally conducted
- Colonial Waterbird surveys on Arsenicker Keys (all egrets and herons; including Reddish Egret)
- Randomized recreational birding

Research: Scientific research is permitted within the park, and currently no research other than existing avian monitoring is ongoing.

Outreach: Some educational information related to birds is conveyed to visitors to BISC.

- A Birdwatching for Beginners program is offered by Tropical Audubon Society

Park Identified Needs for Avian Conservation

BISC has identified several projects that would increase the avian knowledge of the park. They are:

Inventory:

- Better knowledge of nesting birds, and relative abundance of all species, especially high priority species

Monitoring:

- Better information on value of park for migration

Data Management:

- Verify and enter avian observational data into NPSpecies, eBird, or another appropriate database (BISC data is stored in Everglades National Park databases)

Coordination with Regional Conservation Initiatives

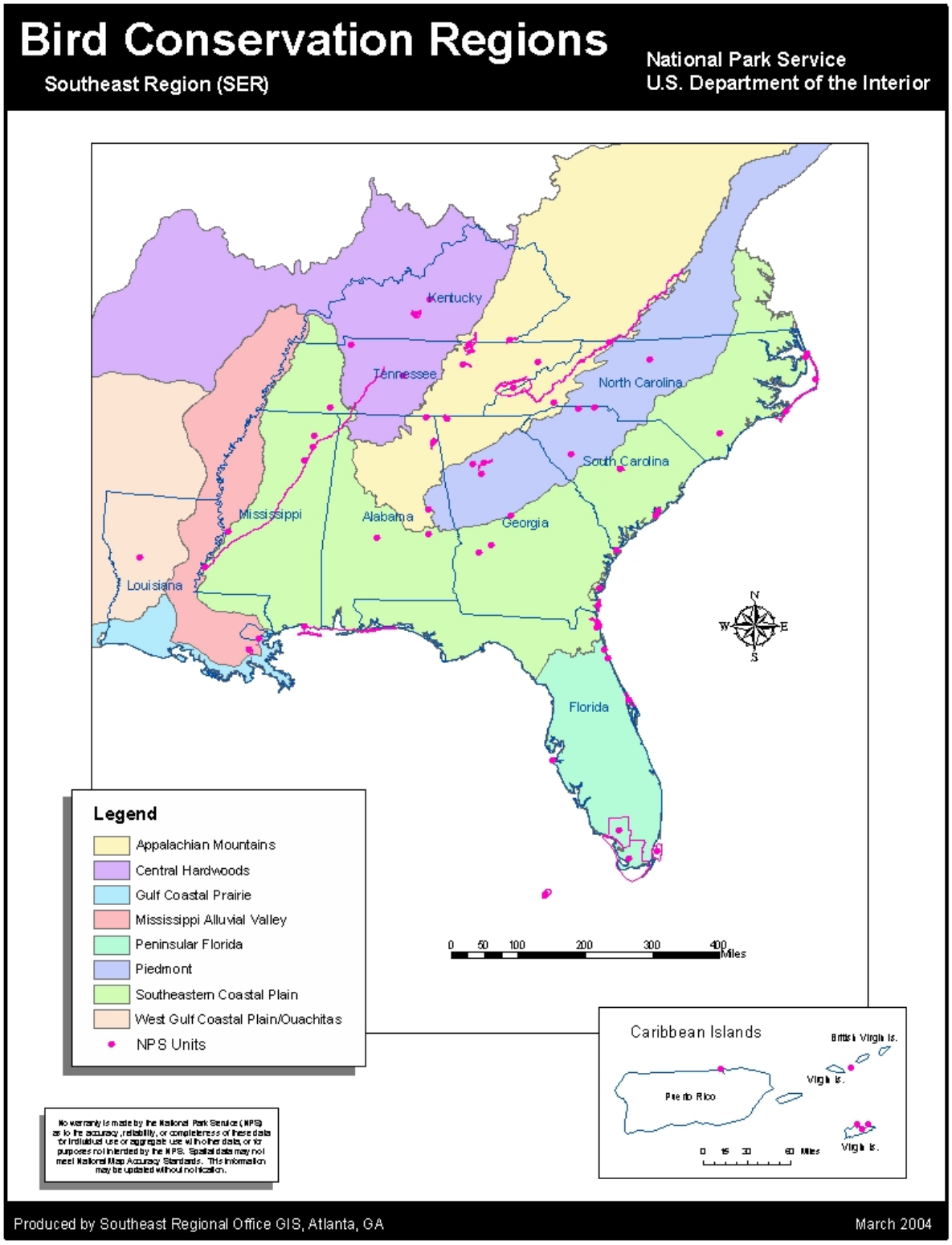
North American Bird Conservation Initiative

NABCI bird conservation planning units, referred to as Bird Conservation Regions (BCR), are often larger than other planning units associated with other plans, such as Partners In Flight. For example, BISC is within the NABCI Peninsular Florida BCR that covers all of Southern Florida south of approximately Jacksonville (see NABCI BCR map below) and encompasses two PIF physiographic areas (the planning unit for PIF)(compare to PIF map).

Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. Currently, the Peninsular Florida BCR does not have a designated coordinator; however, the Atlantic Coast Joint Venture (ACJV) has staff that with responsibility to provide bird conservation assistance to agencies and organizations in the area. This staff can provide valuable assistance to BISC with implementation of aspects of this ACIP.

North American Waterfowl Management Plan (NAWMP)

The NAWMP (http://northamerican.fws.gov/NAWMP/nawmphp.htm) is completed and has been revised several times, incorporating updated goals and strategies based on new information. This plan is one of the most successful bird conservation delivery


Bird Conservation Regions
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Kentucky
Tennessee
North Carolina
South Carolina
Mississippi
Alabama
Georgia
Louisiana
Florida
N
W
E
S
Legend
Appalachian Mountains
Central Hardwoods
Gulf Coastal Prairie
Mississippi Alluvial Valley
Peninsular Florida
Piedmont
Southeastern Coastal Plain
West Gulf Coastal Plain/Ouachitas
NPS Units
0 50 100 200 300 400 Miles
Caribbean Islands
British Virgin Is.
Virgin Is.
Puerto Rico
Virgin Is.
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programs in the United States, being monetarily supported by the North American Wetlands Conservation Act (NAWCA). The ACJV coordinators are responsible for coordination and implementation of this program.

Partners In Flight

Goals and strategies for the Subtropical Florida are not yet fully developed into a draft bird conservation plan. However, as previously noted, bird conservation priorities for BISC are better aligned with Puerto Rico and the US Virgin Islands goals, yet are largely the responsibility of the NPS and the State of Florida, an arrangement that can make bird conservation at BISC challenging.

Similar to NABCI BCR's, PIF physiographic areas often do not have designated coordinators. However, state level non-game agencies with investment in PIF will establish key personnel to develop partnerships among cooperators in the physiographic area. The State of Florida has a non-game bird coordinator who can be instrumental in assisting BISC to implement recommendations identified in this ACIP and projects important to bird conservation relative to Florida's role in implementation of the respective geographical plans.

United States Shorebird Conservation Plan (USSCP)

The USSCP has been completed and is available on the world wide web (http://shorebirdplan.fws.gov/). A regional step down plan is in preparation by FWS personnel and should be available in 2003.

Waterbird Conservation for the Americas (WCA)

The WCA plan has been completed and is available on the World Wide Web or can be ordered from the US Fish and Wildlife Service National Conservation Training Center (http://www.waterbirdconservation.org/).

Integration of NABCI Goals and Objectives into Park Planning and Operations

NABCI Implementation Recommendations

To successfully achieve park-established goals and actively participate in NABCI, the park could implement a variety of projects in different NPS programs. Most of these projects would require some level of participation by many existing park programs and could either be achieved through NPS funding, or more likely, through establishing or improving partnerships with agencies and organizations that already have the necessary expertise to provide guidance, funding, and execution of these programs. Programmatic areas where bird conservation actions are likely to be focused are:

- Inventory
- Monitoring
- Habitat Restoration
- Threat Management (includes exotic species, air quality, water quality, etc.)
- Research
- Compliance
- Outreach
- Partnerships

To the extent appropriate, each of these program areas will be discussed separately and within each, specific opportunities identified that, when implemented, will enable to park to meet its mandates (current and expected) as well as integrate NABCI into its planning and operations. With emphasis added, the park is not expected to implement any of these recommendations or be obligated to pursue any opportunity other than those the park is required to do by law or NPS program or policy. In other words, participation in this effort is currently voluntary. However, participation in these efforts at some level could become mandatory with the completion of an MOU with the FWS regarding EO 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds**. The MOU will establish a formal agreement between the FWS and the NPS to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

Should the park decide to implement any of these projects, further consultation with bird conservation contacts is encouraged to obtain updated information on the relevance of these opportunities in regional bird conservation.

High priority projects are identified in **bold** print. Priorities that the park is encouraged to seek NPS funding for are marked with and asterisk (*****). These projects are those that are critical to the stabilization or improvement of a bird population in the planning region.

Inventory

The park has inventoried its bird fauna exceptionally well. Although the avifauna of BISC is well documented, additional information is needed on abundance and distribution of species. BISC is encouraged to:

- **establish a migration monitoring program throughout the park to determine use of BISC by fall migrants, especially on barrier island habitats***

- **obtain abundance and distributional information of all species that nest in BISC and others of high priority conservation concern that use the park as foraging or roosting areas, especially listed species, and those that occur in the coastal mangrove or hammock forests (White-crowned Pigeon, Yellow Warbler, Black-whiskered Vireo, Prairie Warbler, Mangrove Cuckoo)***

- **verify other avian observational data collected in the park and enter into the appropriate database (NPSpecies, eBird, or other appropriate database)**

- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**

Monitoring

The park's bird monitoring program is focused on primarily federally and state listed species. Efforts should be made to continue existing monitoring programs. Specific recommendations are to:

- **continue to conduct existing monitoring programs and enter data into the appropriate databases (NPSpecies, eBird, or other appropriate database)**

- **establish a mangrove/coastal hammock avian monitoring program to document abundance of species in theses habitats (see Partnerships below)**

- **determine usage of park by migrating and wintering shorebirds and adopt appropriate level of shorebird monitoring to document shorebird use of the park**

- **establish a scientifically based landbird migration monitoring program to document use of BISC during landbird migrations***

- **establish the Christmas Bird Count (CBC) as an institutional program, working with local partners to assure the CBC is conducted annually**

- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**

Habitat Restoration

Recently, habitat restoration efforts have increased nationwide, and on NPS lands; NPS receiving restoration emphasis and guidance in the 2001 Management Policies (NPS 2001). Habitat restoration efforts that parks may undertake are wetland restoration, grassland restoration, woodland restoration, etc. utilizing a wide range of tools to accomplish the restoration. Some of these tools may be but not limited to forest management practices, exotic species management, public use and recreation management, infrastructure development management, and prescribed fire.

Due to the protected nature of BISC lands, and generally those in the national park system, the condition of habitats for bird use may be of higher quality than other natural, developed, agricultural, or forest lands under other management regimes. However,

national park lands can be greatly improved for wildlife, and particularly bird use, by restoring processes important for habitat formation, succession, and structural development. Largely, these processes have not been managed historically in the national park system but current policy allows for active management of species, populations, and lands to provide for long-term conservation of park resources.

The park is entirely coastal/estuarine/barrier island park subject to the forces generated upon and moving across the ocean surfaces. Tropical storms, tidal fluctuations, and sea level rise are processes that influence the dynamic landscape of BISC and likewise, habitats and associated birds. Specific recommendations are to:

- **maintain or enhance water quality in surrounding waters to support aquatic biota necessary to support fish eating birds that either nest or forage in the park***

- **restore hydrological processes in park, particularly in support of restoration of South Florida ecosystems and Comprehensive Everglades Restoration Program (CERP)**

- **enhance seagrass recovery (nursery for bird prey) in the park by managing threats to this vegetation**

- **preserve remaining coastal mangrove and hammock forests for migrating land birds***

- **continue to monitor and eliminate exotic vegetation**

Threat Management

Many different factors pose threats to bird conservation at BISC, but through sound scientific data gathering, these threats can be minimized or avoided. Boats, recreation, predators, and exotic vegetation all affect bird conservation at BISC. A better understanding of the extent and impact of these threats is needed to effectively preserve park resources. The park is encouraged to:

- **manage recreational uses of the park, especially boats and pedestrian traffic to areas where birds nest on barrier islands and to avoid disturbances to foraging, migrating, and wintering colonial waterbirds and shorebirds (develop a Recreational Use Plan)***

- **manage other recreation uses of the park including personal watercraft, kayaking, canoeing, to avoid disturbance to nesting, foraging, migrating, and wintering colonial waterbirds and shorebirds (develop a Recreational Use Plan)***

- **Develop Predator Management Guidelines, similar to those developed at Cape Hatteras National Seashore (USDI 2002) (Cape Hatteras National Seashore has recently completed a feral cat reduction campaign that could be used as a model for a similar program at BISC (Altman 2002, Harrison 2002))***

- **hire additional law enforcement officers to provide protection for beach nesting, foraging, migrating, and wintering birds***

- **continue to work with adjacent landowners and neighbors, the local community, and pubic officials to curb unregulated and free roaming feral cats in the park**

- **manage fishing practices that impact fish eating birds such as providing monofilament dispensers at key locations in the park**

- identify threats from low flying aircraft

Exotic vegetation has been well managed by the South Florida Exotic Plant Management Team at BISC. Efforts should continue to

- **monitor and manage exotic vegetation**

Research

Several research projects have been identified that could improve bird conservation for birds at BISC and contribute to increased bird conservation efforts for these species in the Caribbean. These projects are:

- **Determine importance of BISC as a migration stopover**

- **Conduct impact assessment of park fishing methods and fishing gear on fish feeding birds**

- **List park needs and projects on Research Permit and Reporting System web site (RPRS)**

- Develop contact with South Florida/Caribbean Cooperative Ecosystem Studies Unit (CESU) at the Rosentiel School of Marine and Atmospheric Sciences at the University of Miami, Fl

Compliance

Park compliance with the Migratory Bird Treaty Act and the Executive Order 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds,** is necessary to

assure that park activities incorporate bird conservation into park planning and operations. Further, to ensure that migratory birds are considered in all phases of park planning processes, especially during the National Environmental Policy Act (NEPA) and the Director's Order #12 Compliance processes, the park should consider adding specific language in project evaluations that requires consideration and implications of park projects on migratory birds. The MOU being developed between the NPS and the FWS will likely contain specific language requiring a park to consider implications of park projects on migratory birds, particularly those species identified in the USFWS Species of Conservation Concern 2002 (Appendix D). Additional considerations are to encourage:

- **park staff to begin specific consideration of migratory birds during park planning processes**

- park staff to attend USFWS training on implementation of EO 13186 at the National Conservation Training Center (NCTC) (when available) or other training on migratory bird conservation in North America. NCTC has several courses and training related to conservation of migratory birds (http://training.fws.gov/courses.html).

The USFWS NCTC offers and reserves two tuition free slots for National Park Service employees wishing to attend NCTC courses on a first come, first served basis. Additionally, discount lodging is also available while attending a NCTC course.

Outreach

- **participate in International Migratory Bird Day (IMBD) (http://birds.fws.gov/imbd.html) events with a local partner such as the Tropical Audubon Society and US Fish and Wildlife Service***

- **develop partnerships with local agencies and organizations to implement aspects of this plan, especially with USFWS, Tropical Audubon Society and Bill Baggs Cape Florida State Park***

- **encourage development of outreach and educational programs to enhance visibility of bird conservation issues, which may include organized bird walks, migration monitoring, and perhaps waterbird colony visits**

- **develop educational/outreach program for park fishing persons to avoid or minimize impacts or injury to fish eating birds**

- **encourage accurate documentation and reporting from randomized outings by visitors (see Cornell University's eBird monitoring program (Cornell Lab. Ornith. 2002 (http://www.ebird.org/about/index.jsp)**

- park interpretation/education staff are encouraged to attend USFWS training on Migratory Bird Education at NCTC

- consider adding links to bird conservation information, data, etc. to the park's web site home page

- support bird conservation by serving shade-grown coffees at meetings, events, and the office buildings in the park (http://www.americanbirding.org/programs/conssbcof3.htm)

- subscribe to Florida Birds, an electronic forum for listing bird sightings and publications in Florida

Partners and Partnerships

Partnerships for habitat conservation and protection will perhaps have the greatest positive influence on bird conservation above all other landscape scale planning. Specific recommendations are to:

- **keep abreast of initiatives that may affect water quality in and around BISC**

- **become active in the developing mangrove/coastal hammock avian conservation initiative with USFWS (Terry Doyle at Ten Thousand Islands National Wildlife Refuge)**

- **continue to develop and strengthen relationship with local bird clubs such as the Tropical Audubon Society to coordinate and conduct park bird conservation projects**

- **develop partnership with USFWS, especially local refuges to assist in bird inventory and monitoring efforts and implementation of aspects of this plan**

- **contact the nearest Joint Venture office (see Funding section for explanation of Joint Ventures) or BCR coordinator to develop partnerships and funding proposals tiered to priorities established by the park, this ACIP, and the bird conservation plans that pertain to BISC**

Funding Opportunities

Internal NPS funding is often an effective source to obtain funding; however, the project will have to be a fairly high priority among the park's natural resource program to successfully compete for the limited funding available in the NPS. Therefore, partnerships and outside funding programs are often more productive for securing bird

conservation funding. Within this ACIP, identified priority projects that are considered to be high park priorities as well as NABCI priorities are marked with and asterisk (*). BISC is encouraged to enter all high priority projects into the NPS Performance Management Information System (PMIS) database.

Funding for conservation projects for Neotropical migrants is also available through the Park Flight program.

With the exception of the North American Waterfowl Management Plan (NAWMP and its associated funding legislation, the North American Wetland Conservation Act), funding opportunities for bird conservation programs, plans, and initiatives have been lacking. Only within the last decade have other appropriate and specific sources for bird conservation funding been created and used. The NAWMP has been supported for approximately 14 years by the North American Wetlands Conservation Act (NAWCA 1989). This program has provided $487 million in appropriated funds matched with $1.7 billion for wetland and bird conservation projects since its inception. In 2002 alone, over $70 million US dollars were awarded to US and Canadian agencies and organizations to enhance waterfowl populations by improving, restoring, or protecting wetland habitats. To adequately evaluate projects and distribute these funds, partnerships called Joint Ventures were established. Nationally, 14 (11 US, 3 Canada)

Joint Ventures have been established, several which are funded and staffed. Internet links to Joint Ventures are:

(http://southwest.fws.gov/gulfcoastjv/ojvcontact.html) and
(http://northamerican.fws.gov/NAWMP/jv.htm).

Funding through NAWCA is highly underutilized by the NPS and any park unit that has wetland, water, or bird conservation needs associated with wetland are encouraged to investigate using this funding source. Naturally, there are certain requirements to be eligible for all grants and park managers are encouraged to consult with the nearest Joint Venture, BCR, PIF Coordinator, to learn how this program might be applicable to implementation of this plan, and other park wetland issues. BISC should contact the ACJV assistant coordinator to investigate use of this funding source and developing proposals for implementation of portions of this plan.

Internal FWS funding programs may be used to support projects, but no effective method of project proposal delivery to these sources is currently in place for the NPS. Current funding in these programs may result from FWS familiarity with NPS needs, or NPS participation in one of the area FWS Ecosystem Teams, where a project has been identified and proposed to be funded through the Ecosystem Team.

Specific congressional appropriations to protect migratory birds has recently been authorized under the Neotropical Migratory Bird Conservation Act (2000) (http://www.nfwf.org/programs/nmbcapp.htm). Appropriations through this Act are authorized up to $5 million per year. However, in 2000, appropriation was

approximately $3.75 million and a majority of this funding was directed toward projects in Central and South America.

Many of the identified projects are eligible for funding under various grant programs of the National Fish and Wildlife Foundation (http://www.nfwf.org/programs/programs.htm).

Other prominent funding sources available to NPS managers for bird conservation are listed on this projects web site at:

http://southeast.fws.gov/birds/NPSHighlits.htm.

Funding opportunities for migratory bird conservation are available yet most natural resource agencies are not fully aware of and/or understanding of how to use these sources. Perhaps a consolidated migratory bird funding source catalog will become available to managers in the future; this is needed.

Contacts

Primary contacts within the region can be obtained by viewing the web site for the Southeastern Bird Conservation Initiative, National Park Service at http://southeast.fws.gov/birds/npsbirds.htm. This web site will provide contact information of the appropriate bird conservation coordinator in the region for park personnel. Park staff are encouraged to view the web site and obtain contact information. Primary contacts for BISC are:

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LITERATURE CITED

Altman, J. 2002. Feral Cat Management Final Report for Cape Hatteras National Seashore, Wright Brothers National Memorial, and Fort Raleigh National Historic Site. April 15, 2002. 20p.

Cornell University and National Audubon Society. 2002. eBird Monitoring Program. Cornell University, Laboratory of Ornithology, Ithaca, NY.

Fancy, S. and J. Sauer. 2000. Recommended Methods for Inventorying and Monitoring Landbirds in National Parks. National Park Service, Ft. Collins. 13p.

Harrison, M. 2002. Outer Banks Feral Cat/Cats Indoors Outreach and Education Program. Draft Final Report to Cape Hatteras National Seashore in cooperation with The Nature Conservancy. June 17, 2002. 13p.

Hunter, C. 2000. Bird Population Survey, Inventory, and Monitoring Standards for National Wildlife Refuges and Partners in the Southeastern U.S. USFWS. January 2002. 49p.

Hunter C., Buehler D.A., Canterbury R.A., Confer J.L., and P.B. Hamel. 2001. Conservation of disturbance-dependent birds in eastern North America. Wildlife Society Bulletin. 34p.

Neotropical Migratory Bird Conservation Act. 2000. 114 Stat. 593. 16 U.S.C. 6102 Public Law 106247, enacted July 20, 2000.

North American Wetlands Conservation Act. 1989. 103 Stat. 1968; 16 U.S.C. 4401-4412. Public Law 101-233, enacted December 13, 1989.

Nunez-Garcia, F and Hunter, W.C. 2000. Puerto Rico and US Virgin Islands Bird Conservation Plan. Version 1. December 2000. xp.

Raffaele, H. A. 1989. A Guide to the Bird of Puerto Rico and the Virgin Islands. Revised Edition. Princeton University Press. 254pp. illus.

Sasso, C.R. and M. Patterson. 2000. A Study Plan to the Inventory of Vascular Plants and Vertebrates in the South Florida/Caribbean Network of the National Park Service. 83p

Sauer, J.R., J.E. Hines, I. Thomas, J. Fallon, and G. Gough. 2000. The North American Breeding Bird Survey, Results and Analysis 1966-1999. Version 98.1, U.S.G.S. Patuxent Wildlife Research Center, Laurel, MD.

Southeast Natural Resource Advisory Group. 2000. A Strategy for Collaboration. unpublished. 4p.

U.S. Department of Interior, Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99 pp.

U.S. Department of Interior, Geological Survey. 2001. National Point Count Database. Biological Research Division, Patuxent Wildlife Research Station, Patuxent, MD.

U.S. Department of Interior, National Park Service. 2001. National Park Service Management Policies. 2001. December 2000. 137p.

USDI National Park Service. 1995. Resource Management Plan, Biscayne National ark. 23p

USDI National Park Service. 2002. Park Flight and Migratory Bird Conservation. National Park Service, Natural Resource Program Center. 2p.

USDI National Park Service Organic Act. 1916. 39 Stat. 535 16 U.S.C. 1-4, enacted August 25, 1916.

US Government. 2000. Presidential Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 2000.

U.S. NABCI Committee. 2000. The North American Bird Conservation Initiative in the United States: A Vision of American Bird Conservation. U.S. NABCI Committee, September 2000. 29p.

APPENDIX A

SUBTROPICAL FLORIDA PRIORITY SPECIES (PARTNERS IN FLIGHT)
Priority Bird Populations and Habitats

Pine forests (including Pine Rocklands, Pine Flatwoods, Sand Pine Scrub)

Florida Scrub Jay	Currently extirpated here.
Red-cockaded Woodpecker	
American Kestrel	Southeastern U.S. subspecies; currently extirpated here.
Brown-headed Nuthatch	Nearly extirpated here.
Bachman's Sparrow	Nearly extirpated here.
Palm Warbler	Non-breeding seasons.
Sedge Wren	Non-breeding seasons.

Grassland/grassland-scrub (including dry prairie and coastal strands)

Grasshopper Sparrow	Florida subspecies; extirpated here.
Crested Caracara	Florida populations.
Burrowing Owl	Florida subspecies.
Sandhill Crane	Florida subspecies.
Mottled Duck	

Subtropical deciduous forest

Short-tailed Hawk	Florida population.
Swallow-tailed Kite	Southeastern U.S. subspecies.
White-crowned Pigeon	
Gray Kingbird	

Everglades, brackish saltwater and freshwater marsh

Snail Kite	Everglades subspecies.
Seaside Sparrow	Cape Sable subspecies.
Wood Stork	Southeast U.S. population.
Black Rail	
Reddish Egret	
Yellow Rail	Non-breeding seasons.
White Ibis	
Clapper Rail	

Mangrove Swamps

Prairie Warbler	Florida subspecies.
Yellow Warbler	Cuban subspecies.
Black-whiskered Vireo	
Mangrove Cuckoo	

APPENDIX B

Southeast Region Waterbird Priorities and Habitat Types

Table 1. Southeast U.S. Waterbird Conservation Plan species priorities and habitat suites (b=breeding, r=resident, w=winter, r=resident).*

Tier	**Tier Title**	**Action Level**	**Herons and allies, Pelicans and allies typically brush and tree nesting colonial waterbirds**	**Larids typically beach (ground)-nesting colonial waterbirds (terns, gulls, skimmers)**	**Marshes/ Savannas/ Grasslands**	**Open water (with mud and sand flats also foraging habitat for most colonial species)**	**Pelagic (all non-breeding populations)**
I.	**Continental Conservation Interest**						
a.	**Multiple concerns**	*Immediate management*	"Great White" Heron		Black Rail (b/r)		Bermuda Petrel
					King Rail (b/r)		Black-capped Petrel
					Yellow Rail (w)		
					Whooping Crane (w-TX, r-FL)		
b.	**High threats and/or declining**	*Immediate management*		Roseate Tern		Horned Grebe (w)	Audubon's Shearwater
		Management attention	Little Blue Heron	Gull-billed Tern			Greater Shearwater
				Least Tern			Band-rumped Storm-Petrel
				Black Skimmer			Bridled Tern
		Planning and responsibility	Masked Booby				Brown Booby
							Razorbill

c.	**Local and/or rare**	*Immediate Management*	Magnificent Frigatebird				
			Reddish Egret				
		Management attention					Cory's Shearwater
							Manx Shearwater
		Planning and responsibility		Bridled Tern			
Tier	**Tier Title**	**Action Level**	**Herons and allies, Pelicans and allies typically brush and tree nesting colonial waterbirds**	**Larids typically beach (ground)-nesting colonial waterbirds (terns, gulls, skimmers)**	**Marshes/ Savannas/ Grasslands**	**Open water (with mud and sand flats also foraging habitat for most colonial species)**	**Pelagic (all non-breeding populations)**
II.	**Regional Conservation Interest**						
a.	**High Concern**	Immediate Management	Wood Stork (b/r, FL, GA, SC, AL))		Least Bittern (b/r)	Red-throated Loon (w)	Sooty Shearwater
		Management attention	Green Heron		Purple Gallinule (b/r)	Common Tern (transient populations)	
			Black-crowned Night-Heron		American Coot (breeding populations only)	Black Tern (transient populations)	
			Wood Stork (nb, MS, LA, TX, AR, elsewhere)		Limpkin (r)		
					American Bittern (w)		

		Planning and responsibility	Yellow-crowned Night-Heron	Royal Tern			
				Sandwich Tern			
b.	**High Threats**	*Immediate management*			Sandhill Crane (Mississippi subspecies)		
		Management attention	White Ibis	Common Tern (Atlantic and Gulf coast breeding populations only)	Pied-billed Grebe (breeding populations only)	Greater Flamingo (formerly bred)	Northern Gannet
						Common Loon (w)	
						American White Pelican (w)	
Tier	**Tier Title**	**Action Level**	**Herons and allies, Pelicans and allies typically brush and tree nesting colonial waterbirds**	**Larids typically beach (ground)-nesting colonial waterbirds (terns, gulls, skimmers)**	**Marshes/ Savannas/ Grasslands**	**Open water (with mud and sand flats also foraging habitat for most colonial species)**	**Pelagic (all non-breeding populations)**
II.							
c.	**High Responsibility**	*Planning and responsibility*	Brown Pelican	Forster's Tern (actually nests in marshes)	Clapper Rail (r)	Franklin's Gull (transient populations)	Sooty Tern
			Tricolored Heron	Sooty Tern (Florida breeding population only; nests under cover)	Sandhill Crane (Florida subspecies)	Bonaparte's Gull (w)	Brown Noddy
				Brown Noddy (Florida breeding population only; elevated nests in shrubs, trees)	Sandhill Crane (Greater, Lesser, and Canadian subspecies)		

III.	**Additional Federal and State Listed Species**						
IV.	**Additional local or regional interest**	*Planning and responsibility*	Anhinga	Caspian Tern	Least Grebe (r)	Eared Grebe (w)	
			Great Blue Heron		Common Moorhen (b/r)		
			Great Egret		Virginia Rail (w)		
			Snowy Egret		Sora (w)		
			Glossy Ibis				
			White-faced Ibis				
			Roseate Spoonbill				
Tier	**Tier Title**	**Action Level**	**Herons and allies, Pelicans and allies typically brush and tree nesting colonial waterbirds**	**Larids typically beach (ground)-nesting colonial waterbirds (terns, gulls, skimmers)**	**Marshes/ Savannas/ Grasslands**	**Open water (with mud and sand flats also foraging habitat for most colonial species)**	**Pelagic (all non-breeding populations)**
IV.		*Population Control*	Neotropical Cormorant	Laughing Gull			
			Double-crested Cormorant	Herring Gull			
			Cattle Egret	Great Black-backed Gull			
	Other species covered in this plan					Pied-billed Grebe (non-breeding populations)	Wilson's Storm-Petrel

						American Coot (non-breeding populations)	Leach's Storm-Petrel
						Ring-billed Gull	Pomarine Jaeger
						Lesser Black-backed Gull	Parasitic Jaeger
							Black-legged Kittiwake
							Dovekie

*See Appendices I-III.

Tier=

I. Continental Conservation Interest (Continental WatchList): (a) Species with multiple causes for concern across their entire range; (b) Moderately abundant or widespread species with declines or high threats, and (c) Species with restricted distributions or low population size.

Species with multiple causes for concern across their entire range: These species are considered by many to be of highest continental concern and of highest priority for conservation actions at national and international scales.

Moderately abundant or widespread species with declines or high threats: These species are on the Watch List primarily because they are declining and/or threatened throughout their range, though still fairly widespread or with moderately large populations.

Species with restricted distributions or low population size: These species are on the Watch List because they are restricted to a small range or have small global populations (often both). Many of these species are not known to be declining or seriously threatened at present, but many others. We recognize that these species with small populations and restricted range are particularly vulnerable to relatively minor changes from current conditions, whether or not their populations are currently in decline.

II. Regional Conservation Interest (non-WatchList; TOT$\geq$19): (a) high regional concern (AI+PT$\geq$8); (b) high regional threats (TB+TN$\geq$7, or TB or TN=5) and includes taxa (subspecies and populations) of regional conservation interest not otherwise included in categories above; (c) high regional responsibility (as measured by percent of global, continental, or regional populations).

III Additional Federally and/or State listed.

IV Local or regional concern or interest.

Act. Level=Action Level at present based on expert opinion, but ultimately rules based on scores would be preferable.

IM=Immediate management needed to reverse or stabilize significant, long-term population declines in species with small populations, or to protect species with the smallest populations for which trends are poorly known. Lack of action may lead to extirpations or extinction.

MA=Management or other on-the-ground conservation actions needed to reverse or stabilize significant, long-term population declines in species that are still relatively abundant.

PR=Long-term Planning and Responsibility needed for species to ensure that sustainable populations are maintained for species for which a region has high responsibility for that species.

PC=Population Control/Suppression needed for species that are otherwise secure and increasing that may come into conflict with other species of higher conservation concern or other resources of interest.

APPENDIX C

Wildlife Conservation Commission

FLORIDA'S ENDANGERED SPECIES, THREATENED SPECIES AND SPECIES OF SPECIAL CONCERN

Official Lists

Publication Date: 1 August 1997

This document consolidates the state and federal official lists of endangered species, threatened species, and other species categorized in some way by the respective jurisdictional agencies as meriting special protection or consideration. The state lists of animals are maintained by the Florida Game and Fresh Water Fish Commission and categorized as endangered, threatened and of special concern, and constitute Rules 39-27.003, 39-27.004 and 39-27.005, respectively, Florida Administrative Code (F.A.C.). The state lists of plants are categorized into endangered, threatened and commercially exploited, and are administered and maintained by the Florida Department of Agriculture and Consumer Services via Chapter 5B-40, F.A.C. The federal lists of animals and plants are administered by the U.S. Fish and Wildlife Service and categorized into endangered and threatened, and are published in 50 CFR 17 (animals) and 50 CFR 23 (plants). The abbreviations used in part one are:

GFC = Florida Fish and Wildlife Conservation Commission

FDA = Florida Department of Agriculture and Consumer Services

FWS = United States Fish and Wildlife Service

E = Endangered

T = Threatened

T(S/A) = Threatened/Similarity of Appearance

T(E/P) = Threatened/Experimental Population

SSC = Species of Special Concern

C = Commercially Exploited

		Designated Status	
Scientific Name	**Common Name(s)**	**GFC**	**FWS**
Birds			
Ajaia ajaja	Roseate spoonbill	SSC	
Ammodramus maritimus juncicolus	Wakulla seaside sparrow	SSC	

		Designated Status	
Scientific Name	**Common Name(s)**	**GFC**	**FWS**
Ammodramus maritimus mirabilis	Cape Sable seaside sparrow	E	E
Ammodramus maritimus peninsulae	Scott's seaside sparrow	SSC	
Ammodramus savannarum floridanus	Florida grasshopper sparrow	E	
Aphelocoma coerulescens	Florida scrub-jay	T	T
Aramus guarauna	Limpkin	SSC	
Campephilus principalis	Ivory-billed woodpecker	E	E
Charadrius alexandrinus tenuirostris	Southeastern snowy plover	T	
Charadrius melodus	Piping plover	T	T
Cistothorus palustris griseus	Worthington's marsh wren	SSC	
Cistothorus palustris marianae	Marian's marsh wren	SSC	
Columba leucocephala	White-crowned pigeon	T	
Dendroica kirtlandii	Kirtland's warbler	E	E
Egretta caerulea	Little blue heron	SSC	
Egretta rufescens	Reddish egret	SSC	
Egretta thula	Snowy egret	SSC	
Egretta tricolor	Tricolored (=Louisiana) heron	SSC	
Eudocimus albus	White ibis	SSC	
Falco peregrinus tundrius	Arctic peregrine falcon	E	
Falco sparverius paulus	Southeastern American kestrel	T	
Grus americana	Whooping crane	SSC	T(E/P)
Grus canadensis pratensis	Florida Sandhill crane	T	
Haematopus palliatus	American oystercatcher	SSC	
Haliaeetus leucocephalus	Bald eagle	T	T
Mycteria americana	Wood stork	E	E

		Designated Status	
Scientific Name	**Common Name(s)**	**GFC**	**FWS**
Pandion haliaetus	Osprey	SSC*	
Pelecanus occidentalis	Brown pelican	SSC	
Picoides borealis	Red-cockaded woodpecker	T	E
Polyborus plancus audubonii	Audubon's crested caracara	T	T
Rostrhamus sociabilis	Snail kite	E	E
Rynchops niger	Black skimmer	SSC	
Speotyto cunicularia	Burrowing owl	SSC	
Sterna antillarum	Least tern	T	
Sterna dougallii	Roseate tern	T	T
Vermivora bachmanii	Bachman's warbler	E	E
*Applicable in Monroe County only			

APPENDIX D

US FISH AND WILDLIFE SERVICE, SPECIES OF CONSERVATION CONCERN IN PENINSULAR FLORIDA (BCR 31)

Black-capped Petrel
Audubon's Shearwater
Magnificent Frigatebird
American Bittern
Little Blue Heron
Reddish Egret
White Ibis
Swallow-tailed Kite
Short-tailed Hawk
American Kestrel (resident *paulus* ssp. only)
Peregrine Falcon
Yellow Rail
Black Rail
Limpkin
Snowy Plover
Wilson's Plover
American Oystercatcher
Whimbrel
Marbled Godwit
Red Knot
Semipalmated Sandpiper
Stilt Sandpiper
Buff-breasted Sandpiper
Short-billed Dowitcher
Gull-billed Tern
Common Tern
Least Tern
Black Tern
Black Skimmer
White-crowned Pigeon
Common Ground-Dove
Mangrove Cuckoo
Smooth-billed Ani
Burrowing Owl
Chuck-will's-widow
Red-headed Woodpecker
Loggerhead Shrike
Black-whiskered Vireo
Brown-headed Nuthatch
Yellow Warbler (resident *gundlachi* ssp. only)
Yellow-throated Warbler
Prairie Warbler
Bachman's Sparrow
Henslow's Sparrow
Nelson's Sharp-tailed Sparrow
Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
Painted Bunting