

**DRAFT**

# Avian Conservation Implementation Plan Everglades National Park

National Park Service  
Southeast Region



Compiled by J. Keith Watson  
U.S. Fish and Wildlife Service  
In cooperation with

EVER Resource Management Staff, National Park Service  
And Bird Conservation Partners  
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## Introduction

This Avian Conservation Implementation Plan (ACIP) is provided to the staff at Everglades National Park (EVER) 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 EVER is primarily a subtropical wetland interspersed with various forest types, waterbird and landbird conservation recommendations will be derived from the appropriate national level plans. However, all high priority bird conservation issues for EVER will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with EVER staff 2) EVER bird conservation partners 3) the PIF Subtropical Florida Bird Conservation Plan Executive Summary (PIF 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 EVER resource management staff and managers, South Florida/Caribbean Inventory and Monitoring Network (SF/C I&M) staff, and bird conservation partners and approved by EVER management. Optimally, this plan will be incorporated into the park's natural resource planning and management documents and updated annually to reflect completed projects, newly identified needs, and shifts in bird conservation priorities in the region.

**EVER is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to EVER to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which EVER 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 these 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 1999, 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 EVER 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 Policies (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 includes:

- 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](http://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 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.

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 U.S. 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**

Established in 1947, the Everglades National Park's 610,497 ha (1.5 million acres) include habitats ranging from freshwater marshes in Shark River Slough to Florida Bay, an occasionally hypersaline, seagrass-dominated marine lagoon. Other prominent natural communities are subtropical hardwood hammocks, the last large intact remnant of South Florida upland pineland forests and an extensive mangrove dominated estuary. Everglades National Park is designated as an International Biosphere Reserve (1976), Wilderness Designation (1976), a World Heritage Site (1979), and a Wetland of

International Significance (1987). The Park is the southeast's largest designated wilderness and hosts 14 threatened and endangered species. It is a significant North American breeding ground for subtropical wading birds and contains the largest mangrove ecosystem in the Western Hemisphere. Together with neighboring Big Cypress National Preserve and Biscayne National Park, these protected habitats are almost 1 million hectares (2,471,053 acres) in size and are significant elements of the South Florida ecosystem, a natural continuum that begins in the Kissimmee River Basin and ends at the Gulf of Mexico and Florida Keys (Sasso and Patterson 2000).

## **Avian Resources of Subtropical Florida**

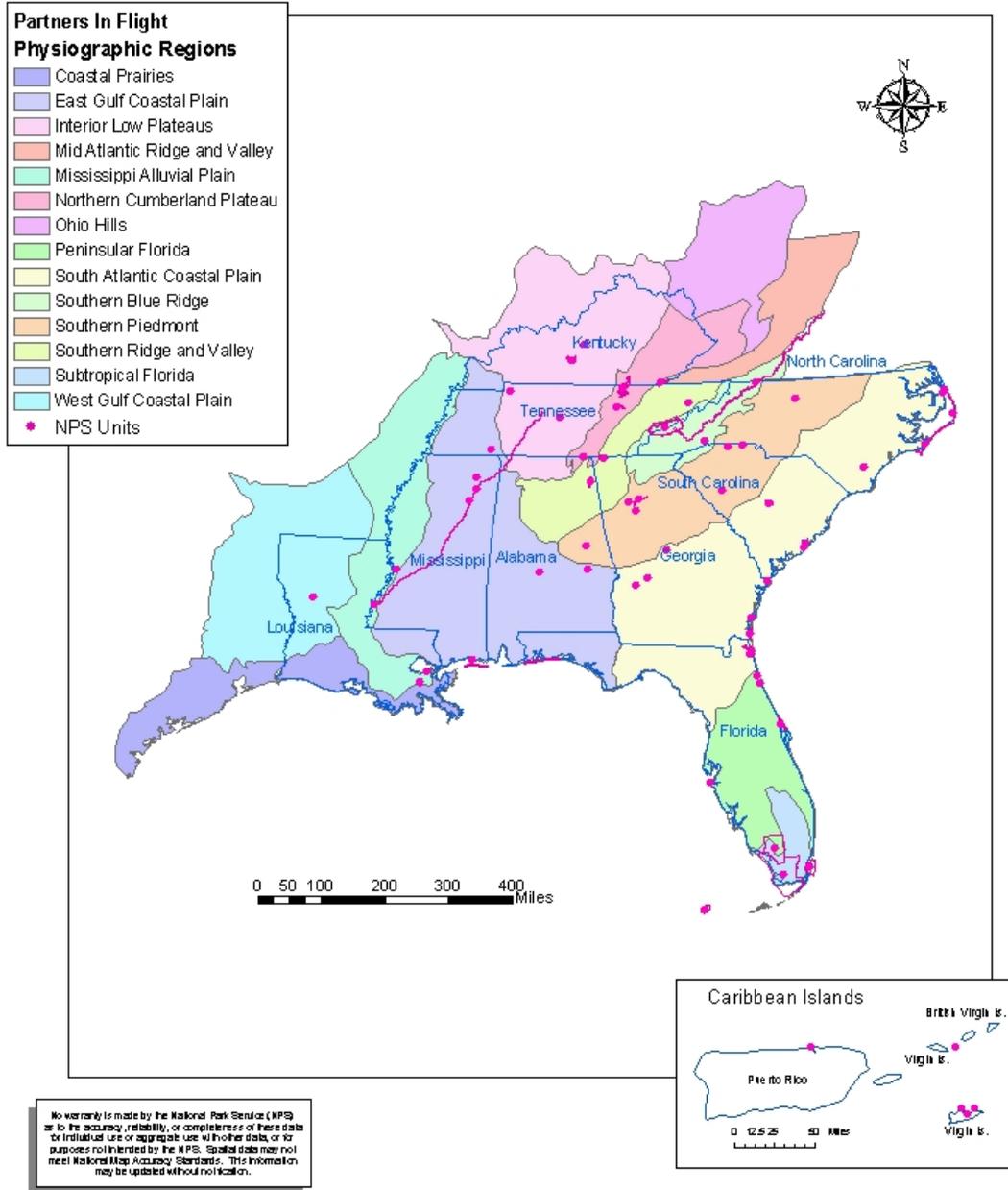
This physiographic area is entirely contained within Florida, and extends from the northern edge of Lake Okeechobee south through the Florida Keys (see PIF and NPS location maps below). The region has very little topographic relief, but slight changes in elevation have important consequences for vegetation 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 Ridge, 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 (PIF [http://www.blm.gov/wildlife/pl\\_01sum.htm](http://www.blm.gov/wildlife/pl_01sum.htm)).

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.

# Partners in Flight (PIF) Regions

Southeast Region (SER)

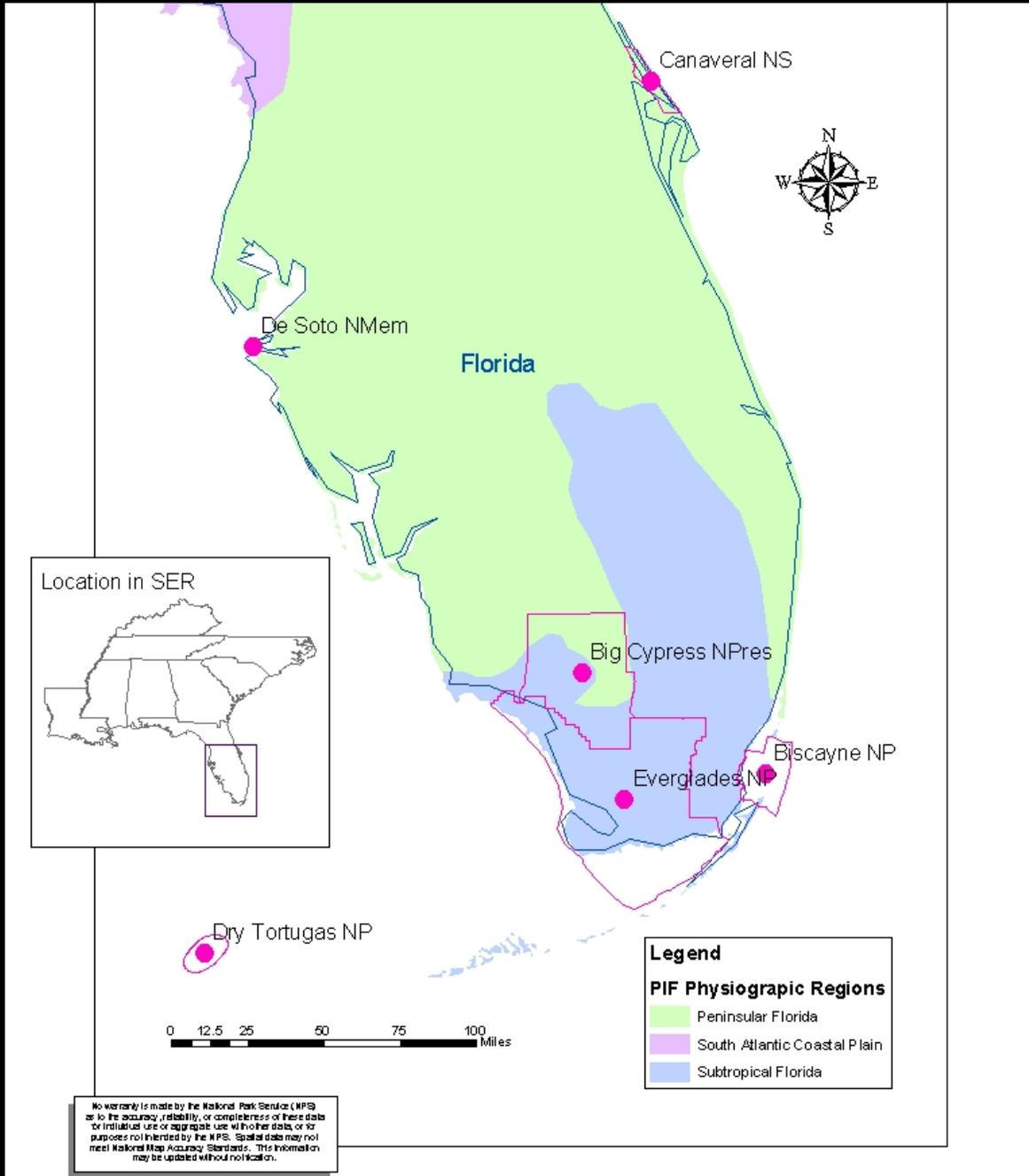
National Park Service  
U.S. Department of the Interior



# Partners in Flight (PIF) Regions and NPS Locations

National Park Service  
U.S. Department of the Interior

Southeast Region (SER)



Produced by Southeast Region GIS, Atlanta, GA

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Florida Scrub Jay, Red-cockaded Woodpecker, Southeastern American Kestrel, Brown-headed Nuthatch, Bachman's Sparrow, Pine 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 Sparrow are nearly extirpated here. Recently, however, EVER and Big Cypress National Preserve (BICY) cooperated on a project to reintroduce Brown-headed Nuthatch and Eastern Bluebird into EVER, a successful project that points the way to potential future relocations of these species throughout South Florida (Slater 2001). 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 as a breeder in South Florida.

In the subtropical deciduous forest, Short-tailed Hawk, Swallow-tailed Kite 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 need of conservation attention.

Prairie Warbler, Yellow Warbler, Black-whiskered Vireo, White-crowned Pigeon and Mangrove Cuckoo, species associated with Mangrove swamps and forests 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 (PIF [http://www.blm.gov/wildlife/pl\\_01sum.htm](http://www.blm.gov/wildlife/pl_01sum.htm)).

## **Avian Conservation in EVER**

*Avian Biodiversity:* EVER has a complete avian inventory and a checklist of birds that is available for the public. Over 350 species have been observed in EVER, and

birdwatching in the park is a primary recreational pursuit due to the large number of species found in the park.

Verified records of birds in EVER 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.

*Park Priorities:* Park staff and consultants have not identified any particular species that is a park management concern or high priority for conservation. However, the presence of 7 Federally listed birds requires compliance with the Endangered Species Act and a large amount of staff time is given to managing these species and their habitats. Additionally, park staff is concerned about conserving all birds and their habitats in EVER. However, several species that occur in EVER are high priority in Subtropical Florida and conservation efforts in the park could focus on these species or groups of species. Generally, great effort is put forth to monitor colonial waterbird species and their nesting success.

**Threatened and Endangered Species:** Seven Federally listed threatened or endangered species occur in EVER. Wood Stork, Bald Eagle, Snail Kite, Cape Sable Seaside Sparrow, Brown Pelican all nest in the park while Piping Plover is an uncommon winter resident and Roseate Tern is a rare winter visitor. Red-cockaded Woodpecker formerly nested in EVER but is now extirpated. The recently delisted American Peregrine Falcon is a rare but regular fall transient and winter visitor.

In addition to the Federally listed species, several Florida listed species occur in EVER as well. Prominent among these are: White-crowned Pigeon, Florida Sandhill Crane, and Least Tern and Grasshopper Sparrow in winter (rare).

In addition to the species listed above Partners In Flight (PIF) has also listed Brown-headed Nuthatch, Bachman's Sparrow, Mottled Duck, Short-tailed Hawk, Swallow-tailed Kite, Gray Kingbird, Black Rail, Reddish Egret, White Ibis, Clapper Rail, Florida Prairie Warbler, Yellow Warbler, Mangrove Cuckoo, Black-whiskered Vireo and non-breeding populations of Palm Warbler and Sedge Wren as species of high conservation concern in Subtropical Florida (PIF [http://www.blm.gov/wildlife/pl\\_01sum.htm](http://www.blm.gov/wildlife/pl_01sum.htm)).

**Inventory:** A complete inventory has been recognized as important information for park managers and is considered complete. However, EVER has identified additional needs to document distribution and abundance of the park's avifauna.

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

- Cape Sable Seaside Sparrow population monitoring, including banding
- Waterbirds (wading birds) monitoring conducted monthly from December to May

and once again in dry season (August to December); distribution and abundance (number of nest and number of birds/species) data are collected; includes Wood Stork nest counts

- Snail Kite Monitoring in Shark Slough Conservation Areas
- Bald Eagle nest surveys conducted by EVER
- Osprey nest surveys conducted by EVER
- Brown Pelican nest surveys conducted by EVER
- Roseate Spoonbill colony nest counts conducted by Florida Audubon Society
- Breeding Bird Survey (BBS) routes in park; two are active but have not been operated lately
- Christmas Bird Count (CBC) circles exist in Coot Bay, Long Pine Key, and Upper Keys
- Brown-headed Nuthatch, Eastern Bluebird, and Wild Turkey monitoring following translocations from Big Cypress National Preserve
- Migration monitoring for landbirds in pine forests during fall and spring
- Regular Breeding Bird Survey route conducted by US Fish and Wildlife Service
- Randomized recreational birding

**Research:** Scientific research is permitted within the park, and several recent projects have been concluded, focusing on several of the listed species that occur in the park. Other than ongoing monitoring, current research projects include:

- Breeding ecology of Cape Sable Seaside Sparrow, including demographic analysis and habitat mapping
- Fire effects on populations of Cape Sable Seaside Sparrow
- Determination of winter population of Short-tailed Hawk and their use of EVER habitats

**Outreach:**

- Educational and outreach programs related to wading birds are undertaken in the park, primarily during high visitor use season
- Birds are emphasized on Environmental Education curricula
- Everglades BirdFest, a three day birding and ecology festival is conducted each winter in the park and organized by the Broward County Audubon Society

## **Park Identified Needs for Avian Conservation**

EVER has identified several high priority projects that would increase the avian knowledge of the park and would assist park managers in making more informed decision regarding bird conservation in EVER.

*Inventory:* EVER would like to initiate a mangrove avian inventory and monitoring program.

*Research:* EVER has identified several research projects that need to be completed (Please see Research section below).

## **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, EVER is within the NABCI Peninsular Florida BCR located entirely within Florida (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, Peninsular Florida does not have a designated coordinator; however, a large portion of the BCR lies within the Atlantic Coast Joint Venture area (Maine to Florida and includes Puerto Rico) and the ACJV has several professional bird conservationists base throughout the region to assist partners in bird conservation efforts (see contacts below). This staff can provide valuable assistance to EVER 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 programs in the United States, being monetarily supported by the North American Wetlands Conservation Act (NAWCA).

### *Partners In Flight*

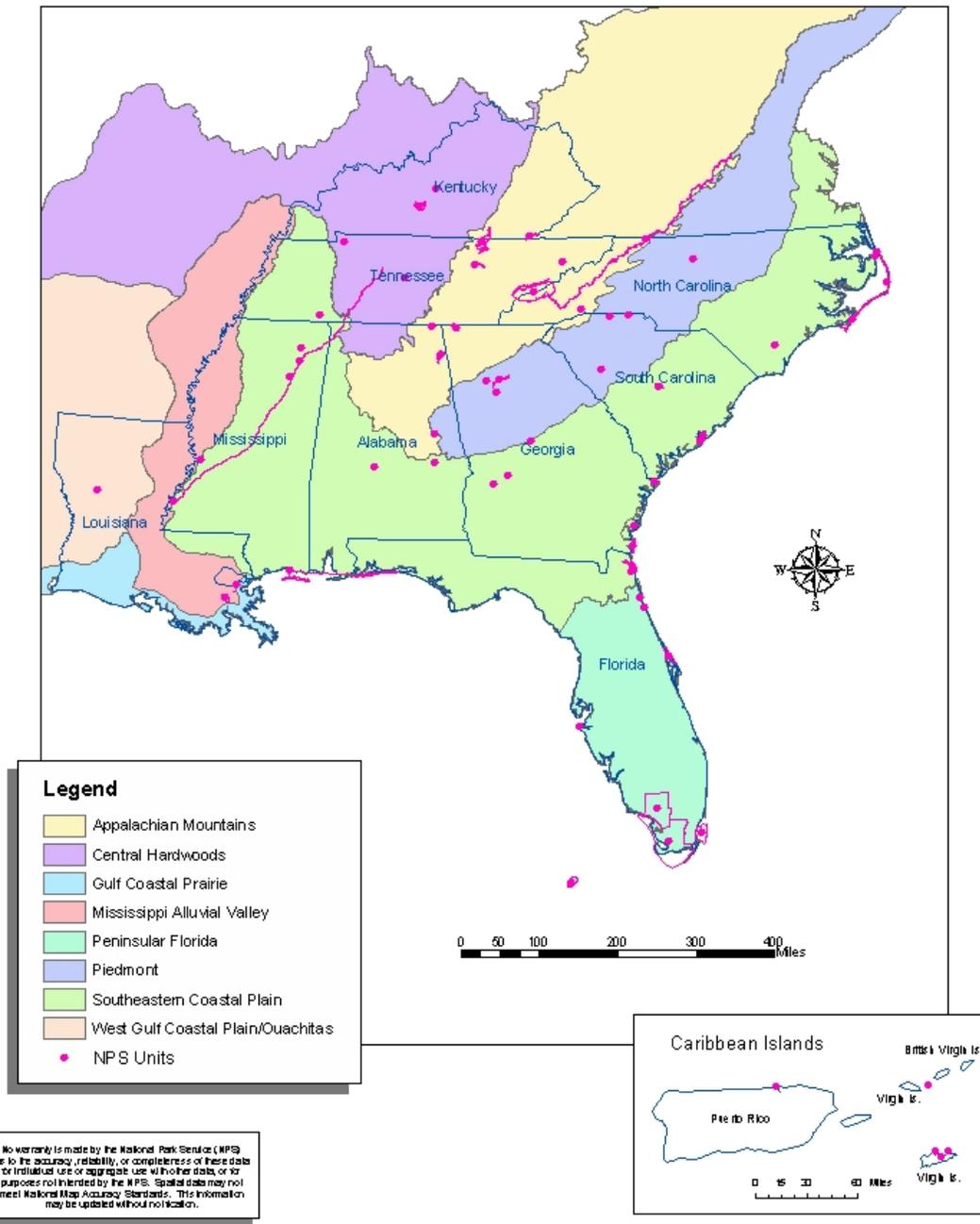
Goals and strategies for Subtropical Florida have yet to be fully identified and organized into a bird conservation plan. Personnel from the Florida Fish and Wildlife Conservation Commission (FFWCC) are currently working on completing the Partners in Flight bird conservation plan for South Florida. In the meantime, Florida's avian priorities and conservation needs are identified in Millsap et al. (1990).

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 conservation coordinator and can be instrumental in assisting EVER to implement recommendations identified in this ACIP and projects important to bird conservation relative to Florida's role in implementation of the bird conservation goals in Subtropical Florida.

# Bird Conservation Regions

Southeast Region (SER)

National Park Service  
U.S. Department of the Interior



### *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 2004.

### *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/>). EVER will utilize this regional plan extensively when completed.

## **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/Management
- 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, implementation of EO 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds**, will require NPS to incorporate a wide range of bird conservation programs into planning and operations.

The development of the MOU between the FWS and the NPS will establish a formal agreement 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 an 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 and has documented over 350 species. Although the avifauna of EVER is well documented, distribution and abundance data are desired to fully understand the status of birds in the park so that conservation actions for birds can be implemented. Status of high priority species is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna.

Additional abundance and distribution data is needed for

- **Mangrove birds\***
- **Marshbirds\***
- **Wet and Dry Prairie birds\***
- **Pine Hammock birds\***
- **Tropical Hardwood Hammock birds\***
- **Shorebirds, especially during migration\***

Additionally, EVER is encouraged to

- **partner with BICY, Ten Thousand Islands National Wildlife Refuge (TTINWR), Great White Heron National Wildlife Refuge (GWHNWR), Big Cypress Seminole Indians, Miccosukee Indians, Florida Wildlife and Conservation Commission (FWCC), Rookery Bay National Esuarine Research Reserve (RBNERR), Fakahatchee Strand Preserve State Park (FSPSP) and South Florida Water Management District (SFWMD) to coordinate area inventory efforts**
- **verify other avian observational data collected in the park and enter into the appropriate database (NPSpecies, eBird, etc.)**
- **standardize inventory and monitoring methodology to conform to NPS**

**and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000)**

### **Monitoring**

The park has an active bird monitoring program resulting in documentation of many high priority species identified for conservation effort occur in the Subtropical Florida and the park. Efforts should be made to continue existing monitoring programs, striving to conform to established NPS or FWS surveys protocols. Close coordination with State of Florida biologists, researchers, and local federal land managers is needed to identify and implement high priority projects on park lands and to ensure that park efforts contribute to park or regional bird conservation rather than undertake an action or actions that are not needed or are better conducted in other areas. Specific recommendations are to:

- **continue to conduct existing monitoring programs and enter data into the appropriate database (NPSpecies, eBird, etc.) and provide data to cooperators\***
- **conduct follow up monitoring on translocations of Brown-headed Nuthatch, Eastern Bluebird and Wild Turkey to from BICY\***
- **establish an inventory and monitoring program to document the avian life in coastal mangrove and coastal hammock forests\***
- **establish additional avian monitoring program based on distribution and abundance surveys that focus on regionally identified high priority species\***
- **consider expanding wading bird surveys to include summer months\***
- **consider establishment of a shorebird survey based on International Shorebird Survey (ISS) protocol during migration and winter**
- **establish a pre and post fire inventory program to document response of birds to prescribed fire**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**
- **partner with BICY, TTINWR, GWHNWR, Rookery Bay National Esutarine Research Reserve (RBNERR), Fakahatchee Strand Preserve State Park (FSPSP), Big Cypress Seminole Indians, Miccosukee Indians, FWCC, and SFWMD to coordinate area monitoring efforts**

### **Habitat Restoration/Management**

Historical landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscape alteration by Native Americans for a variety of uses (Williams 2002), wildfire, bison, beaver, and elk effects, and weather, etc. (Hunter et al.) resulted in a landscape mosaic that supported a rich and diverse bird fauna in the Southeast (Barden 1997, Brawn 2001). The arrival of Europeans and the subsequent change in landscape has dramatically effected bird habitat and bird populations. Bird conservationists have recognized for a long time that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists. 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 EVER 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. Protection, restoration, and enhancement of habitats in EVER can greatly contribute to established habitat goals identified for Subtropical Florida.

EVER is primarily a large wetland that covers a variety of habitats, including freshwater marsh, wet and dry prairies, forested wetlands, mangrove forest, and shallow sloughs. Preservation of these habitats and many species have evolved through a dependence on wildfire. Indeed, EVER is one of the most fire effected landscapes in Florida and currently conducts the largest prescribed fire program in the NPS. Specific habitat recommendations are to:

- **continue to be an active participant in the effort to implement the Comprehensive Everglades Restoration Plan (CERP) to restore hydrological cycles and regimes\***
- **increase the amount of prescribed fire to restore and improve conditions in all habitats, but especially in marshes, prairies, mangroves, and pinelands\***
- **collaborate with adjacent partners to conduct a joint fire effects project\***

- **enhance or maintain water quality to support aquatic biota necessary to support existing waterbirds, marshbirds, and other birds that use water for nesting and foraging**
- **protect existing snag trees, where not identified as a safety hazard, as important to cavity nesting birds**
- assess historic landscape cover and determine feasibility of restoring landscape within the context of the park's enabling legislation.

### **Threat Management**

Historically, the plume hunting trade in the early 1900's drastically reduced the colonial waterbird population by as much as 90%. Currently, the greatest impact to birds at EVER is the disturbance of natural processes, including alteration of hydrological cycles and reduction in wildfire frequency and extent. Changes in these processes through time have resulted in a shift in habitat quantity and quality and is prominent in the listing of several species under the Endangered Species Act. EVER is actively engaged in restoration of these processes and is encouraged to:

- **continue current efforts to restore hydrological processes\***
- **increase the use of prescribed fire to achieve habitat restoration and improvement goals\***

Impact of exotic species on birds at EVER is largely unquantified but feral hogs do occur in the park. However, feral hogs are a prey item of the Florida Panther and are not a managed threat. However, impact from feral hog on ground nesting birds is unknown and the park is encouraged to:

- **evaluate the impact of feral hogs on ground nesting birds\***

Significant exotic plants, particularly Melaleuca, Brazilian Pepper, Australian Pine, and Old World Climbing Fern, occur in EVER and are a potentially threat to habitat at EVER. It is important to establish and continue inventory and monitoring for exotic plant species and implement aggressive removal/reduction projects for these species. The South Florida Exotic Plant Management Team can assist in coordination and implementation of exotic plant management. EVER is encouraged to:

- **implement an aggressive exotic plant reduction program to restore and improve habitat quality**

Additional unquantified threats to birds and their habitats at EVER include recreational boaters, communications towers, recreational activity, fishing gear (hooks and

monofilament line entanglement), and presence of heavy metal toxins, such as mercury in the soils and sediments of the park. To address these issues, the park is encouraged to:

- **establish buffer zone around bird nesting islands and roosting areas for Double-crested Cormorants, Bald Eagle, Osprey, Roseate Spoonbills, and wading bird colony protection\***
- **decommission out of date or unused communication towers\***
- **assess avian mortality at prominent towers and establish a mortality monitoring program to document tower kill of birds\***
- **implement a monofilament line recycling or disposal system at strategic areas in the park\***
- **hire additional law enforcement officers and interpretive staff to implement aspects of this plan\***
- **assess the extent of avian injury and/or death associated with fishing gear (hooks and monofilament line)**
- **assess the threat of heavy metal toxins to birds in the park and initiate appropriate actions to mitigate presence of any toxins**

### **Research**

Several research projects have been identified that would provide additional information to EVER managers for bird conservation purposes. The South Florida/Caribbean Field Unit of the US Geological Survey, Biological Resources Division is located in the South Florida Natural Resource Center in EVER and can provide excellent service and expertise for implementation of these research projects and consultation on appropriate inventory and monitoring protocols for other projects mentioned in this plan. EVER's identified research needs are:

- **determine the response of Cape Sable Seaside Sparrow to prescribed fire\***
- **determine the effects of wildfire and fuel treatments on the avifauna of the pine rockland ecosystem in southern Florida\***
- **assess the effects of prescribed burning on wintering and breeding birds of wet prairie habitats\***
- **determine impacts or recreational boating in Florida Bay to breeding, foraging, and migrant birds\***

- **determine recreational impacts to birds\***
- **determine winter and Neotropical and temperate migrants use of park\***
- **determine impacts of feral hogs on ground nesting birds\***
- **determine demographics and ecology of Limpkin in EVER and BICY**
- **assess threat of heavy metal loads to birds**
- **assess colonial bird nesting mortality due to avian nematode**
- **determine the extent of avian mortality from existing communications towers in the park**

Additionally, the park is encouraged to:

- **list park needs and projects on Research Permit and Reporting System web site (RPRS)\***
- **incorporate scientific information needs from the South Florida Ecosystem Restoration program into the park's planning process\***
- **develop contact with South Florida/Caribbean Cooperative Ecosystem Studies Unit at the University of Miami, Miami, FI**

### **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 C). 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) events with a local partner (<http://birds.fws.gov/imbd.html>), such as BICY, Crocodile Lakes NWR, Tropical Audubon Society, etc.\***
- **continue to host the Everglades BirdFest coordinated by the Broward County Audubon Society highlighting bird conservation issues in EVER and South Florida\***
- **develop outreach and educational programs to enhance visibility of bird conservation issues, which may include organized bird walks, owl prowls, and raptor surveys with the public\***
- **provide bird conservation information in visitors centers\***
- **develop education brochure on proper disposal of monofilament fishing line and potential techniques to avoid hooking birds while fishing\***
- **continue to develop and foster relationship with local area bird clubs, such as Tropical Audubon Society and local bird clubs\***
- **encourage accurate documentation and reporting from these and random outings by visitors (see Cornell University's eBird monitoring program (Cornell Lab. Ornith. 2002 (<http://www.ebird.org/about/index.jsp>))\***
- **develop relationship with Big Cypress Seminole Indian Reservation and Miccosukee Indian Reservation personnel to cooperate on a joint bird conservation project\***
- 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/consbcof3.htm>)
- subscribe to Florida Birds, an electronic forum for listing bird sightings and publications in Florida
- explore cultural affiliation of landscape to inhabitants, both historical and contemporary. Cultures are strongly tied to the landscape they inhabit and birds often play a role in a cultural tie to the landscape. When these connections are discovered and preserved, a greater appreciation for the landscape and its value to the culture can be achieved.

### **Partners and Partnerships**

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

- **continue to keep abreast of Dade, Collier, Monroe, Broward, and Hendry Counties and other South Florida initiatives or programs that could impact park resources\***
- **develop relationship with Big Cypress Seminole Indian Reservation and Miccosukee Indian Reservation personnel\***
- **contact US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the area\***

Several private landowner programs could be implemented that would serve to protect areas adjacent to EVER and potentially improve water and habitat quality in the vicinity

- **develop partnership with FWCC, SFWMD, TTINWR, BICY, Rookery Bay National Estuarine Research Reserve (RBNERR), Fakahatchee Strand Preserve State Park (FSPSP) and other local partners to coordinate and implement various aspects of this ACIP\***
- **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 Subtropical Florida bird conservation plan\***

- partner with and engage the local bird clubs, including Tropical Audubon Society, Audubon Society of the Everglades, Broward County Audubon Society, Naples Bird Club, and Collier County Audubon as active partners in EVER's bird conservation program
- develop land use agreements with local landowners through state, FWS programs to protect important habitats and landscapes adjacent to EVER

### **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 an asterisk (\*). EVER 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. EVER is not within a region which has an operational Joint Venture, but contact with the Atlantic Coast Joint Venture, Central Hardwoods BCR, and Tennessee PIF coordinators will provide opportunity to investigate use of this funding source and developing proposals.

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.

One unexplored yet potentially fruitful funding source for national parks is the myriad of grants through the FWS State Programs, where grants are awarded to private individuals engaged in habitat conservation projects. No funding is directly available to national parks, but identified projects with important or critical adjacent landowners can sometimes be funded through these sources. Similar programs are available if the adjacent landowner is a federally recognized American Indian tribe.

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 EVER are:

### **US Fish and Wildlife Service**

Keith Watson  
Asheville, NC 28801  
828-350-8228

[Keith.Watson@fws.gov](mailto:Keith.Watson@fws.gov)

Dean Demarest  
US Fish and Wildlife Service  
Atlanta, GA  
404-679-7371

[dean\\_demarest@fws.gov](mailto:dean_demarest@fws.gov)

Jennifer Wheeler  
US Fish and Wildlife Service  
Waterbird Conservation Plan  
Coordinator  
703-358-1714

[Jennifer.A.Wheeler@fws.gov](mailto:Jennifer.A.Wheeler@fws.gov)

Craig Watson  
US Fish and Wildlife Service  
Atlantic Coast Joint Venture  
Charleston, SC  
843-727-4707 ext. 16

[Craig.Watson@fws.gov](mailto:Craig.Watson@fws.gov)

Chuck Hunter  
US Fish and Wildlife Service  
Regional Refuge Biologist  
Atlanta, GA  
404-679-7130

[Chuck.Hunter@fws.gov](mailto:Chuck.Hunter@fws.gov)

Ralph Costa  
US Fish and Wildlife Service  
Clemson University  
Clemson, SC

864 656-2432

[Ralph.Costa@fws.gov](mailto:Ralph.Costa@fws.gov)

### **National Park Service**

South Florida/Caribbean  
Inventory & Monitoring Network  
Coordinator

Matt Patterson  
305 224-4211

[Matt.Patterson@nps.gov](mailto:Matt.Patterson@nps.gov)

Oron Bass  
Everglades National Park  
305 242-7833

[Sonny.Bass@nps.gov](mailto:Sonny.Bass@nps.gov)

Skip Snow  
Everglades National Park  
305 242-7827

[Skip.Snow@nps.gov](mailto:Skip.Snow@nps.gov)

Mr. Tony Pernas  
National Park Service  
305 224-4246

[Tony.Pernas@nps.gov](mailto:Tony.Pernas@nps.gov)

Carol Daniels  
South Florida/Caribbean CESU  
Miami, FL  
305 361-4904

[Carol.Daniels@nps.gov](mailto:Carol.Daniels@nps.gov)

### **State of Florida**

Jeff Gore  
Florida Fish and Wildlife Conservation  
Commission  
850-265-3677

[Jeff.Gore@fwc.state.fl.us](mailto:Jeff.Gore@fwc.state.fl.us)

Karl Miller  
Florida Fish and Wildlife Conservation  
Commission  
352-955-2230  
[karl.miller@fwc.state.fl.us](mailto:karl.miller@fwc.state.fl.us)

Peter Frederick  
University of Florida  
Gainesville, FL

### **Others**

Gary Slater  
Mount Vernon, WA 98273  
Ecostudies Institute  
360-416-6707  
[gslater@ecoinst.org](mailto:gslater@ecoinst.org)

Bernice Constantine  
USDA Wildlife Services  
Florida  
353-377-5556

(904) 846-0565  
[pcf@gnv.ifas.ufl.edu](mailto:pcf@gnv.ifas.ufl.edu)

Ken Meyer  
Avian Research and Conservation  
Institute  
Gainesville, FL  
352-335-4151  
[meyer@arcinst.org](mailto:meyer@arcinst.org)

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## APPENDIX A

### HIGH PRIORITY SPECIES IN PENINSULAR FLORIDA BIRD CONSERVATION REGION (from Table 1, Peninsular Florida Priority Bird Species)

**Table 1. Priority bird species for Peninsular Florida: Entry criteria and selection rationale**

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Priority Species Score	Conservation Score		Percent Population of BBS Trend	Local Migratory Population	Geographical or Status <sup>2</sup>	Historical Notes
			Area Importance	Area Importance				
Ia.	Florida Scrub-Jay <sup>5</sup>	35	5 <sup>4</sup>	5 <sup>4</sup>	5 <sup>4</sup>	100	R	
	Grasshopper Sparrow <sup>5</sup> (Florida)	35	5 <sup>4</sup>	5 <sup>4</sup>	5 <sup>4</sup>	100	R	
	Snail Kite <sup>5</sup> (Everglade)	34	5	4 <sup>4</sup>	4 <sup>4</sup>	100?	D	
	Crested Caracara <sup>5</sup> (Florida pop.)	34	5 <sup>4</sup>	4 <sup>4</sup>	4 <sup>4</sup>		D	
	Snowy Plover (SE US)	34	5	5	5		D	Gulf side only
	Red Knot (SE US)	32	5	5	5		C	
	Piping Plover <sup>5</sup>	31	4	5	5		C	
	Prairie Warbler (Florida)	31	5 <sup>4</sup>	5 <sup>4</sup>	5 <sup>4</sup>		D	
	Wood Stork <sup>5</sup> (SE US pop.)	30	5	4	4		D	
	Short-tailed Hawk (Florida pop.)	30	5 <sup>4</sup>	3	3		D	
	Swallow-tailed Kite (SE US)	29	5	3	3	61.7	B	
	Red-cockaded Woodpecker <sup>5</sup>	29	3 <sup>4</sup>	3	3		R	

Table 1 (cont.).

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Priority Species Score	Conservation Score		Local Migratory Population	Geographical or Status <sup>2</sup>	Historical Notes
			Area Importance	Population of BBS Trend			
	Mottled Duck	29	5	4 <sup>4</sup>	11.3?	D	
	American Kestrel	28	5 <sup>4</sup>	4 <sup>4</sup>		R	
	(SE US)						
	Burrowing Owl (Florida)	28	5 <sup>4</sup>	3		D	
	Bachman=s Sparrow	28	5	3	18.9	D	
	Saltmarsh Sharp-tailed Sparrow	28	3	3		C	
	Painted Bunting (Eastern)		28	3 <sup>4</sup>	3	D	
	American Oystercatcher (Eastern NA pops.)	28	5	3		D	
Ib.	Wilson=s Plover	27	4	3		D	
	Nelson=s Sharp-tailed Sparrow	27	3	3		C	
	Henslow=s Sparrow	27	3	4		C	
	Black Rail	27	4	3		D	
	Sandhill Crane (Florida)	26	5 <sup>4</sup>	1		R	
	Audubon=s Shearwater (Caribbean)	26	5	3		P	
	Reddish Egret	26	4	3		D	
	Least Tern	26	5	4 <sup>4</sup>	4.6?	B	
	Black Skimmer	26	5	5		D	
	Bicknell=s Thrush	26	5	3		A	

Table 1 (cont.).

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Species Score	Priority	Conservation Score			Local Migratory	Geographical or Historical Notes
				Area Importance	Trend	Population of BBS Status <sup>2</sup>		
	Yellow Rail		26		4	3		C
	Buff-breasted Sandpiper		25		3	4		A Most southbound migration
	Black-throated Blue Warbler		25		5	3		A
	Seaside Sparrow		25		4 <sup>4</sup>	3		D Gulf populations
	Brown Pelican (SE US)		24		5	1 <sup>4</sup>		D
	Marbled Godwit		24		3	4		C
	Bobolink		24		5	5		A
	Tricolored Heron		23		4	3	17.3?	D
	White Ibis		23		4	4		D
	King Rail		23		4	3		D
	Sandhill Crane (Greater)		23		5	3		C
	Solitary Sandpiper		23		5	3		A
	Whimbrel		23		3	5		A
	Stilt Sandpiper		23		4	3		A
	Brown-headed Nuthatch		23		3	3		R
	Cape May Warbler		23		5	3		A
	Connecticut Warbler		23		5	3		A
	Cory=s Shearwater		22		5	3		P
	Clapper Rail		22		3	3		R
	Limpkin		22		3 <sup>4</sup>	4 <sup>4</sup>	33.2?	R
	Semipalmated Sandpiper		22		5	5		A
	Short-billed Dowitcher		22		5	5		C
	Gull-billed Tern		22		3	4		D
	Royal Tern		22		4	3		D
	Sandwich Tern		22		5	3		D
	Black Tern		22		5	5		A

Table 1 (cont.). Mangrove Cuckoo 22 3<sup>4</sup> 3 E

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Species Score	Priority	Conservation Score			Local Migratory	Geographical or Historical Notes
				Area Importance	Trend	Percent Population of BBS Status <sup>2</sup>		
	Gray Kingbird		22		3 <sup>4</sup>	3	4.5?	B
	Black-whiskered Vireo		22		3 <sup>4</sup>	3		B
	Loggerhead Shrike		22		5	5	4.1	D
	Sedge Wren		22		4	2		C
	Palm Warbler		22		5	5		C
II a.	Anhinga		21		5	3		D
	American Bittern		21		4	5		C
	Northern Bobwhite		21		4	5		R
	Black-bellied Plover		21		4	5		D
	Willet		21		5	3		D
	Western Sandpiper		21		5	3		C
	Common Ground-Dove		21		5	5	23.8?	R
	Red-headed Woodpecker		21		3	5	1.0	D
	Veery		21		4	5		A
	Pine Warbler		21		4	5		D
	Grasshopper Sparrow (Eastern)		21		5	5		C
	Green Heron		20		5	3		D
	Northern Harrier		20		4		C	
	Ruddy Turnstone		20		3	4		D
	Least Sandpiper		20		5	5		C
	Dunlin		20		4	5		C
	Yellow-billed Cuckoo		20		3	5		B
	Gray Catbird		20		5	5		C
	Eastern Towhee		20		5	5	7.9	D
	American Avocet		19		3	3		C
	Greater Yellowlegs		19		5	3		C

Table 1 (cont.).

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Species Score	Priority	Conservation Score		Local Migratory	Geographical or Historical Notes
				Area Importance	Percent Population of BBS Status <sup>2</sup>		
	Sanderling		19		3	5	C
	Pectoral Sandpiper		19		5	3	A
	Common Nighthawk		19		5	5	3.6 B
II b.	Chuck-will=s-widow		21		5	3	7.0 B
	White-eyed Vireo		20		5	2	5.4 D
II c.	Snowy Egret		19		4	3	D
	Little Blue Heron		20		3	4	5.1 D
Local or Regional Interest	Prothonotary Warbler				21	2	3 B (AA@ Merritt Island)
	American White Pelican		20		4	1	C
	Redhead				20	2	4 C
	American Woodcock		20		2	4	D
	Acadian Flycatcher		20		2	3	B (AA@ Merritt Island)
	Yellow-throated Vireo		20		3	3	B (AA@ Merritt Island)
	Yellow-throated Warbler		20		3	3	C
	Hooded Warbler		20		2	3	B (AA@ Merritt Island)
	Peregrine Falcon		19		5	1	A Winters in small numbers
	Northern Parula		19		5	2	C
	Common Loon		18		4	3	C
	Least Bittern		18		2	3	7.0? D
	Wood Duck		18		4	2	D
	Ring-necked Duck		18		3	2	C
	Lesser Scaup		18		3	5	C
	Red-shouldered Hawk		18		5	2	D
	Eastern Kingbird		18		3	5	B

Summer Tanager	18	3	3	B
Eastern Meadowlark	18	4	5	D

Table 1 (cont.).

Priority Entry Criteria <sup>1</sup>	Species	Total PIF Species Score	Priority	Conservation Score			Local Migratory	Geographical or Historical Notes
				Area Importance	Trend	Percent Population of BBS Status <sup>2</sup>		
	Rusty Blackbird		18		2	5		C
	Bald Eagle <sup>5</sup>		17		4 <sup>4</sup>	1		D
	Blue-winged Teal		17		5	3		A
	Barn Owl		17		3	3		D
	Northern Flicker		17		4	5		D
	Eastern Wood-Pewee		17		2	3		B (AA@ Merritt Island)
	Yellow-crowned Night- Heron		16		2	3		D
	Roseate Spoonbill		16		2	3		D
	Northern Pintail		16		3	5		C
	Brown Thrasher		16		2	3		D
	Black-and-white Warbler		17		3	3		C
	Smooth-billed Ani		15		2	3		R
	Blue-gray Gnatcatcher		14		3	2		C

<sup>1</sup>Entry criteria (Area Importance [AI] scores roughly mean A1" irregular and unpredictable occurrence, A2" rare to uncommon but regular occurrence, A3" low relative abundance, A4" moderate to high relative abundance, A5" highest relative abundance; Population Trend [PT] scores roughly mean A1" definite increase, A2" stable or possible increase, A3" trend unknown, A4" possible decrease, A5" definite decrease):

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  $AI \leq 2$  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.
- II. **Area Priority Species.** Species with slightly lower score total 19-21 with  $PT+AI=8+(a)$ , with high percent BBS population (b), or high level of threats identified ( $TB+TN=7+$ , TB or  $TN=5$ ). Ordered by total score. These are **overall moderate priority species.**
- III. **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.**
- LORI **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).

<sup>2</sup> Local 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.**

<sup>3</sup>**Highest percent of breeding population recorded in temperate North America; numbers in A @ are likely projections; ? indicates species widespread outside of temperate North America and/or waterbirds poorly sampled by Breeding Bird Survey within physio. area.**

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

<sup>5</sup>**Species listed as either Federal Endangered or Threatened.**

## APPENDIX B

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
<b><u>Birds</u></b>			
<i>Ajaia ajaja</i>	Roseate spoonbill	SSC	
<i>Ammodramus maritimus juncicolus</i>	Wakulla seaside sparrow	SSC	
		Designated Status	

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

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

## APPENDIX C

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

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