

FINAL DRAFT

Avian Conservation Implementation Plan Canaveral National Seashore

National Park Service
Southeast Region



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In cooperation with

CANA 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 Canaveral National Seashore (CANA) 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. Because most of CANA's habitat is associated with coastal habitats, i.e. beaches, dunes, shrub-scrub, marshes, and maritime forest, most of the recommendations for CANA will be focused on birds in these habitats, based on priorities established for the PIF Peninsular Florida physiographic area, and regional shorebird and colonial waterbird plans. However, all high priority bird conservation issues for CANA will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with CANA staff, 2) CANA bird conservation partners, 3) the PIF Peninsular Florida Bird Conservation Plan Executive Summary (plan not completed to date), 4) NPS databases, 5) peer reviewed bird conservation and management literature, and 6) personal communications with bird conservation specialists throughout North America, especially in the southeastern United States. This plan has been reviewed by CANA resource management staff and managers, Southeast Coast Inventory and Monitoring (SE I&M) Network staff, and bird conservation partners and approved by CANA 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.

CANA is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to CANA to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which CANA 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 2000, the Southeast Region of the National Park Service (NPS) recognized the importance of coordinating existing bird conservation goals into planning and operations of national park units in the southeast, that is, integration of NABCI. In support of this recognition, the Southeast Regional Office NPS approved and allocated eighty-eight thousand dollars, cost sharing 1:1 with the US Fish and Wildlife Service (FWS) Region 4 (Southeast) to hire a biologist to conduct this two-year project (Interagency Agreement FS028 01 0368). This project is unique in the NPS, and perhaps the nation, and represents a potential model for better coordinating regional bird conservation programs and activities within and outside the NPS. It further represents a progressive action toward institutionalizing bird conservation as a programmatic priority in the Southeast Region of NPS and potentially the nation.

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

- 1) Development and delivery of Avian Conservation Implementation Plans,
- 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 CANA 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 (Canaveral National Seashore, Cape Hatteras National Seashore), national parks (Great Smoky Mountains National Park, Everglades National Park), national recreation areas (Big South Fork National River and Recreation Area), national preserves (Big Cypress National Preserve), national battlefields (Cowpens National Battlefield, Fort Donelson National Battlefield), national monuments (Ocmulgee National Monument), and others such as the Blue Ridge Parkway, Obed Wild and Scenic River, and Timicuan Ecological and Historic Preserve.

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

Additionally, the NPS attracts over 280 million visitors to the parks each year, 120 million of these in the Southeast Region, affording excellent recreational bird watching and opportunities to strengthen bird conservation interpretation, outreach, and

education programs. These opportunities, the NPS mission, policies, and organization all lead to the conclusion that the NPS is an extremely valuable partner and contributor to bird conservation in the region.

Nationally, the status of birds in national parks is largely unknown, although many parks have adequate knowledge regarding bird occurrence in the parks (<http://www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm>). Parks often play a role in ongoing regional bird conservation efforts. Indeed many of these parks are often important to regional, national, or international bird conservation, and many have been designated as Important Bird Areas (IBA's) by the National Audubon Society. To date, there are approximately 64 NPS units that are designated IBA's, 35 of which are considered of global importance (<http://abcbirds.org/iba/aboutiba.htm>). In the Southeast Region, the NPS has 13 Globally Important IBA's. CANA has been designated a Globally Important IBA by the American Bird Conservancy for its importance in state, national, and international bird protection and conservation.

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: (USDI 2000) The natural resources of CANA include a diverse assemblage of wildlife, vegetative communities, geophysical features and natural processes reflecting the complexity of the land/lagoon/sea interface of east central Florida. Throughout the park, the relationship of land and water is paramount. From ephemeral wetlands to Atlantic beaches, the natural processes shaping the coastal environment are present in full diversity where change is the only constant. Unlike many barrier islands, CANA has only a single dune ridge, averaging 3m (12) feet in height. For the vast majority of its length the dune is quite stable, backed by a dense growth of saw palmetto and several other species of hardy shrubs and grasses.

Mosquito Lagoon, extending along the backside of Canaveral's barrier island, is the northernmost part of the Indian River Lagoon. Containing the most diverse assemblage of aquatic species on the entire eastern seaboard, this 232 km (155 mile) long lagoon has been designated as an Estuary of National Significance by the Environmental Protection Agency and an Outstanding Florida Water by the State of Florida. It contains one of the last significant populations of oysters on the entire Atlantic Coast that has not been depleted by over harvesting or pollution. Commercial shell fishing is extremely important to the local economy, while recreational fishing and shrimping in the lagoon support a multimillion-dollar tourist industry. The estuary also acts as an important nursery area for a number of commercially important ocean-going species such as flounder, mullet, black drum and shrimp.

The park is located along the "frost line", resulting in a unique combination of temperate and subtropical plants found nowhere else in the Western Hemisphere. Several temperate species extend no farther south than Canaveral, while a number of subtropical species occur no farther north. Signs of this unusual mixture include Canaveral's hammocks, which contain an overstory dominated by temperate species and an understory comprised of subtropical plants. Another sign is the significant shift in vegetation along the edge of the lagoon from salt marsh cordgrass, which predominates in areas north of Canaveral, to mangrove species that predominate to the south.

Wildlife resources are considerable, ranging from a myriad of terrestrial and aquatic species inhabiting estuarine systems to small endemic populations of mammals living in the dunes. Canaveral is second only to Everglades National Park in number of federally protected species with 14. These include such species as the highly endangered West Indian manatee, right whale and little known Atlantic salt marsh snake, whose entire known range consists of a single county in Florida. Canaveral's 24 miles of beach provides a critical nesting area for sea turtles, harboring 3,000 to 4,000 nests each year. The majority is loggerhead, with a smaller number of green and an occasional leatherback. Mosquito Lagoon provides an important nursery area for juvenile sea turtles.

Boaters are coming into Canaveral National Seashore in increasing numbers due to the growing popularity of fly-fishing for redfish. This increases the destruction of seagrass beds, impacts to fisheries are unknown and manatees are highly affected. The park also

assisted DEP with a boating survey to determine boating use patterns and areas that warrant speed restrictions.

Canaveral faces a number of complex issues regarding water quality in Mosquito Lagoon. These include septic tank, agricultural and industrial effluents, mosquito control activities, dredging of the Intracoastal Waterway, impacts of aquaculture, and increased boating activity. While water quality in Mosquito Lagoon is quite good overall, septic tank effluent and stormwater runoff from adjacent communities are threatening to degrade the lagoon. Currently park waters are closed to shellfishing when rainfall exceeds 1.5 inches in a 72-hour period, due to high fecal coliform levels. Another of the delicate issues with which Canaveral NS must grapple is mosquito control. In the designation of lands for NPS management, both NASA and the State of Florida stipulated that Canaveral NS must cooperate with the local mosquito control districts to control salt marsh mosquitoes. Canaveral and East Volusia Mosquito Control District have tested several measures, including Open Marsh Water Management (OMWM) techniques, to reduce the use of chemicals and to restore lost salt marsh.

Canaveral's most extensive resource management program involves sea turtle nest protection. The park documents 3,000 to 4,000 sea turtle nests each year. In the early 1980's, over 95 percent were destroyed by raccoons. In 1984, the park began a nest screening program and has reduced depredation to 20-30 percent. However, this program is costly, averaging about \$45,000 a year, and raises questions about the diverted predation pressure on other ground nesting species.

Canaveral NS is located in one of the most active lightning strike areas in the country. This, combined with the volatile fuels (particularly saw palmetto) and the extremely high fuel loads that have been allowed to accumulate, makes wildfire or human-ignited fire a serious threat. In addition, a number of vegetative communities and the animals that they support are dependent on periodic light to moderate fires. A Fire Management Plan has been completed which will allow the park to utilize prescribed fire to maintain and restore habitat for protected species such as the scrub jay, gopher tortoise and indigo snake

Like a number of other parks in the southeast, Canaveral faces a serious threat from the invasion of exotic plants, including Brazilian pepper, Australian pine and century plant. Brazilian pepper has spread throughout virtually all of the disturbed areas of Canaveral. A small number of *Melaleuca quinquenervia*, a species, which has severely impacted the Everglades, have been found in Merritt Island National Wildlife Refuge, less than 5 miles from the park boundary.

Exotic animals are also a threat to park resources. The feral hog has become established in the southern half of Canaveral NS, particularly in the joint area, and is seriously disrupting native vegetation. A voracious snake eater, it may also be affecting native snakes, including the protected eastern indigo snake. Another exotic animal impacting the park is the feral cat. During a two-year survey to determine the distribution of the southeastern beach mouse within Canaveral NS, no mice were

captured in the northernmost section of the park. In addition, a number of potentially harmful amphibian and reptiles are expanding their ranges into Florida from tropical areas throughout the world. The park is attempting to detect these invaders through the long-term herpetofaunal monitoring program established by Southeastern Louisiana University in 1992.

Avian Resources of Peninsular Florida

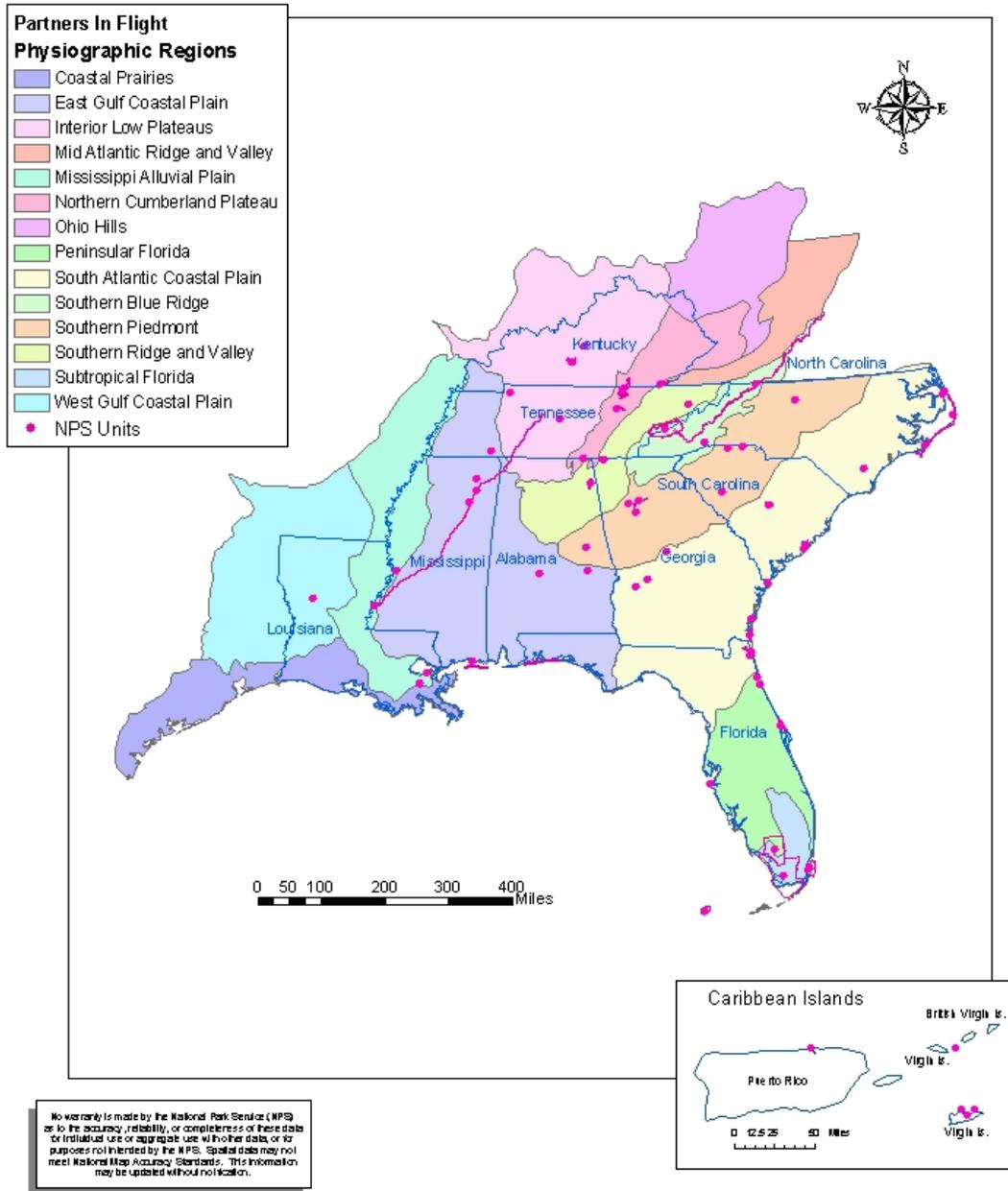
This physiographic area is entirely contained within Florida. The 6,799,900 ha area extends from the northern edge of Lake Okeechobee north to the Coastal Plain transitional zone around the Suwanee River in northern Florida (see PIF and NPS maps below). Most of the area is xeric upland on the Central 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,

Partners in Flight (PIF) Regions

Southeast Region (SER)

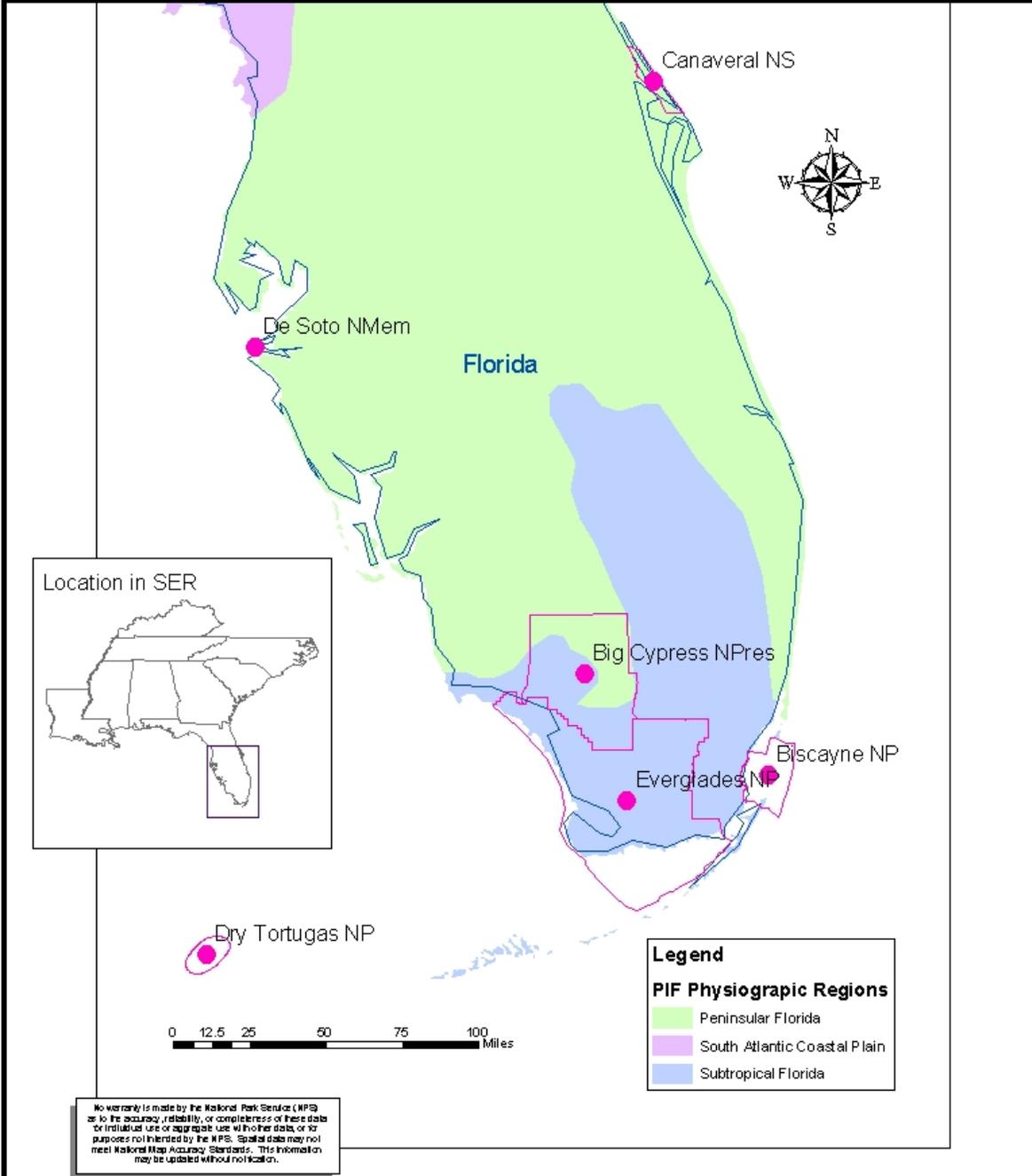
National Park Service
U.S. Department of the Interior



Partners in Flight (PIF) Regions and NPS Locations

National Park Service
U.S. Department of the Interior

Southeast Region (SER)



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particularly Short-billed Dowitchers, but also Piping Plover, Dunlin, and Red Knot (NABCI 2001). 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

Management of wildlife habitat on many private lands in this area has been excellent and conservation measures should focus on these private lands through positive incentives such as tax breaks, conservation easements or cooperative management agreements. Approximately 30,000 ha within this physiographic area have been conserved with conservation easements and an additional 48,000 ha along Fishing Creek under consideration. Conservation goals were established by assessing the estimate number of large tracts and viable populations for each priority species on managed areas within the physiographic area. Unless information exists suggesting otherwise, the habitat needed to sustain a large viable population is defined as the area needed to sustain at least 100 to 200 breeding pairs. If managed areas do not satisfy a minimum conservation acreage objective for species, recommendations for conservation of additional habitat blocks need to be made. Acreage objectives include:

- 1) Sandhill communities – an additional 30,000 ha,
- 2) Oak scrub – an additional 10,000 ha,
- 3) Upland mesic hardwoods – an additional 75,000 ha,
- 4) Upland mixed forest – an additional 25,000 ha,
- 5) Mesic flatlands – an additional 150,000 ha, and
- 6) Floodplain swamp – an additional 100,000 ha.

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 CANA

Avian Biodiversity: CANA is well known for its birdlife and boasts over 300 species of birds seen throughout the year in the park. Merritt Island National Wildlife Refuge (MINWR) is adjacent to CANA and the seashore has adopted this checklist from MINWR as representative of birds in CANA. The seashore annually participates in the Space Coast Birding and Wildlife Festival when many field trips to park areas showcase the diverse habitat and avifauna of the area. Of special interest are the breeding populations of bald eagles, brown pelicans, wood storks and mottled ducks. The seashore is a major migration corridor and spectacular migrations of passerine birds, especially warblers, often occur during spring and fall. Winter peak concentrations of waterfowl often exceed 100,000. Eight species of herons and egrets are commonly observed year-round. CANA has also been designated a Globally Important Bird Area (IBA) for its diverse avian life and importance in bird protection and conservation.

Verified records of birds in CANA 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.

Inventory: Several high priority PIF species for the South Atlantic Coastal Plain occur in CANA (see below and Appendixes A-C). Prominent among these species are: Red Knot, Florida Scrub Jay, Wood Stork, Piping Plover, Swallow-tailed Kite, Mottled Duck, Saltmarsh Sharp-tailed Sparrow, Painted Bunting, American Oystercatcher, Wilson's Plover, Black Rail and many migrant passerines and shorebirds.

Monitoring: Currently, several avian monitoring projects are being conducted at CANA:

- Florida Scrub Jay population change is being monitored in response to prescribed fire
- Florida Scrub Jay are monitored annually in cooperation with Merritt Island National Wildlife Refuge (MINWR)
- Wintering Piping Plover are monitored each winter for one day along the 24 miles of beach on the seashore
- Wilson's Plover are monitored during beach patrols for turtle nesting
- Occasional beach surveys are conducted for beached birds

At least one Christmas Bird Count (CBC) circle covers a portion of CANA. This same circle is centered on adjacent MINWR.

Research: Scientific research is permitted within the park. The park recently permitted a survey by Dynamac, Inc. at Kennedy Space Center on use of impoundments by wading birds. No additional research is ongoing.

Threatened and Endangered Species: Florida Scrub Jay, and Bald Eagle, both Federally listed species, regularly breed in CANA. Additionally, the endangered Wood Stork formerly bred in CANA. Furthermore, the formerly listed Peregrine Falcon occurs as a migrant and it and the Piping Plover possibly overwinters in the seashore.

Several **Florida Endangered Species and Species of Special Concern** also occur in CANA and include Roseate Spoonbill, Wilson's Plover, Florida Prairie Warbler, Bachman's Sparrow, Seaside Sparrow, Limpkin, Great Egret, Black Rail, Little Blue Heron, Tri-colored Heron, White Ibis, Cooper's Hawk, Peregrine Falcon, Southeastern American Kestrel, American Oystercatcher, and Black Skimmer (FNAI 2002).

Outreach: CANA occasionally conducts some programs on the seashore's bird life for school groups and the visiting public.

Park Identified Needs for Avian Conservation

CANA has identified several projects that will enhance protection of avian communities at the seashore. The park desires to:

Inventory:

- Conduct additional inventory conducted in all seasons of the year for breeding birds and winter residents and for important spring and fall migrants
- Obtain bird observation data collected in the park by various groups and individuals that have collected scientific and recreational data
- Conduct a baseline inventory of the scrub jay population and to establish a protocol for a long-range monitoring program
- Establish a partnership with the local Audubon Society chapter and other environmental groups to routinely gather bird observations

Monitoring:

- Establish long term monitoring protocols Wood Stork and Scrub Jay
- Monitor nesting Wilson plovers

Threat Management:

- Determine impact of raccoon on ground nesting bird populations

Outreach:

- Educate locals about the significance and needs of the Florida Scrub Jay to promote habitat conservation in areas adjacent to the park and support for prescribed burns to enhance scrub jay habitat.

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, CANA 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 and NPS maps).

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 CANA 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) and focused primarily on wetland and waterfowl protection, but increasingly these funds have also been utilized for upland non-game species protection. CANA has several needs that could be funded by NAWCA.

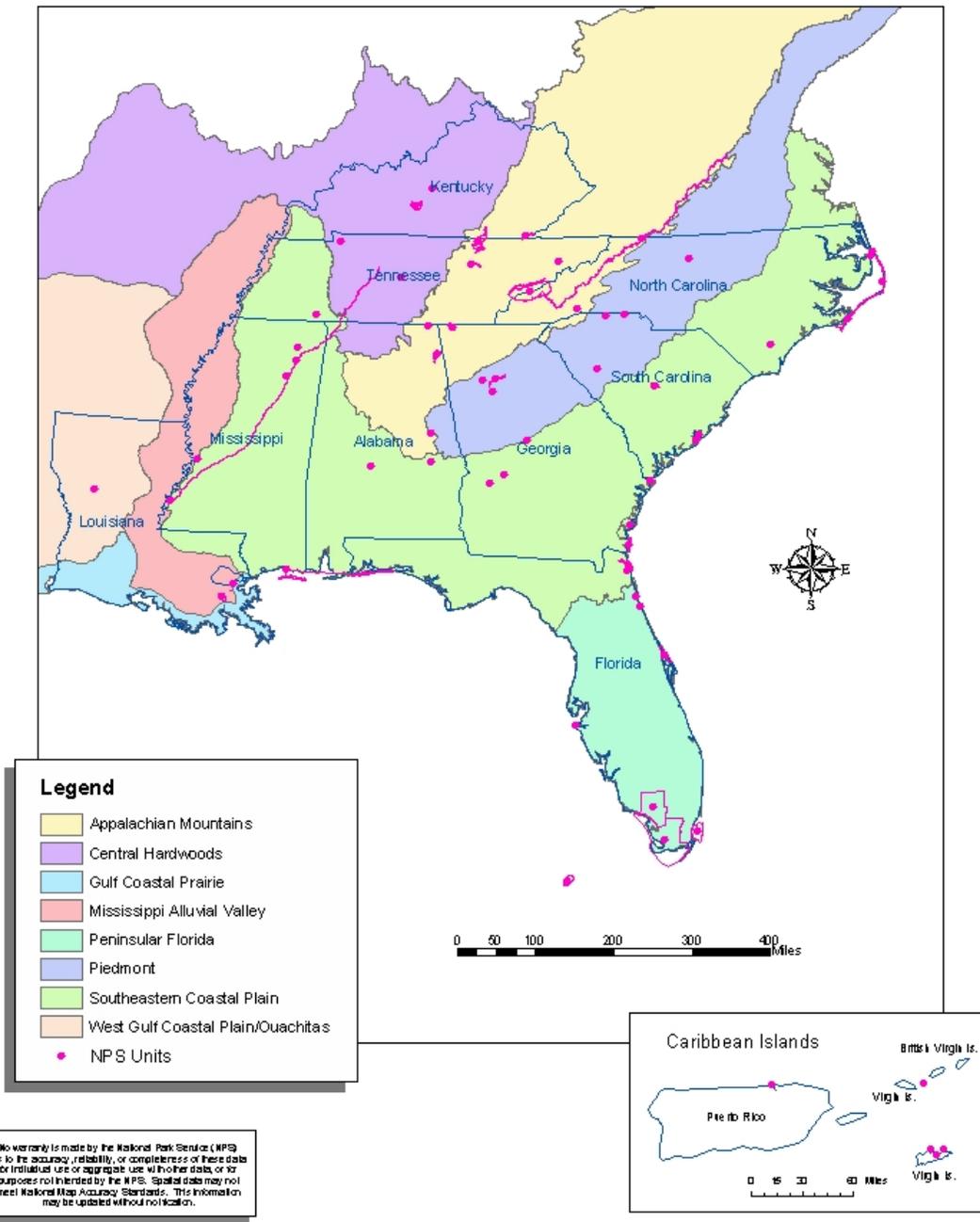
Partners In Flight: Goals and strategies for the Partners In Flight Peninsular Florida (PF) bird conservation plan are in development. Currently, a PIF plan does not exist for PF but an executive summary is available and it's content is presented in this plan. The executive summary identifies priority bird and habitat conservation goals that must be implemented in order to achieve bird conservation success in this region. CANA being a barrier island park with all major bird groups represented will utilize all the bird conservation initiative plans. Since shorebird and colonial waterbird plans have not been developed on a regional basis, and the PIF summary covers these species, many of the recommendations in this plan will be derived from the PIF priorities.

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 does have an Avian Conservation Coordinator and other staff that can be instrumental in assisting CANA to implement recommendations identified in this ACIP and projects important to bird conservation relative to Florida's role in implementation of the PF plan.

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 2003. The developing regional shorebird plan will be important for CANA since many of CANA's avian resources are related to it's shoreline and shorebird use, primarily during migration and winter.

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/>). A regional step down plan is in preparation by FWS personnel and should be available in 2003. The developing regional colonial waterbird plan will be important for CANA since CANA is a primary nesting site for colonial waterbirds in North Carolina, and the east coast.

Integration of NABCI Goals and Objectives into Park Planning and Operations

NABCI Implementation Recommendations

To successfully achieve park 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 the park to meet its mandates (current and expected), as well as integrate NABCI into its planning and operations. With emphasis added; the park is not expected to implement any of these recommendations or be obligated to pursue any opportunity other than those the park is required to do by law or NPS program or policy. In other words, participation in this effort is currently voluntary. However, participation in these efforts at some level could become mandatory with the completion of an MOU with the FWS

regarding EO 13186 (US Government 2000). The MOU will establish a formal agreement between the FWS and the NPS to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

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

High priority projects are identified in **bold** print. Priorities that the park is encouraged to seek NPS funding for are marked with 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. Nonetheless, additional inventory is needed to fully understand the status of birds in the park so that conservation actions can be implemented. Information regarding the status of high priority species (as identified in the Florida Endangered Species and Species of Special Concern Lists) is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna and habitats.

Additional surveys are needed

- **to establish a baseline population inventory and status for Florida Scrub Jay***
- **in all habitats for breeding birds, particularly colonial waterbirds (herons, egrets) secretive marsh birds, mangroves, and woodland species***
- **in all habitats for winter residents, particularly wintering shorebirds such as Piping Plover, American Oystercatcher, and Red Knot***
- **in all habitats for spring and fall migrants, particularly neotropical migrants and shorebirds***

Additionally, CANA is encouraged to:

- **develop close partnership with MINWR and Dynamac, Inc. to coordinate area inventory efforts**
- **establish partnerships with the local Audubon Society chapter, Merritt Island National Wildlife Refuge, Florida Fish and Wildlife Conservation Commission (FWC), and other environmental groups to routinely gather bird observations and provide data to park and to Cornell Laboratory of**

Ornithology's (CLO) eBird Monitoring database (CLO, 2003;
<http://www.ebird.org/content/>)

- **obtain bird observation data collected in the park by various groups and individuals that have collected scientific and recreational data and input into appropriate database, either CLO or USGS**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000)**
- **begin storing point count data in US Geological Survey National Point Count Database (<http://www.mp2-pwrc.usgs.gov/point/>)**

Monitoring: Efforts should be made to continue existing monitoring programs, striving to conform to established NPS or FWS survey protocols. 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>. Coordination with the Atlantic Coast Joint Venture Coordinator and Florida FWC staff is needed to further 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:

- **to establish long-term program to monitor Florida Scrub Jay and Wood Stork***
- **continue monitoring for nesting Wilson plovers**
- **partner with Merritt Island National Wildlife Refuge, Dynamac, Inc., and Florida FWC to coordinate area monitoring efforts**
- **continue to monitor for wintering Piping Plover (<http://midwest.fws.gov/endangered/pipingplover/recplan-fnl.html>) and American Oystercatcher**
- **improve capability to monitor shorebirds during migration and winter using International Shorebird Survey protocol and enter data into South Atlantic Migratory Bird Initiative (SAMBI) website (<http://samigbird.fws.gov/>)***
- **cooperate with Florida FWC to monitor and protect colonial waterbird (heron and egret) rookeries and roosts***

- **hire additional staff to support needed monitoring programs***
- cooperate with Merritt Island National Wildlife Refuge to conduct waterfowl surveys in park waters during routine mid-winter waterfowl surveys and at other key times
- develop program and acquire protocols for a long-range monitoring program for Species of Conservation Concern
- establish weekly beach patrols to identify and assess beached bird and dead birds, primarily seabirds and waterfowl on beach, can be done in conjunction with Wilson's Plover and shorebird surveys
- 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. This is no exception for CANA.

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 CANA 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 are subject to a wide variety of threats, both inside and outside of the park, and habitats 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 for the enjoyment of future generations.

Protection, restoration, and enhancement of habitats in CANA can greatly contribute to established habitat and bird conservation goals identified for Peninsular Florida.

The park is largely a barrier island system with associated vegetation communities along a gradient from the Atlantic Ocean to the Indian River, including the prominent Mosquito Lagoon. Much of this habitat provides suitable area and vegetative cover for nesting landbirds, but could be improved through management of recreational uses, exotic vegetation, and reintroduction of fire to mimic historic fire regimes and disturbances. Specific recommendations are to:

- **maintain natural character and function of the beach front and dune systems by allowing natural processes to shape landscape features**
- **reintroduce historic disturbances such as fire to the landscape to improve habitat structure and productivity, especially in salt marshes and maritime shrub scrub (Florida Scrub Jay); without fire, populations of the Florida Scrub Jay and other fire dependant vertebrates will continue to decline***
- **preserve all remaining maritime forest (outside of needs for Florida Scrub Jay) and shrub-scrub areas for resident landbirds, neotropical migratory birds for breeding and migration stopover**
- **restore hydrology to seashore**
- **coordinate impoundment management with MINWR and Volusia and Brevard County Mosquito Control to reduce impacts to nesting shorebirds and waterbirds, especially Black-necked Stilt***
- **enhance soundside and marsh water quality to support aquatic biota necessary to support existing aquatic invertebrates and fish as food sources for waterbirds***
- **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**
- **set aside pedestrian free areas for shorebird migration and winter resting and foraging areas***

- 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: Long term bird conservation at CANA is challenging due to a variety of threats, including poor habitat quality due to lack of fire (Florida Scrub Jay), introduction of exotic plants, especially Brazilian Pepper, introduced mammals (pigs and cats) that become feral, and recreational use. Additionally, CANA is one of five national seashores that provide almost 95,000 ha (235,000 acres) of barrier island habitat in the Southeastern United States (does not include South Florida or the Caribbean parks), which provide and support nesting and foraging habitat for many colonial waterbirds and shorebirds of high conservation concern. Growing recreational demand on national seashores due to shrinking availability of these habitats elsewhere results in increased conflicts between recreational use and resource protection of the seashore. National seashores, including CANA, may be realized as one of the few nationally protected areas where these birds may continue to find adequate areas for breeding, foraging, migrating, and wintering and thus, essential to their conservation. Yet, unless these national seashores are protected, the bird communities that have used these shores for decades, if not centuries, may disappear.

Cape Hatteras National Seashore has recently completed a feral cat reduction campaign (Altman 2002, Harrison 2002) and this program could be used as a model for other national parks. Cape Hatteras has also developed Predator Management Guidelines (USDI 2002) that have addressed issues of native predator management to protect bird colonies. The US Department of Agriculture, Agricultural and Plant Health Inspection Services (APHIS) Wildlife Services unit (WS) is also available to provide assistance with feral animal reduction capability (see contacts).

The park is strongly encouraged to:

- **manage recreational uses of the seashore, including personal watercraft, kayaking, canoeing, kite boarding, fireworks, etc. to avoid or minimize disturbance to nesting, foraging, migrating, and wintering colonial waterbirds and shorebirds***
- **develop a cooperative management strategy with MINWR to ensure the long term use of the impoundment system as breeding and foraging sites for wading birds, including Wood Stork**
- **develop and implement science based buffer zones around breeding wading bird colonies**

- **work with the MINWR, Dynamac, Inc., and Florida FWC to identify important off site foraging areas for wading birds and work cooperatively to protect these areas**
- **eliminate feral hog presence in the seashore***
- **assess threat of raccoon to ground nesting species***
- **reintroduce fire to the landscape where appropriate for Florida Scrub Jay***
- **continue 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***
- **develop a Predator Management Guidelines and manage the seashore's predators to minimize predation of ground nesting birds***
- **monitor disturbance or behavioral changes to Wilson's Plovers when using all terrain vehicles to monitor sea turtles**

Significant exotic plants species are negatively impacting habitat at CANA, especially Brazilian Pepper. It is important to establish and continue inventory and monitoring for these species and work with MINWR, the State of Florida and the National Park Service Exotic Plant Pest Management Team to begin eradication of Brazilian Pepper (see contacts). The park is encouraged to:

- **aggressively remove exotic plants species from the seashore, especially in partnership with MINWR, Dynamac, Inc., and State of Florida**
- **monitor and evaluate impact of exotic plant species to habitat quality at the seashore**

Additionally, the park is encouraged to:

- **work with the local community and other land conservation interests in the region to minimize habitat fragmentation and potentially restore habitats beneficial to wildlife and bird species of the region**
- **assess impact of waterfowl hunting on local populations of American Black Duck and other declining waterfowl**
- **eliminate existing communication towers in the park and prohibit construction of new towers**

- **provide maximum protection of potential nest areas during courtship and nest selection process**
- identify threats from low flying aircraft and shuttle launches
- nominate CANA as a Western Hemisphere Shorebird Reserve Network Site (WHSRN) (<http://www.manomet.org/WHSRN/>)

Research

- **identify habitats important for neotropical migratory bird resting and foraging***
- **determine effect of raccoon predation on ground nesting birds**
- **list park needs and projects on Research Permit and Reporting System web site (RPRS)**
- develop contact with Cooperative Ecosystem Studies Unit (CESU) at the University of Georgia
- determine threats from low flying aircraft and shuttle launches

Compliance: Park compliance with the Migratory Bird Treaty Act and EO 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. Compliance considerations for the park are for:

- **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: participate in International Migratory Bird Day (IMBD) events with a local partner (<http://birds.fws.gov/imbd.html>) such as Merritt Island National Wildlife Refuge (Welcome Back Songbirds Festival with MINWR), Dynamac, Inc. and Florida FWC*

- **continue to be a active participant and contributor to the Space Coast Birding and Wildlife Festival**
- **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>))**
- **update park brochures on bird conservation activities**
- **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**
- **support bird conservation by serving shade-grown coffees at meetings, events, and the office buildings in the park**
(<http://www.americanbirding.org/programs/conssbcof3.htm>)
- **links bird conservation and management literature from park to park's web site home page**
- **nominate CANA as an Western Hemisphere Shorebird Reserve Network Site (WHSRN)**
- 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
- subscribe to Florida Birding Forum, an electronic forum for listing bird sightings and various bird information in throughout 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:

- **adopt as much as possible, migratory bird conservation and management recommendations from the MINWR Comprehensive Conservation Plan (CCP)***
- **develop and strengthen partnerships with Florida FWC, Merritt Island National Wildlife Refuge, and Dynamac, Inc. staff to develop cooperative projects for bird conservation; experts in these agencies can greatly enhance CANA's ability to implement cooperative and multi-agency goals***
- **keep abreast of Volusia and Brevard County's initiatives or programs that could impact park resources***
- **develop and strengthen relationship with local bird clubs for potential cooperation and implementation of segments of this plan***
- **contact the nearest Joint Venture office (see Funding section for explanation of Joint Ventures) or BCR coordinator to develop partnerships and funding proposals tied to priorities established by the park, this ACIP, and the Peninsular Florida bird conservation plan***
- **participate in the active conservation of birds and habitats with the South Atlantic Migratory Bird Initiative (SAMBI), an Atlantic Coast Joint Venture initiative**
- **contact regional Ducks Unlimited representative to assist in evaluating current hunt program and waterfowl conservation programs, including impoundments management alternatives**
- evaluate local or regional land use data and plan potential for habitat protection across organizational boundaries and work with local communities to develop appropriate protection measures

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. CANA is encouraged to enter all high priority projects into the NPS Performance Management Information System (PMIS) database.

Suggestions include:

- **increased base funding to implement basic protection and management needs for birds and their habitats (habitat based management not only benefits the birds but other wildlife as well)**

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 and more are developing. The Atlantic Coast Joint Venture (www.acjv.org/) is very active along the Atlantic Coast and is a primary contact for potential funding (<http://northeast.fws.gov/migratorybirds/acjv.htm>). Additional 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.

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. CANA is encouraged to become a member of the North Florida Ecosystem Team of the US Fish and Wildlife Service.

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 CANA 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 American White Pelican	20	4	1		C		
Interest 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.

Bird-Habitat Suite Table for Canaveral National Seashore, FL

Relative Priority	Pine-Palmetto, Palm Savanna, grassland	Shrub-Scrub	Transient Landbirds	Hardwoods-Hammocks	Mangroves	Tree-nesting colonial waterbirds	Marshes	Mudflats	Beaches-high marsh hard panne	Open Water
Extremely High (I a)	Swallow-tailed Kite	Florida Scrub-Jay		Swallow-tailed Kite	Prairie Warbler	Wood Stork	Saltmarsh Sharp-tailed Sparrow		Red Knot	Mottled Duck
	American Kestrel	Painted Bunting							Piping Plover	
	Bachman's Sparrow								American Oystercatcher	
High (I b)	Henslow's Sparrow	Gray Kingbird	Bicknell's Thrush		Black-whiskered Vireo	Brown Pelican	Nelson's Sharp-tailed Sparrow	Marbled Godwit	Wilson's Plover	
	Loggerhead Shrike	Palm Warbler	Black-throated Blue Warbler			Reddish Egret	Black Rail	Solitary Sandpiper	Royal Tern	
	Sedge Wren		Bobolink			Tricolored Heron	King Rail	Whimbrel	(Sandwich Tern)	
			Cape May Warbler			White Ibis	Black Tern	Stilt Sandpiper	Least Tern	
			Connecticut Warbler					Semipalmated Sandpiper	Black Skimmer	
								Short-billed Dowitcher		
Moderate (II)	Northern Bobwhite	Common Ground-Dove	Veery	Yellow-billed Cuckoo		Anhinga	American Bitter	Black-bellied Plover	Willet	

Relative Priority	Pine-Palmetto, Palm Savanna, grassland	Shrub-Scrub	Transient Landbirds	Hardwoods-Hammocks	Mangroves	Tree-nesting colonial waterbirds	Marshes	Mudflats	Beaches-high marsh hard panne	Open Water
	Red-headed Woodpecker	Gray Catbird				Green Heron		Western Sandpiper	Ruddy Turnstone	
	Pine Warbler	Eastern Towhee				Snowy Egret		Least Sandpiper		
	Grasshopper Sparrow	White-eyed Vireo				Little Blue Heron		Dunlin		
Moderate (II; cont.)	Northern Harrier						Northern Harrier	American Avocet	Sanderling	
	Common Nighthawk							Greater Yellowlegs		
	Chuck-will ' s-widow							Pectoral Sandpiper		
LORI	Red-shouldered Hawk	Brown Thrasher	Prothonotary Warbler	American Woodcock		Yellow-crowned Night-Heron	Peregrine Falcon	Peregrine Falcon	Peregrine Falcon	American White Pelican
	Eastern Kingbird		Acadian Flycatcher	Yellow-throated Warbler		Roseate Spoonbill	Bald Eagle	Bald Eagle		Redhead
	Summer Tanager		Yellow-throated Vireo	Northern Parula			Barn Owl			Common Loon
	Eastern Meadowlark		Hooded Warbler	Wood Duck						Ring-necked Duck
	Barn Owl			Summer Tanager						Blue-winged Teal

Relative Priority	Pine-Palmetto, Palm Savanna, grassland	Shrub-Scrub	Transient Landbirds	Hardwoods-Hammocks	Mangroves	Tree-nesting colonial waterbirds	Marshes	Mudflats	Beaches-high marsh hard panne	Open Water
	Northern Flicker			Rusty Blackbird						Northern Pintail
				Bald Eagle						
				Black-and-white Warbler						
				Blue-gray Gnatcatcher						

APPENDIX C

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 D

US FISH AND WILDLIFE SERVICE 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	