

FINAL DRAFT

Avian Conservation Implementation Plan
Fort Matanzas National Monument and
Castillo de San Marcos National Monument
National Park Service
Southeast Region



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In cooperation with

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Introduction

This Avian Conservation Implementation Plan (ACIP) is provided to the staff at Fort Matanzas (FOMA) and Castillo De San Marcos (CASA) National Monuments to help identify and prioritize bird conservation opportunities, and to provide information and guidance for the successful implementation of needed conservation activities. This plan may identify goals, strategies, partnerships, and perhaps specific projects allowing 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 FOMA/CASA is entirely coastal, recommendations will be derived from both PIF bird conservation plans and other regional shorebird and waterbird plans as appropriate. However, all high priority bird conservation issues for FOMA/CASA will be discussed and integrated as appropriate. Because FOMA/CASA are administered and operated under joint staff, recommendations will be made for each park in a combined plan. Recommendations specific to each park will be identified where appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with FOMA/CASA staff 2) FOMA/CASA bird conservation partners 3) the PIF Peninsular Florida Bird Conservation Plan Executive Summary (2000), 4) peer reviewed bird conservation and management literature, and 5) communications with bird conservation specialists throughout North America, especially in the southeastern United States. This plan has been reviewed by FOMA/CASA resource management staff and managers, Southeast Coast Inventory and Monitoring Network (SEC I&M) staff, and bird conservation partners and approved by FOMA/CASA management. Optimally, this plan will be incorporated into the park's Resource Management Plan (RMP) and updated annually to reflect completed projects, newly identified needs, and shifts in bird conservation priorities in the region.

FOMA/CASA is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to FOMA/CASA to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which FOMA/CASA 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, economic, 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 non-government 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

The North American Bird Conservation Initiative: 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). 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 among 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,
- 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 FOMA/CASA 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 (US Government 2000), 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, a visionary document developed and signed by the Southeast Natural Resource Leaders Advisory Group (SENRLAG 2000), 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, Environmental Leadership, Cooperative Planning, Land Protection, and especially Natural Resource Management that details policy and management guidelines which apply to bird conservation. Important policies in the Natural Resource Management chapter include:

- Planning for Natural Resource Management
- Partnerships
- Restoration of Natural Systems
- Studies and Collection
- General Principles for Managing Biological Resources
- Plant and Animal Population Management Principles
- Management of Native Plants and Animals
- Management of Endangered Plants and Animals
- Management of Natural Landscapes
- Management of Exotic Species
- Pest Management
- Fire Management and
- Water Resource Management

The NPS is the fourth largest landowner in the United States, consisting of over 380 national park units covering 33.6 million ha (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 (Cape Hatteras National Seashore, Cape Lookout 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 (Castillo de San Marcos National Monument, 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 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

Fort Matanzas National Monument (FOMA) is located 14 miles south of St. Augustine on the northeast Atlantic coast of Florida. It encompasses a total of 126 ha (313 acres) divided between the southern tip of Anastasia Island (56 ha; 138 acres) and the northern end of Rattlesnake Island (70 ha; 175 acres). Both are barrier islands separated from the Florida mainland by the Matanzas River and the Intracoastal Waterway.

The Anastasia Island portion of FOMA consists of stabilized beach dunes rising as much as 7.6 m above sea level. Predominant habitats in this portion of the park include beaches along both the Matanzas River and the Atlantic shore, stabilized sand dunes supporting maritime forest, secondary dunes further inland, and salt marsh.

Most of Rattlesnake Island is less than 2 m above sea level, though it rises to near 4 m at one point on its northern end. Much of northern portion of Rattlesnake Island consists of sandy fill pumped in from dredging operations that maintain the boat channels in the Intracoastal Waterway. In addition to the habitats found on Anastasia Island, Rattlesnake Island supports slash pine and red bay woodlands, oyster shell beaches, and developing hardwood forests typified by wax myrtle, cedar, and cabbage palm.

Minor threats include disturbance of a least tern rookery area by vehicles. In addition, natural plant succession is decreasing the attractiveness of the area as a rookery for the least tern. Foot traffic into the dunes is a constant occurrence, creating blow-outs in the dunes, which reduce their ability to maintain plant life. The dunes directly protect the fort by reducing erosion of the barrier island that shields Fort Matanzas from damaging storms.

Introduced plants pose another minor threat, competing with native species in several disturbed areas of the park. They are beginning to threaten the survival of some species and habitat. Exotic animals such as house cats, both feral and free roaming pets, are a direct threat to the Anastasia Island Beach Mouse. House mice and European rats are considered a potential threat to the Beach mouse and other indigenous mammals.

The Castillo de San Marcos (CASA), built 1672-1695, served primarily as an outpost of the Spanish Empire, guarding St. Augustine, the first permanent European settlement in the continental United States, and also protecting the sea route for treasure ships returning to Spain. Although the Castillo has served a number of nations throughout its history, it has never been taken by military force. During the 18th century, the Castillo went from Spanish control to British and back to the Spanish, who remained in power in Florida until the area was purchased by the United States in 1821. Called Fort Marion at this time, The Castillo was made a National Monument in 1924 and became part of the National Park system in 1933. The park consists of the original historic Castillo fortress itself with its attendant grounds, some 10 ha (25 acres).

Avian Resources of Peninsular Florida

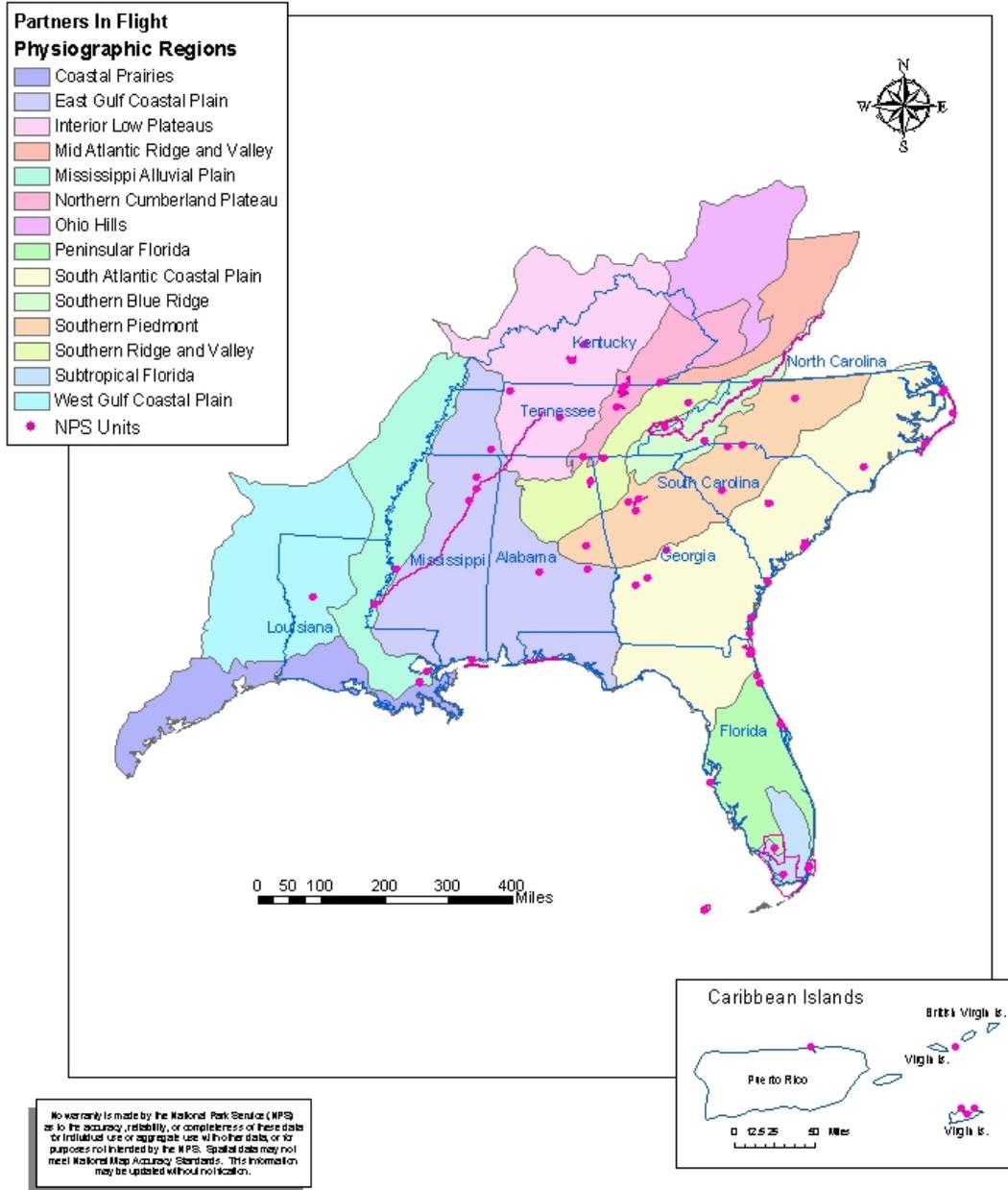
This physiographic area is entirely contained within Florida. The 6,799,900 ha area extends from the northern edge of Lake Okeechobee north to the Coastal Plain transitional zone around the Suwanee River in northern Florida (see PIF and NPS locations maps below). Most of the area is xeric upland on the Central Florida ridge. Habitats there include sandhill, scrub, and xeric hammock communities. Sandhill communities are dependent on frequent fires, and are dominated by longleaf pine and/or turkey oak, with an understory of wiregrass. Scrub communities are temperate or subtropical, with a less frequent occurrence of fire. Dominant vegetation includes sand pine and/or scrub oak. Xeric hammocks are dominated by live oak, sand live oak, laurel oak, and other oaks, with an understory of sparkleberry and saw palmetto. Other upland communities include mesic uplands, dominated by upland hardwoods or mixed hardwood pine forests. Wetlands and mangroves are also locally common to abundant in the physiographic area. Wetlands can include wet flatwoods, wet prairie, and hydric hammocks, as well as floodplain bottomland hardwood forests. Coastal uplands, such as beach dune, coastal berm, coastal grassland, and maritime hammock, are influenced by erosion, deposition, salt spray, and storms (Partners In Flight 1999).

The northern portion of Peninsular Florida is a transitional zone where the pine and bottomland hardwood elements of the Coastal Plain begin to merge with the tropical elements of south Florida. Many of the important pine and bottomland birds of the Coastal Plain, including Red-cockaded Woodpecker and Swallow-tailed Kite, extend into this area. The central scrub-oak Lake Wales Ridge is a center of endemism that includes all of the world's Florida Scrub-Jays. Colonies of Wood Stork, Glossy Ibis, and other herons and egrets are found throughout the region, while coastal islands support important continental breeding populations of Brown Pelicans, Black Skimmers, and various terns. Farther south, in the subtropical zone of the state, a normally frost-free climate creates conditions for mangroves, everglades, and tropical hammocks, tying this area more closely to the Bahamas and Caribbean than to the rest of the United States. Snail Kite, Short-tailed Hawk, and Limpkin breed in interior wetlands, with Mangrove Cuckoo and Black-whiskered Vireo in coastal mangroves. One of the greatest wading-bird concentrations in the world is in the Everglades. White-crowned Pigeons inhabit the Florida Keys, and the only Brown Noddy, Sooty Tern, and Magnificent Frigatebird breeding site in the country is on the Dry Tortugas. Wintering waterfowl abound in coastal waters, including large numbers of Lesser Scaup, Ring-necked Duck, and Green-winged Teal. The endemic Florida subspecies of Mottled Duck, Wood Duck, and Fulvous Whistling-Duck also breed in the area. Most of the remaining nesting Snowy Plovers in the Southeast occur along Florida's Gulf Coast. Extraordinary numbers of wintering and intransit shorebirds also use the region, particularly Short-billed Dowitchers, but also Piping Plover, Dunlin, and Red Knot (NABCI 2001).

Partners in Flight (PIF) Regions

Southeast Region (SER)

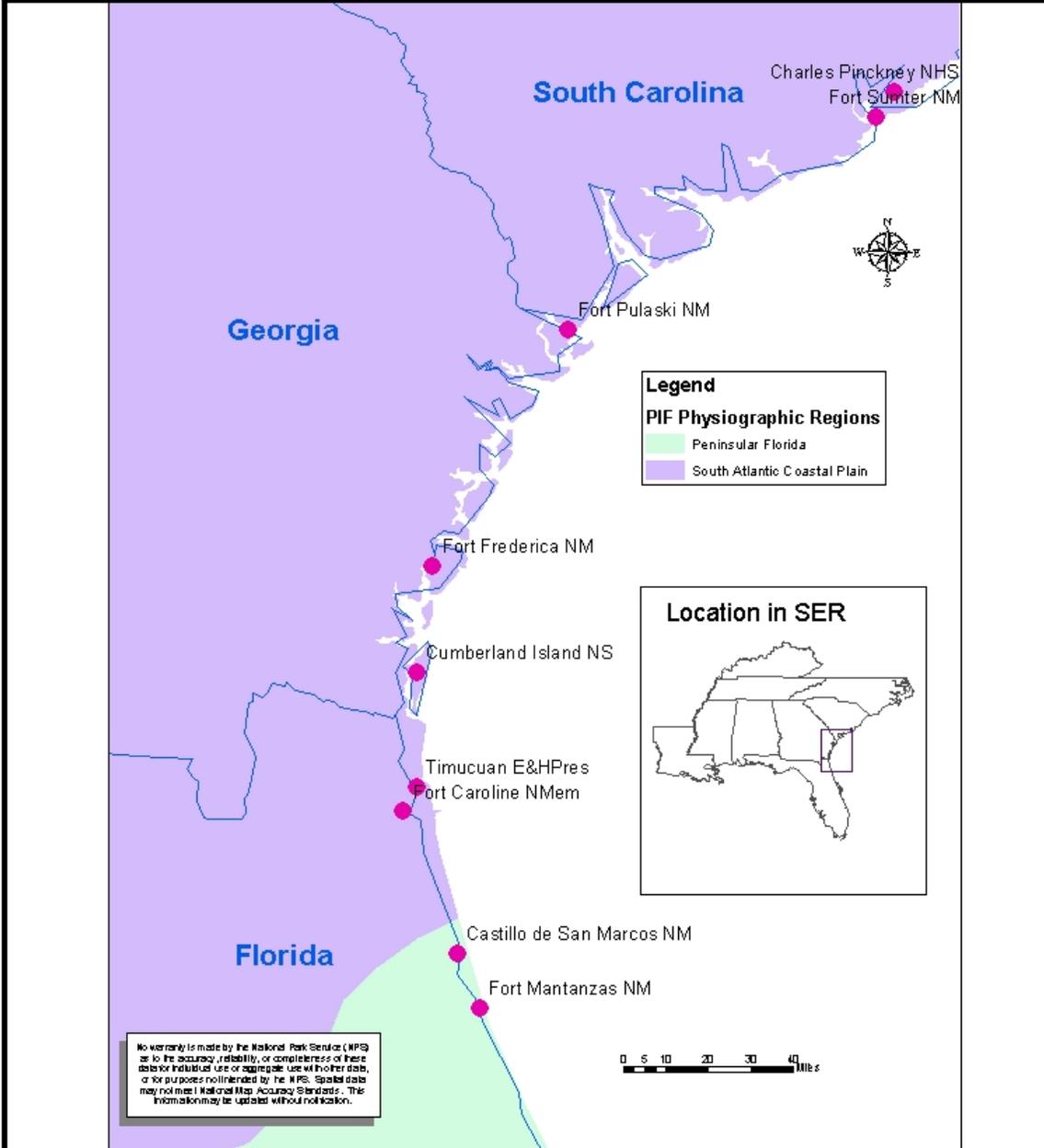
National Park Service
U.S. Department of the Interior



Partners in Flight (PIF) Regions and NPS Locations

Southeast Region (SER)

National Park Service
U.S. Department of the Interior



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Although the Partners in Flight Plan for Peninsular Florida is still being drafted, a summary of primary habitats and their birds of high conservation interest are presented in Appendix A and summarized here.

Scrub and grasslands

- Florida Scrub Jay
- Grasshopper Sparrow (Florida subspecies)
- Crested Caracara (Florida population)
- Burrowing Owl (Florida subspecies)

Wetlands and mangroves

- Snail Kite (Everglades subspecies)
- Prairie Warbler (Florida subspecies)
- Short-tailed Hawk
- Swallow-tailed Kite (Southeastern U.S. subspecies)

Maritime scrub

- Painted Bunting (Eastern subspecies)

Pine forests

- Red-cockaded Woodpecker
- Bachman's Sparrow
- American Kestrel (Southeastern subspecies)
- Brown-headed Nuthatch

Approximately 13.6% of the area has been conserved as public management areas, and proposed land-acquisition covers an additional 4.3%. Work with private landowners in agricultural areas and urban areas will be implemented as opportunity allows.

Avian Conservation in FOMA/CASA

Avian Biodiversity: FOMA/CASA does not have a complete avian inventory and a checklist of birds is not available for the public. Managers recognize the need to update the inventory and plans are underway to conduct an inventory within the framework of the SEC I&M initiative (USDI 2000).

Verified records of birds in FOMA/CASA 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 has identified Least Tern and Painted Bunting of management interest in the park. However, park staff is concerned about conserving all birds and their habitats in FOMA/CASA. Several species that occur in FOMA/CASA are high priority on the Peninsular Florida and conservation efforts in the park should focus on these species or groups of species.

Inventory: Bird inventory data provide important information for park management, particularly when inventories are conducted within the framework of the SEC I&M Program (USDI 2000).

Threatened and Endangered Species: No Federally listed threatened or endangered species are known to nest in FOMA/CASA, but the Bald Eagle, Wood Stork, Florida Scrub Jay and possibly Piping Plover are occasionally seen in the park.

Several Florida Species of Special Concern occur in the park in addition to the Federally listed species. These are Black Skimmer, Brown Pelican, Roseate Spoonbill, Little Blue Heron, Reddish Egret, American Oystercatcher, Snowy Egret, Tricolored Heron, and White Ibis.

In addition to the above species, several high priority PIF species for the Peninsular Florida are likely to occur in FOMA/CASA (see below and Appendixes B and C). However, until the inventory is complete, this information is unavailable. Nevertheless, Painted Bunting is one species known to occur in the park and is a high conservation concern for Partners in Flight.

Monitoring: Currently, only two projects are ongoing. They are:

- Least Tern colony monitoring on the beach on Anastasia Island
- Christmas Bird Count (CBC) of St. Johns County covers FOMA/CASA

Research: Scientific research is permitted within the park, but no active avian research is ongoing.

Outreach: Several educational and outreach programs related to birds are undertaken in the park. These are:

- Participation in the Great Florida Birding Trail
- Local birds are highlighted on the Nature Trail bulletin
- A local bird species is featured on Bird of the Month bulletin board

Park Identified Needs for Avian Conservation

Inventory: The highest priority is to complete the breeding bird inventory as identified in the I&M plan. Although the inventory is incomplete the park is located along the Great Florida Birding Trail, the website for which lists key species to be found in the park (<http://myfwc.com/viewing/sites/site-ne12.html>).

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,

FOMA/CASA is within the NABCI Peninsular Florida BCR located entirely within Florida (see 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, bird conservation specialists in Florida can provide valuable assistance to FOMA/CASA with implementation of aspects of this ACIP. Communications with these conservationists will be important to fully assess the park's role in regional and landscape scale bird conservation.

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 the Peninsular Florida have not been fully identified and organized into a bird conservation plan for the area. However, the State of Florida's bird conservation priorities can be found 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 FOMA/CASA to implement recommendations identified in this ACIP and projects important to bird conservation relative to Florida's role in implementation of the Peninsular Florida PIF goals.

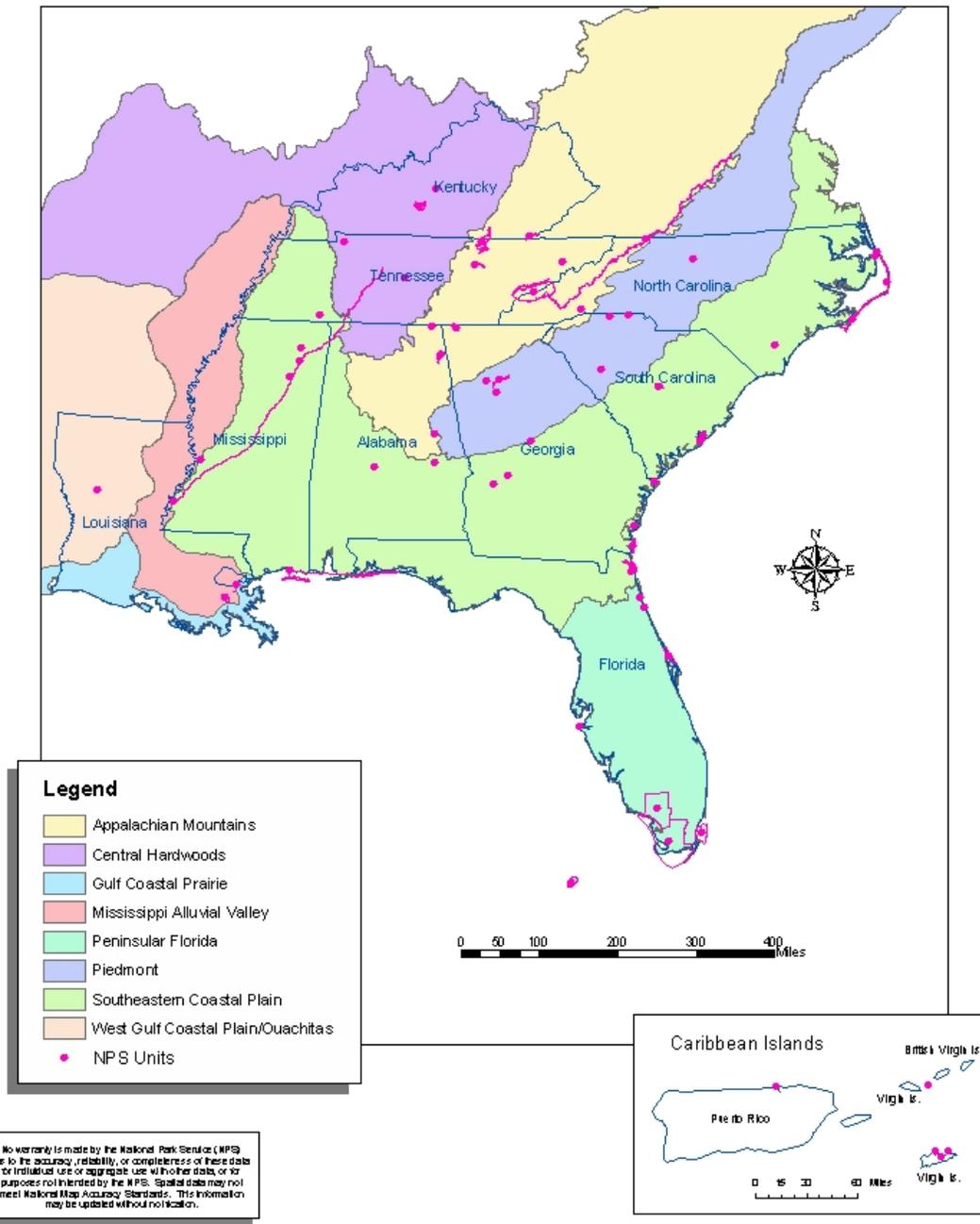
United States Shorebird Conservation Plan (USSCP): The USSCP has been completed and is available on the World Wide Web (<http://shorebirdplan.fws.gov/>). A regional step down plan is in preparation by FWS personnel and is currently available.

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/>).

Bird Conservation Regions

Southeast Region (SER)

National Park Service
U.S. Department of the Interior



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, implementation of EO 13186 (US Government 2000) 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 avifauna of FOMA/CASA is not well documented. The first priority of the park is to conduct adequate inventory of its avifauna. Specifically,

Additional surveys are needed

- **in all habitats during all seasons, including migration, and especially in
maritime forests
salt marshes
beach front
dune systems**

Additionally, FOMA/CASA is encouraged to:

- **partner with local parks and bird clubs to coordinate identified inventory needs**
- **verify other avian observational data collected in the park and enter into the appropriate database (NPSpecies, National Point Count database, eBird, etc.)**
- **compile Christmas Bird Count (CBC) data for additions to inventory**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000)**

Monitoring: Close coordination with Florida biologists 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. The park is encouraged to consider establishing permanent monitoring stations in main habitat types to collect baseline data on the distribution and relative abundances of priority species. This information will be useful for documented potential changes in park avifauna resulting from habitat change or management activities. Links to literature detailing inventory and monitoring methodologies for various avian groups (e.g. songbirds, shorebirds, raptors, etc.) can be found at: <http://biology.dbs.umt.edu/landbird/mbcg/groups.htm>. Other recommendations include:

- **continue to conduct existing monitoring of Least Terns and expand to all colonial nesting species on the beaches and enter data into the appropriate database (NPSpecies, TWRA, or National Point Count Database (USGS 2001; [<http://www.mp2-pwrc.usgs.gov/point/>]; eBird)**

- **establish appropriate monitoring program for high priority species in consultation with Florida bird conservation specialists**
- **become active in St. Johns County Christmas Bird Count**
- **partner with Anastasia State Recreation Area to coordinate area monitoring needs**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000)**

Habitat Restoration: Landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscapes were influenced by Native American burning, wildfire, bison, beaver, and elk, as well as by insect outbreaks and weather events (Hunter et al. 2001, Williams 2002), thus resulting in a landscape mosaic that supported a rich and diverse bird fauna in the Southeast (Barden 1997; Brawn et al. 2001). The arrival of Europeans and the subsequent change in landscape has dramatically effected bird habitat and bird populations. Bird conservationists have long recognized 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 on NPS lands due to the increased restoration emphasis of the Management Policies (NPS 2001). Parks may use a wide range of management tools to restore wetland, grassland, woodland, and other habitats. Restoration tools include, but are not limited to, forest management practices (e.g. silviculture), prescribed fire, exotic species management, and public use and recreation management. In addition, parks can coordinate infrastructure development (e.g. roads and buildings) with restoration activities to mitigate potential adverse impacts.

Due to the protected nature of FOMA/CASA 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 FOMA/CASA can greatly contribute to established habitat goals identified in the Peninsular Florida bird conservation plan.

The park is largely an upland mixed hardwood pine forest with oak and pine dominating the plateau shelf, mixed mesophytic species occurring along stream banks and gorges

and riparian species along river courses. Much of this habitat provides suitable area and vegetative cover for nesting landbirds, but could be improved through use of prescribed fire and forest thinning to restore the structural complexity of the forests in FOMA/CASA that are required for many of the high priority bird species that occur there. Specific recommendations are to:

- **protect beach areas where Least Tern and other colonial waterbirds and shorebirds nest, forage, and rest**
- **protect all remaining habitats in the park and improve the condition of existing maritime forests and salt marsh habitats through use of prescribed fire or other method that simulates the same effect as fire**
- **maintain or enhance water quality and support local water quality improvement initiatives to support aquatic biota necessary to support existing marsh nesting birds and birds that use marshes and wetland habitats for foraging**
- **document all major habitat management activities, including information such as location (e.g. UTM coordinates), and a description of methods and of pre- and post-management habitat conditions. This information, when coupled with bird distribution and abundance data, is useful for assessing and replicating conservation actions**
- 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: Several factors potentially create disturbance to birds at FOMA/CASA, but to a large extent, these threats remain unquantified. Perhaps the most immediate impact to birds at FOMA/CASA is the use of off-road vehicles on the beaches. Nationwide, beach nesting birds are rapidly declining to beach loss and disturbance to nesting birds, off-road vehicles being a primary factor. The park is encouraged to:

- **evaluate and manage the impact that off-road vehicles have on beach nesting birds, limiting this use in the interim to areas where birds do not nest, rest, or forage**

Impact of exotic species on birds at FOMA/CASA is largely unquantified, yet several domestic and exotic mammals occur in the park and may damage birds directly through predation or habitat alteration. Free roaming dogs and cats do occur in the park and

are considered a disturbance to birds in FOMA/CASA. Park managers are encouraged to:

- **work with adjacent landowners and neighbors, the local community, and public officials to curb unregulated and free roaming feral and domestic dogs and cats in the park**
- **implement the State of Florida's Feral Cat Policy**
(<http://www.floridaconservation.org/whatsnew/03/catpolicy-st.html>)

Cape Hatteras National Seashore has recently completed a feral cat reduction campaign that could be used as a model in FOMA/CASA (Altman 2002, Harrison 2002).

Exotic plants species are negatively impacting habitat at CASA. It is important to establish and continue inventory and monitoring for exotic plant species. If necessary, consult with regional Exotic Plant Management Team (EPMT) to remove exotic plant species. Currently, no EPMT provides service the FOMA/CASA area. Until an EPMT is established that can provide assistance to CASA, staff is directed to consult with the regional pest management specialist (see contacts).

Research:

- **evaluate and manage the impact that off-road vehicles have on beach nesting birds, limiting this use in the interim to areas where birds do not nest, rest, or forage**
- **list park needs and projects on Research Permit and Reporting System web site (RPRS)**
- develop contact with Piedmont- South Atlantic Coast CESU
(<http://www.cesu.org/cesu/currentcesus/piedmont/introduction.html>)

Compliance: Park compliance with the Migratory Bird Treaty Act and the Executive Order 13186 (US Government 2000) 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. 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 (US Government 2000) 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

- **prepare a bird checklist for public availability**
- **participate in International Migratory Bird Day (IMBD) events with a local partner (<http://birds.fws.gov/imbd.html>) such as Anastasia State Recreation Area or St. Johns County Audubon Society (<http://members.aol.com/sjaudubon/>)**
- **encourage development of 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**
- **encourage accurate documentation and reporting of bird observations from random outings by visitors (see Cornell University's eBird monitoring program (Cornell Lab. Ornith. 2002 (<http://www.ebird.org/about/index.jsp>))**
- work with adjacent landowners and neighbors, the local community, and public officials to curb unregulated and free roaming feral and domestic dogs and cats in the park
- 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:

- **keep abreast of St. Johns County initiatives that could impact park resources**
- **continue to develop and strengthen relationship with St. Johns County Audubon Society**
- **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 FOMA/CASA and potentially improve water and habitat quality in the vicinity

- **develop partnership with Florida Wildlife and Conservation Commission**
- **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 Peninsular Florida bird conservation plan**
- evaluate local or regional land use data and plan potential for habitat protection across organizational boundaries
- develop land use agreements with local landowners through state, FWS programs, and especially with to protect important habitats and landscapes

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. FOMA/CASA 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. FOMA/CASA 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>. Primary contacts for FOMA/CASA are:

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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 ¹	Species	Total PIF Priority Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
Ia.	Florida Scrub-Jay ⁵	35	5 ⁴	5 ⁴	100	R	
	Grasshopper Sparrow ⁵ (Florida)	35	5 ⁴	5 ⁴	100	R	
	Snail Kite ⁵ (Everglade)	34	5	4 ⁴	100?	D	
	Crested Caracara ⁵ (Florida pop.)	34	5 ⁴	4 ⁴		D	
	Snowy Plover (SE US)	34	5	5		D	Gulf side only
	Red Knot (SE US)	32	5	5		C	
	Piping Plover ⁵	31	4	5		C	
	Prairie Warbler (Florida)	31	5 ⁴	5 ⁴		D	
	Wood Stork ⁵ (SE US pop.)	30	5	4		D	
	Short-tailed Hawk (Florida pop.)	30	5 ⁴	3		D	
	Swallow-tailed Kite (SE US)	29	5	3	61.7	B	
	Red-cockaded Woodpecker ⁵	29	3 ⁴	3		R	
	Mottled Duck	29	5	4 ⁴	11.3?	D	
	American Kestrel (SE US)	28	5 ⁴	4 ⁴		R	
	Burrowing Owl (Florida)	28	5 ⁴	3		D	
	Bachman's Sparrow	28	5	3	18.9	D	
	Saltmarsh Sharp-tailed Sparrow	28	3	3		C	
	Painted Bunting (Eastern)	28	3 ⁴	3		D	
	American Oystercatcher (Eastern NA pops.)	28	5	3		D	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
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 ⁴	1		R	
	Audubon's Shearwater (Caribbean)	26	5	3		P	
	Reddish Egret	26	4	3		D	
	Least Tern	26	5	4 ⁴	4.6?	B	
	Black Skimmer	26	5	5		D	
	Bicknell's Thrush	26	5	3		A	
	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 ⁴	3		D	Gulf populations
	Brown Pelican (SE US)	24	5	1 ⁴		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	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
Ib (cont.).	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 ⁴	4 ⁴	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	
	Mangrove Cuckoo	22	3 ⁴	3		E	
	Gray Kingbird	22	3 ⁴	3	4.5?	B	
	Black-whiskered Vireo	22	3 ⁴	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	4		C	
Ruddy Turnstone	20	3	4		D		

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
II a (cont.)	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	
	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 Prothonotary Warbler	21	2	3		B	(AA@ Merritt Island)	
Regional Interest	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	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
LORI (cont.).	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	
	Rusty Blackbird	18	2	5		C	
	Bald Eagle ⁵	17	4 ⁴	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	

¹Entry 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 $AI \leq 2$ 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.
- 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).

² 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.**

³Highest 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.

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

⁵Species listed as either Federal Endangered or Threatened.

APPENDIX B

Florida Endangered Birds and Species of Special Concern October 2002

BIRDS		Global Rank	State Rank	Federal Status	State Status
<i>Accipiter cooperii</i>	Cooper's hawk	G5	S3	N	N
<i>Aimophila aestivalis</i>	Bachman's sparrow	G3	S3	N	N
<i>Ajaia ajaja</i>	roseate spoonbill	G5	S2	N	LS
<i>Ammodramus maritimus fisheri</i>	Louisiana seaside sparrow	G4T4	S1	N	N
<i>Ammodramus maritimus macgillivraii</i>	MacGillivray's seaside sparrow	G4T3	S2	N	N
<i>Ammodramus maritimus mirabilis</i>	Cape Sable seaside sparrow	G4T1	S1	LE	LE
<i>Ammodramus maritimus nigrescens</i>	dusky seaside sparrow	G4TX	SX	N	N
<i>Ammodramus maritimus peninsulae</i>	Scott's seaside sparrow	G4T3	S3	N	LS
<i>Ammodramus savannarum floridanus</i>	Florida grasshopper sparrow	G5T1	S1	LE	LE
<i>Anous stolidus</i>	brown noddy	G5	S1	N	N
<i>Aphelocoma coerulescens</i>	Florida scrub-jay	G2	S2	LT	LT
<i>Aramus guarauna</i>	Limpkin	G5	S3	N	LS
<i>Ardea alba</i>	Great egret	G5	S4	N	N
<i>Ardea herodias occidentalis</i>	Great white heron	G5T2	S2	N	N
<i>Athene cunicularia floridana</i> *	Florida burrowing owl	G4T3	S3	N	LS
<i>Buteo brachyurus</i>	short-tailed hawk	G4G5	S1	N	N
<i>Campephilus principalis</i>	ivory-billed woodpecker	GH	SH	LE	LE
<i>Caracara cheriway</i> *	crested caracara	G5	S2	LT	LT
<i>Charadrius alexandrinus</i> *	snowy plover	G4	S1	N	LT
<i>Charadrius melodus</i>	piping plover	G3	S2	LT	LT
<i>Charadrius wilsonia</i>	Wilson's plover	G5	S2	N	N
<i>Chordeiles gundlachii</i>	Antillean nighthawk	G4	S2	N	N
<i>Cistothorus palustris griseus</i>	Worthington's marsh wren	G5T3	S2	N	LS
<i>Cistothorus palustris marianae</i>	Marian's marsh wren	G5T3	S3	N	LS
<i>Coccyzus minor</i>	mangrove cuckoo	G5	S3	N	N
<i>Columba leucocephala</i>	white-crowned pigeon	G3	S3	N	LT
<i>Conuropsis carolinensis</i>	Carolina parakeet	GX	SX	N	N
<i>Dendroica discolor paludicola</i>	Florida prairie warbler	G5T3	S3	N	N
<i>Dendroica kirtlandii</i>	Kirtland's warbler	G1	S1	LE	LE
<i>Dendroica petechia gundlachi</i>	Cuban yellow warbler	G5T4	S3	N	N
<i>Ectopistes migratorius</i>	passenger pigeon	GX	SX	N	N

BIRDS

		Global Rank	State Rank	Federal Status	State Status
<i>Egretta caerulea</i>	little blue heron	G5	S4	N	LS
<i>Egretta rufescens</i>	reddish egret	G4	S2	N	LS
<i>Egretta thula</i>	snowy egret	G5	S3	N	LS
<i>Egretta tricolor</i>	tricolored heron	G5	S4	N	LS
<i>Elanoides forficatus</i>	swallow-tailed kite	G5	S2	N	N
<i>Elanus leucurus</i>	white-tailed kite	G5	S1	N	N
<i>Eudocimus albus</i>	white ibis	G5	S4	N	LS
<i>Falco columbarius</i>	merlin	G5	S2	N	N
<i>Falco peregrinus*</i>	peregrine falcon	G4	S2	N	LE
<i>Falco sparverius paulus</i>	southeastern American kestrel	G5T4	S3	N	LT
<i>Fregata magnificens</i>	magnificent frigatebird	G5	S1	N	N
<i>Geotrygon chrysia</i>	Key West quail-dove	G3	SH	N	N
<i>Grus americana</i>	whooping crane	G1	SXC	LE, XN ⁺	LS
<i>Grus canadensis pratensis</i>	Florida sandhill crane	G5T2T3	S2S3	N	LT
<i>Haematopus palliatus</i>	American oystercatcher	G5	S2	N	LS
<i>Haliaeetus leucocephalus</i>	bald eagle	G4	S3	LT	LT
<i>Helmitheros vermivorus</i>	worm-eating warbler	G5	S1	N	N
<i>Ixobrychus exilis</i>	least bittern	G5	S4	N	N
<i>Laterallus jamaicensis</i>	black rail	G4	S2	N	N
<i>Mycteria americana</i>	wood stork	G4	S2	LE	LE
<i>Nyctanassa violacea</i>	yellow-crowned night-heron	G5	S3	N	N
<i>Nycticorax nycticorax</i>	black-crowned night-heron	G5	S3	N	N
<i>Pandion haliaetus</i>	osprey	G5	S3S4	N	LS ⁺⁺
<i>Passerina ciris</i>	painted bunting	G5	S3	N	N
<i>Pelecanus occidentalis</i>	brown pelican	G4	S3	N	LS
<i>Picoides borealis</i>	red-cockaded woodpecker	G3	S2	LE	LT
<i>Picoides villosus</i>	hairy woodpecker	G5	S3	N	N
<i>Plegadis falcinellus</i>	glossy ibis	G5	S3	N	N
<i>Rallus longirostris insularum</i>	mangrove clapper rail	G5T3	S3	N	N
<i>Rallus longirostris scottii</i>	Florida clapper rail	G5T3?	S3?	N	N
<i>Recurvirostra americana</i>	American avocet	G5	S2	N	N
<i>Rostrhamus sociabilis plumbeus*</i>	snail kite	G4G5T2	S2	LE	LE
<i>Rynchops niger</i>	black skimmer	G5	S3	N	LS
<i>Seiurus motacilla</i>	Louisiana waterthrush	G5	S2	N	N
<i>Setophaga ruticilla</i>	American redstart	G5	S2	N	N
<i>Sitta carolinensis</i>	white-breasted nuthatch	G5	S2	N	N
<i>Sterna antillarum</i>	least tern	G4	S3	N	LT
<i>Sterna caspia</i>	Caspian tern	G5	S2	N	N
<i>Sterna dougallii</i>	roseate tern	G4	S1	LT	LT

BIRDS

		Global Rank	State Rank	Federal Status	State Status
<i>Sterna fuscata</i>	sooty tern	G5	S1	N	N
<i>Sterna maxima</i>	royal tern	G5	S3	N	N
<i>Sterna nilotica</i>	gull-billed tern	G5	S2	N	N
<i>Sterna sandvicensis</i>	sandwich tern	G5	S2	N	N
<i>Vermivora bachmanii</i>	Bachman's warbler	GH	SH	LE	LE
<i>Vireo altiloquus</i>	black-whiskered vireo	G5	S3	N	N
<i>Zenaida aurita</i>	Zenaida dove	G5	SH	N	N

STATE LEGAL STATUS

Provided by FNAI for information only.

For official definitions and lists of protected species, consult the relevant federal agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special August 1997, and subsequent updates.

LE Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.

LT Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.

LS Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.

PE Proposed for listing as Endangered.

PT Proposed for listing as Threatened.

PS Proposed for listing as Species of Special Concern.

N Not currently listed, nor currently being considered for listing.

APPENDIX C

USFWS SPECIES OF CONSERVATION CONCERN (2002) IN PENINSULAR FLORIDA (BCR 31)

Black-capped Petrel	Yellow Warbler (resident <i>gundlachi</i> ssp. only)
Audubon's Shearwater	Yellow-throated Warbler
Magnificent Frigatebird	Prairie Warbler
American Bittern	Bachman's Sparrow
Little Blue Heron	Henslow's Sparrow
Reddish Egret	Nelson's Sharp-tailed Sparrow
White Ibis	Saltmarsh Sharp-tailed Sparrow
Swallow-tailed Kite	Seaside Sparrow
Short-tailed Hawk	Painted Bunting
American Kestrel (resident <i>paulus</i> ssp. only)	
<i>Peregrine Falcon</i>	
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	