

FINAL DRAFT

Avian Conservation Implementation Plan
Big Cypress National Preserve

National Park Service
Southeast Region



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

BICY 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 Big Cypress National Preserve (BICY) 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 for the preserve 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 BICY has a mix of habitat types, recommendations will be derived from the appropriate existing planning document priorities, with an emphasis on waterbirds, including marshbirds, and landbirds. However, all high priority bird conservation issues for BICY will be discussed and integrated as appropriate.

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

BICY is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to BICY to voluntarily support important preserve, regional, and perhaps national and international bird conservation projects for which BICY 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). Together, the four bird conservation initiatives mentioned above, as well as several other local and regional partnerships, work collectively to pursue this vision.

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

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

The Southeastern Bird Conservation Initiative: National Park Service: In 1999, the Southeast Region of the National Park Service (NPS) recognized the importance of coordinating existing bird conservation goals into planning and operations of national park units in the southeast, that is, integration of NABCI. In support of this recognition, the Southeast Regional Office NPS approved and allocated eighty-eight thousand dollars, cost sharing 1:1 with the US Fish and Wildlife Service (FWS) Region 4 (Southeast) to hire a biologist to conduct this two-year project (Interagency Agreement FS028 01 0368). This project is unique in the NPS, and perhaps the nation, and represents a potential model for better coordinating regional bird conservation programs and activities within and outside the NPS. It further represents a progressive action toward institutionalizing bird conservation as a programmatic priority in the Southeast Region of NPS, and potentially the nation.

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

- 1) Development and delivery of Avian Conservation Implementation Plans
- 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 BICY and with adjacent partners or landowners.

Concurrently, the development of a Memorandum of Understanding (MOU) between the FWS and the NPS (Appendix A) 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 preserve 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 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 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 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.

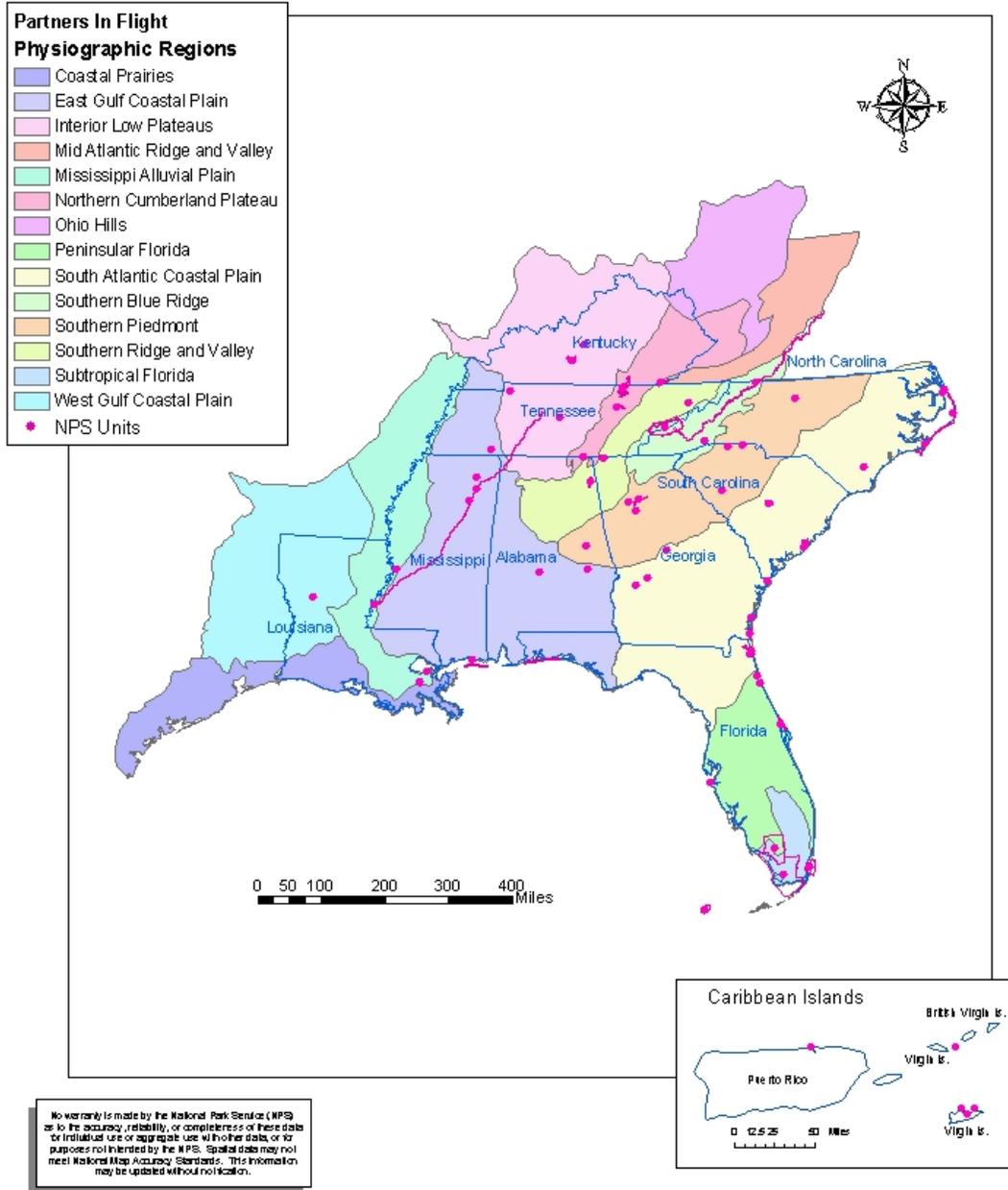
Preserve Description

Water is a principal natural resource of the entire south Florida region. Big Cypress National Preserve clearly illustrates this important resource with close to 90 percent of the preserve's area flooded seasonally. Because the 295,015 ha (729,000 acre) preserve is relatively undeveloped, it serves as a large natural reservoir and nutrient filter, permitting natural biological processes to nourish diverse ecological communities distinctive to south Florida (see PIF and NPS maps below). The preserve's ecology is finely tuned to seasonal water flow patterns, and any interference can alter this sensitive habitat. About 80 percent of the current Big Cypress land mass is wetland and

Partners in Flight (PIF) Regions

Southeast Region (SER)

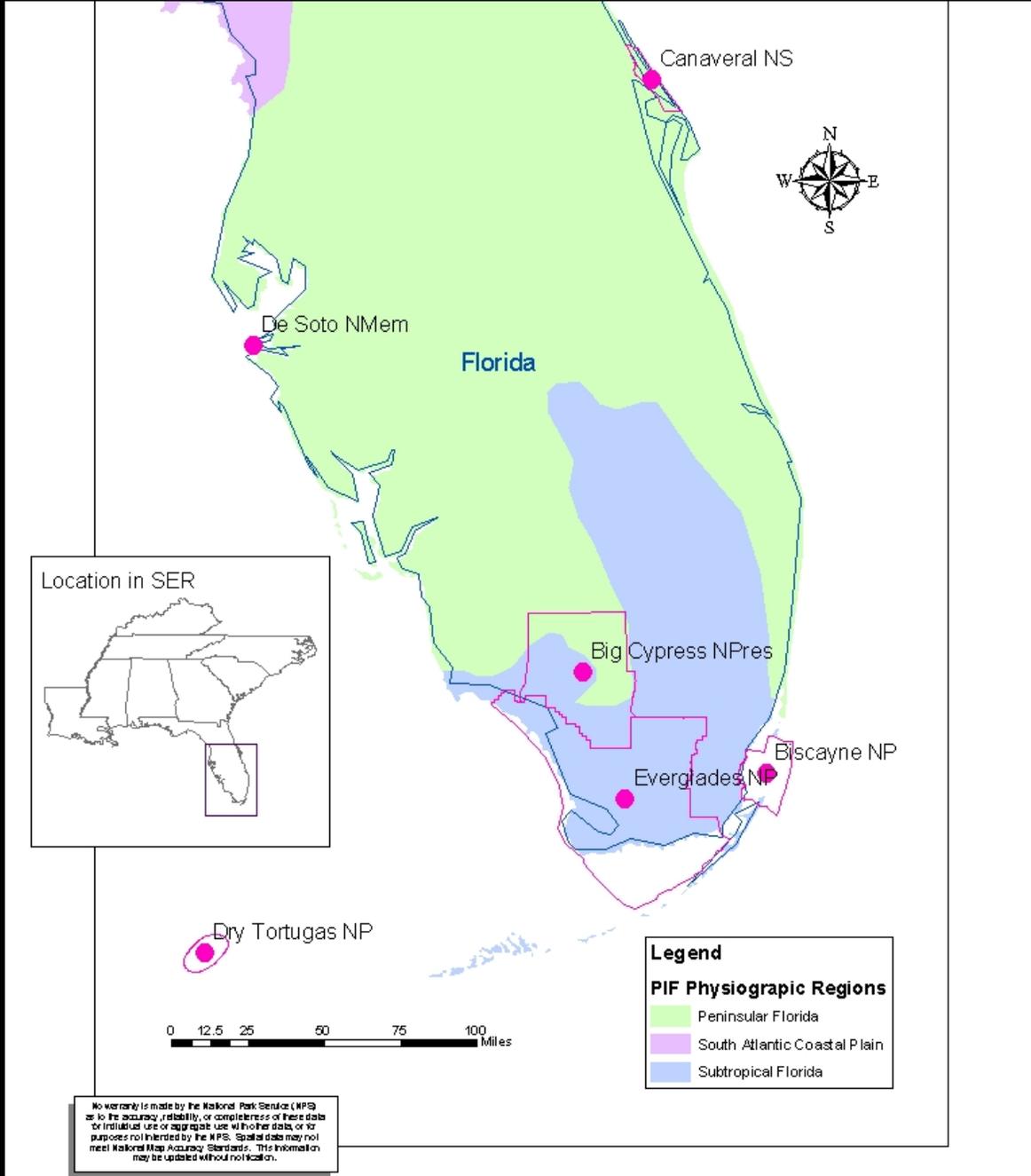
National Park Service
U.S. Department of the Interior



Partners in Flight (PIF) Regions and NPS Locations

National Park Service
U.S. Department of the Interior

Southeast Region (SER)



Produced by Southeast Region GIS, Atlanta, GA

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is characterized by extensive prairies, freshwater marshes, forested swamps, and shallow sloughs. Most wildlife species native to south Florida occur within the Big Cypress watershed. Ten species are listed by the U.S. Fish and Wildlife Service as threatened or endangered, and 10 species are candidates for threatened or endangered status; an additional 14 species are listed by the state of Florida as threatened, endangered, or of special concern.

Avian Resources of Subtropical Florida

The physiographic area is entirely contained within Florida, and extends from the northern edge of Lake Okeechobee south through the Florida Keys. The region has very little topographic relief, but slight changes in elevation have important consequences for vegetation and the diversity of habitat types. The highest points of elevation are less than 2 meters and correspond with fairly recent shorelines (less than 5,000 years before present). Underlying sediments consist of freshwater marl, peat, freshwater lake and marine sediments, and to a lesser extent, sand deposited during the Pleistocene and Holocene. The subtropical Florida region can be divided into four smaller sub-regions: 1) the everglades, 2) Big Cypress, 3) Miami Ridge and Atlantic Coastal Strip, and 4) Southern Coasts and Islands. The Everglades is the most extensive of these areas, followed by the Big Cypress, Miami Ridge and Southern Coasts. Across all subregions, much of the physical and ecological characteristics of the region resemble tropical ecosystems where seasonal changes are reflected by changing rainfall patterns rather than by dramatic temperature changes. Distinctive dry (winter/spring) and wet (summer) seasons occur annually, and the nesting cycles of many birds are tied to these changes. At least two major forms of disturbance play key roles in the ecology of the region. Fire is an important feature in many pine dominated communities and many marsh and prairie communities. Frequent fires are essential in pine-dominated stands and prairies if understory conditions suitable to many nesting birds are to be maintained. However, the ideal fire frequency in some pine communities is not known. Hurricanes are a second form of disturbance that less frequently but predictably provide early successional habitats or open forest cover (Brawn et al. 2001).

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

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

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

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

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

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

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

Human population growth has been phenomenal in subtropical Florida for the last 40 years. The impacts of such tremendous growth include increased infrastructure that directly reduces habitat availability, but also secondary impacts to bird habitats, such as pollution. Other land uses include production of sugarcane, winter vegetables, and citrus. Drastic changes in hydroperiod and natural water cycles are secondary impacts of increasingly intensive agriculture. However, among the best opportunities in the Southeast to work with existing public lands occur in Subtropical Florida, where over 54% of the area is publicly owned. Therefore, primary conservation programs include efforts to reduce impacts from adjacent or nearby lands on management of existing public lands. Many programs have been developed and are in various phases of implementation. These include the Save our Everglades program, the Surface Water Improvement and Management Act, Florida's Everglades Forever Act and the development of the South Florida Ecosystem Restoration Task Force as well as aggressive acquisition programs. These and other programs serve the basis for bird conservation efforts in the region (PIF 2000).

Avian Conservation in BICY

Avian Biodiversity: BICY has a complete avian inventory and a checklist of birds that is available for the public. Preserve staff are in the process of updating the checklist. Over 175 birds have been observed in BICY.

Verified records of birds in BICY 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.

Preserve Priorities: Preserve staff and consultants have not identified any particular species that is a preserve management concern or high priority for conservation. However, the presence of 5 Federally listed bird species requires compliance with the Endangered Species Act and a large amount of staff time is given to managing these species. Additionally, preserve staff are concerned about conserving all birds and their habitats in BICY. However, several species that occur in BICY are high priority in Subtropical Florida and conservation efforts in the preserve could focus on these species or groups of species.

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

Threatened and Endangered Species: Five Federally listed threatened or endangered species nest in BICY. These are Red-cockaded Woodpecker, Wood Stork, Bald Eagle, Snail Kite, and Cape Sable Seaside Sparrow. The recently delisted American Peregrine Falcon is a rare but regular fall transient and winter visitor.

Several Florida listed species occur in BICY as well. Prominent among these are: Florida Grasshopper Sparrow, White-crowned Pigeon, Arctic Peregrine Falcon, Florida Sandhill Crane, and Least Tern.

Partners In Flight (PIF) has also listed Brown-headed Nuthatch, Bachman's Sparrow, Grasshopper Sparrow, Sandhill Crane, Mottled Duck, Short-tailed Hawk, Swallow-tailed Kite, White-crowned Pigeon, Black Rail, Reddish Egret, White Ibis, Florida Prairie Warbler, Yellow Warbler, Mangrove Cuckoo, Black-whiskered Vireo and non-breeding populations of Palm Warbler and Sedge Wren as species of high conservation concern in Subtropical Florida (PIF 2000).

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

- Cape Sable Seaside Sparrow population monitoring (Population A) conducted by Everglades National Park personnel
- Red-cockaded Woodpecker nest monitoring on 45 clusters of woodpeckers
- Red-cockaded Woodpecker nestling banding
- Wood Stork colony monitoring by helicopter
- Snail Kite Monitoring
- Bald Eagle nest surveys conducted by State of Florida
- Waterbird colony monitoring conducted by Everglades National Park and State of Florida
- Osprey nest monitoring conducted by State of Florida
- Brown-headed Nuthatch and Eastern Bluebird monitoring following translocations
- Three mini-Breeding Bird Survey routes conducted during May

- Regular Breeding Bird Survey route conducted by US Fish and Wildlife Service
- Randomized recreational birding

Research: Scientific research is permitted within the preserve, and several recent projects have been concluded, focusing on several of the listed species that occur in the preserve. The only active current active avian research involves work on the endangered Snail Kite.

Outreach: No specific educational and outreach programs related to birds are undertaken in the preserve, but birds are included in the more generic wildlife programs.

Preserve Identified Needs for Avian Conservation

BICY has identified on high priority projects that would increase the avian knowledge of the preserve and would assist preserve managers in better decision making.

Research: The preserve would like to assess the impacts that Off Road Vehicles (ORV's) have on the bird populations, especially birds that nest on the ground or in the herb/shrub layer of the forests.

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, BICY is within the NABCI Peninsular Florida BCR located entirely within Florida (see BCR map) and encompasses two PIF physiographic areas (the planning unit for PIF)(compare to NPS and PIF maps).

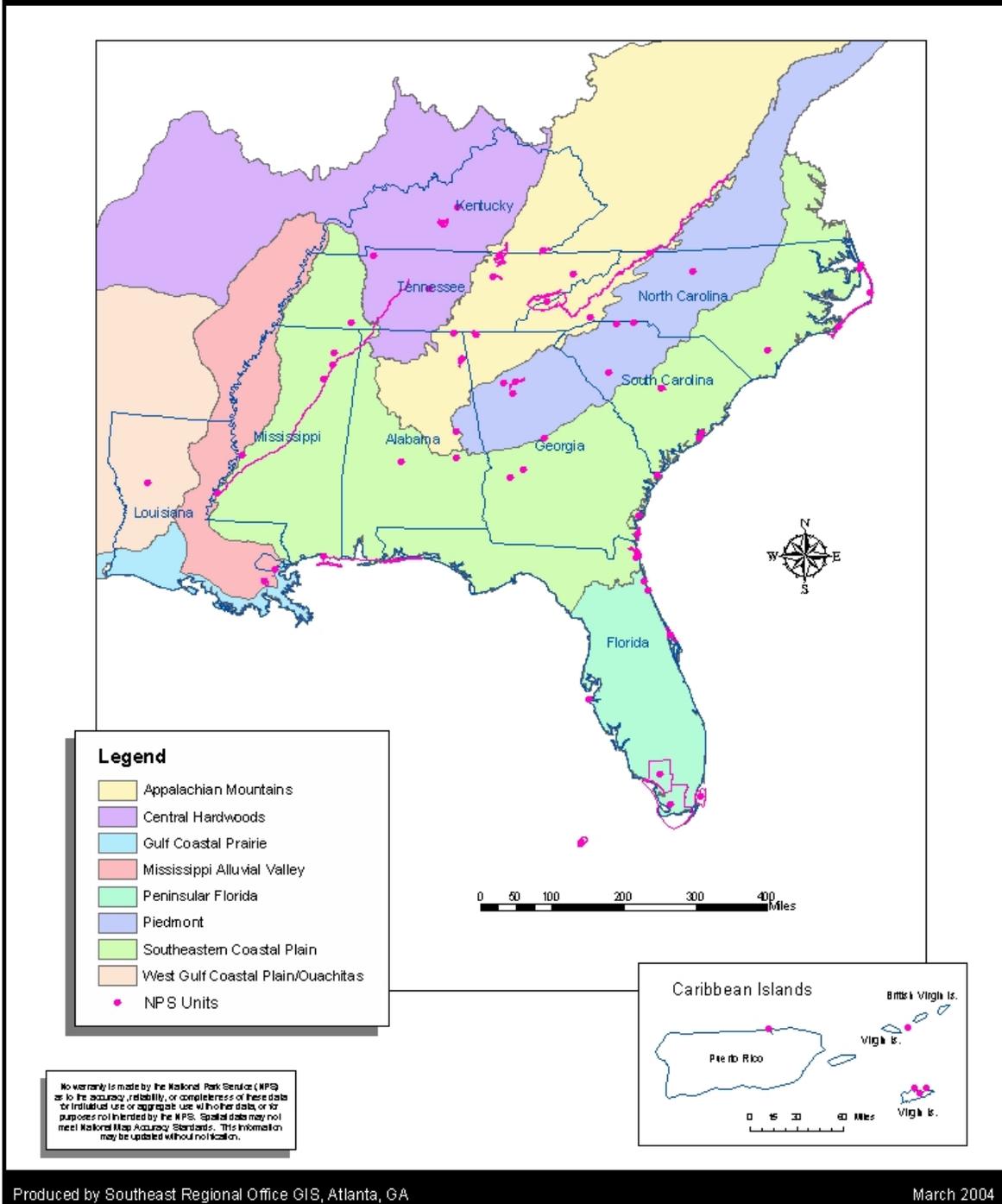
Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. Currently, Peninsular Florida does not have a designated coordinator; however, a large portion of the BCR lies within the Atlantic Coast 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 BICY with implementation of aspects of this ACIP.

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

Bird Conservation Regions

Southeast Region (SER)

National Park Service
U.S. Department of the Interior



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programs in the United States, being monetarily supported by the North American Wetlands Conservation Act (NAWCA).

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

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

United States Shorebird Conservation Plan (USSCP): The USSCP has been completed and is available on the World Wide Web (<http://shorebirdplan.fws.gov/>). A regional step down plan is in preparation by FWS personnel and should be available in 2004.

Waterbird Conservation for the Americas (WCA): The WCA plan has been completed and is available on the World Wide Web or can be ordered from the US Fish and Wildlife Service National Conservation Training Center (<http://www.waterbirdconservation.org/>). BICY will utilize this regional plan when completed.

Integration of NABCI Goals and Objectives into Preserve Planning and Operations: NABCI Implementation Recommendations

To successfully achieve preserve-established goals and actively participate in NABCI, the preserve could implement a variety of projects in different NPS programs. Most of these projects would require some level of participation by many existing preserve 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 preserve to meet its mandates (current and expected) as well as integrate NABCI into its planning and operations. With emphasis added, the preserve is not expected to implement any of these recommendations or be obligated to pursue any opportunity other than those the preserve 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 preserve 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 preserve 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 preserve has inventoried its bird fauna exceptionally well. Although the avifauna of BICY is well documented, distribution and abundance data are desired to fully understand the status of birds in the preserve so that conservation actions for birds can be implemented. Status of high priority species is needed to effectively structure preserve management for the continued preservation and enhancement of the preserve's avifauna.

Additional abundance and distribution data is needed for

- **Marshbirds**
- **Wet and Dry Prairie birds**
- **Mangrove birds**
- **Pine Hammock birds**
- **Cypress Strands and Domes**

Additionally, BICY is encouraged to

- **partner with Everglades National Park (EVER), Ten Thousand Island National Wildlife Refuge (TTINWR), Florida Panther National Wildlife Refuge**

(FPNWR), Fakahatchee , Big Cypress Seminole Indians, Miccosukee Indians, and South Florida Water Management District (SFWMD) to coordinate area inventory efforts

- **verify other avian observational data collected in the preserve and enter into the appropriate database (NPSpecies, eBird, etc.)**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**

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

- **continue to conduct existing monitoring programs and enter data into the appropriate database (NPSpecies, eBird, etc.) and provide data to cooperators**
- **conduct follow up monitoring on translocations of Brown-headed Nuthatch and Eastern Bluebird to Everglades National Park***
- **conduct follow up monitoring to determine success of translocation of Red-cockaded Woodpeckers to Dupuis Wildlife and Environmental Area (DWEA)***
- **establish an avian monitoring program based on distribution and abundance surveys that focus on regionally identified high priority species***
- **establish a pre and post fire inventory program to document response of birds to prescribed fire**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**
- **partner with Everglades National Park (EVER), Ten Thousand Island National Wildlife Refuge (TTINWR), Big Cypress Seminole Indians,**

- **Miccosukee Indians, and South Florida Water Management District (SFWMD) to coordinate area monitoring efforts**

Habitat Restoration: Historical landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscape alternation by Native Americans for a variety of uses (Williams 2002), wildfire, Bison (*Bison bison*), beaver (*Castor Canadensis*) and elk (*Cervus elaphus*) effects, weather, and beaver, etc. (Hunter et al. 2001) resulted 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 recognized for a long time that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists. Recently, habitat restoration efforts have increased nationwide, and on NPS lands; NPS receiving restoration emphasis and guidance in the 2001 Management Policies (NPS 2001). Habitat restoration efforts that parks may undertake are wetland restoration, grassland restoration, woodland restoration, etc. utilizing a wide range of tools to accomplish the restoration. Some of these tools may be but not limited to forest management practices, exotic species management, public use and recreation management, infrastructure development management, and prescribed fire.

Due to the protected nature of BICY 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 BICY can greatly contribute to established habitat goals identified in the Subtropical Florida bird conservation plan.

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

- **increase the amount of prescribed fire from current average to approximately 40,000 ha (100,000 acres) to improve habitat conditions in pinelands and prairies for high priority birds**

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

Threat Management: Potentially the greatest impact to birds at BICY is the use of ORV's. The preserve has completed an ORV Management Plan. Implementation of the ORV Management Plan should allow the preserve to demonstrate that the preserve's bird populations will improve. However, because ORV's will still impact preserve habitats and vegetation, the preserve is encouraged to:

- **fund and conduct the Project Management Information System (PMIS) project to assess the impacts of ORV's to the preserve's bird populations and at the conclusion of the research implement needed changes in the plan to further protect the preserve's avifauna***

Impact of exotic species on birds at BICY is largely unquantified but feral hogs do occur in the preserve. However, feral hogs are a prey item of the Florida Panther and are not considered a resources threat, but a regulated resource.

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

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

Research: Several research projects have been identified that would provide additional information to BICY managers for bird conservation purposes.

- **assess ORV impacts on the bird populations throughout the preserve***
- **determine the response of Cape Sable Seaside Sparrow to airboat use***

- **determine the effects of wildfire and fuel treatments on the avifauna of the pine rockland ecosystem in southern Florida***
- determine demographics of Limpkin
- determine winter and Neotropical and temperate migrants use of preserve
- assess the effects of prescribed burning on wintering and breeding birds of wet prairie habitats

Additionally, the preserve is encouraged to:

- **list preserve needs and projects on Research Permit and Reporting System web site (RPRS)**
- develop contact with South Florida/Caribbean Cooperative Ecosystem Studies Unit at the University of Miami, Miami, FI

Compliance: Preserve compliance with the Migratory Bird Treaty Act EO 13186 (US Government 2000) is necessary to assure that preserve activities incorporate bird conservation into preserve planning and operations. Further, to ensure that migratory birds are considered in all phases of preserve planning processes, especially during the National Environmental Policy Act (NEPA) and the Director's Order #12 Compliance processes, the preserve should consider adding specific language in project evaluations that requires consideration and implications of preserve projects on migratory birds. The MOU being developed between the NPS and the FWS will likely contain specific language requiring a preserve to consider implications of preserve projects on migratory birds, particularly those species identified in the USFWS Species of Conservation Concern 2002 (Appendix C). Additional considerations are to encourage:

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

- **update the 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 TTINWR or Collier-Seminole State Park**
- **continue to develop and foster relationship with local area bird clubs, such as Naples Bird Club and Collier County Audubon**
- **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 from these and random outings by visitors (see Cornell University's eBird monitoring program (Cornell Lab. Ornith. 2002 (<http://www.ebird.org/about/index.jsp>))**
- **develop relationship with Big Cypress Seminole Indian Reservation and Miccosukee Indian Reservation personnel to cooperate on a joint bird conservation project**
- **preserve 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 preserve's web site home page**
- **support bird conservation by serving shade-grown coffees at meetings, events, and the office buildings in the preserve (<http://www.americanbirding.org/programs/conssbcof3.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 Collier, Broward, and Hendry Counties initiatives or programs that could impact preserve resources***
- **develop relationship with Big Cypress Seminole Indian Reservation and Miccosukee Indian Reservation personnel***
- **contact US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the area***

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

- **develop partnership with Florida Wildlife and Conservation Commission, SFWMD, TTINWR, Collier-Seminole State Park and EVER to coordinate and implement various aspects of this ACIP***
- **contact the nearest Joint Venture office (see Funding section for explanation of Joint Ventures) or BCR coordinator to develop partnerships and funding proposals tiered to priorities established by the preserve, this ACIP, and the Subtropical Florida bird conservation plan***
- partner with and engage the local bird clubs, including Naples Bird Club, and Collier County Audubon as active partners in BICY's bird conservation program
- develop land use agreements with local landowners through state, FWS programs to protect important habitats and landscapes adjacent to BICY

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 preserve'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. BICY 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 preserve 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 preserve wetland issues. BICY is not within a region which has an operational Joint Venture, but contact with the Atlantic Coast Joint Venture, Central Hardwoods BCR, and Tennessee PIF coordinators will provide opportunity to investigate use of this funding source and developing proposals. Internal FWS funding programs may be used to support projects, but no effective method of project proposal delivery to these sources is currently in place for the NPS. Current funding in these programs may result from FWS familiarity with NPS needs, or NPS participation in one of the area FWS Ecosystem Teams, where a project has been identified and proposed to be funded through the Ecosystem Team.

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

Specific congressional appropriations to protect migratory birds has recently been authorized under the Neotropical Migratory Bird Conservation Act (2000) (<http://www.nfwf.org/programs/nmbcapp.htm>). Appropriations through this Act are authorized up to \$5 million per year. However, in 2000, appropriation was approximately \$3.75 million and a majority of this funding was directed toward projects in Central and South America.

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

Other prominent funding sources available to NPS managers for bird conservation are listed on this projects web site at: <http://southeast.fws.gov/birds/NPSHighlits.htm>.

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

available to managers in the future; this is needed.

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

US Fish and Wildlife Service

Keith Watson
US Fish and Wildlife Service
160 Zillicoa Street, Suite D
Asheville, NC 28801
828-350-8228
Keith.Watson@fws.gov

Jennifer Wheeler
US Fish and Wildlife Service
Waterbird Conservation Plan
Coordinator
703-358-1714
Jennifer.A.Wheeler@fws.gov

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

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

Ralph Costa
US Fish and Wildlife Service
Clemson University
Clemson, SC
864 656-2432
Ralph.Costa@fws.gov

National Park Service

South Florida/Caribbean
Inventory & Monitoring Network
SF/C Network Coordinator
National Park Service
Matt Patterson
305 224-4211
Matt.Patterson@nps.gov

Mr. Tony Pernas
National Park Service
305 224-4246
Tony.Pernas@nps.gov

Carol Daniels
South Florida/Caribbean CESU
Rosenthal School of Marine and
Atmospheric Sciences
University of Miami
Miami, FL
305 361-4904
Carol.Daniels@nps.gov

State of Florida

Jeff Gore
Florida Fish and Wildlife Conservation
Commission
Jeff.Gore@fwc.state.fl.us

Karl Miller
Florida Fish and Wildlife Conservation

Commission
352-955-2230
karl.miller@fwc.state.fl.us

Bernice Constantine
USDA Wildlife Services
Florida
353-377-5556

Rob Bennetts
US Geological Survey
Biological Resources Division
Florida and Caribbean Science Center
7920 NW 71st Street, Gainesville, FL 32653
Phone: 352-378-8181, ext. 374
rbennetts@usgs.gov

Ken Meyer
Avian Research and Conservation Institute
Gainesville, FL
meyer@arcinst.org

Peter Frederick
University of Florida
Gainesville, FL
(904) 846-0565
pcf@gnv.ifas.ufl.edu

Gary Slater
Ecostudies Institute
P.O. Box 703
Mount Vernon, WA 98273
360-416-6707
gslater@ecoinst.org

Joe Howard
Collier-Seminole State Park
20200 E. Tamiami Trail
Naples, Florida 34114
Phone: 239-394-339
Joe.Howard@dep.state.fl.us

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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 Species 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	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
	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	
lb.	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	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
	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	
	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	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
	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		C		
	Ruddy Turnstone	20	3	4		D	
	Least Sandpiper	20	5	5		C	
	Dunlin	20	4	5		C	
	Yellow-billed Cuckoo	20	3	5		B	
	Gray Catbird	20	5	5		C	
	Eastern Towhee	20	5	5	7.9	D	
	American Avocet	19	3	3		C	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
	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 Regional Interest	Prothonotary Warbler	21	2	3		B	(AA@ Merritt Island)
	American White Pelican	20	4	1		C	
	Redhead	20	2	4		C	
	American Woodcock	20	2	4		D	
	Acadian Flycatcher	20	2	3		B	(AA@ Merritt Island)
	Yellow-throated Vireo	20	3	3		B	(AA@ Merritt Island)
	Yellow-throated Warbler	20	3	3		C	
	Hooded Warbler	20	2	3		B	(AA@ Merritt Island)
	Peregrine Falcon	19	5	1		A	Winters in small numbers
	Northern Parula	19	5	2		C	
	Common Loon	18	4	3		C	
	Least Bittern	18	2	3	7.0?	D	
	Wood Duck	18	4	2		D	
	Ring-necked Duck	18	3	2		C	
	Lesser Scaup	18	3	5		C	

Table 1 (cont.).

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Conservation Score		Percent of BBS Population	Migratory Status ²	Local Geographical or Historical Notes
			Area Importance	Population Trend			
	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 ≤ 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

Wildlife Conservation Commission

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

Official Lists

Publication Date: 1 August 1997

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

GFC = Florida Fish and Wildlife Conservation Commission

FDA = Florida Department of Agriculture and Consumer Services

FWS = United States Fish and Wildlife Service

E = Endangered

T = Threatened

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

T(E/P) = Threatened/Experimental Population

SSC = Species of Special Concern

C = Commercially Exploited

		Designated Status	
Scientific Name	Common Name(s)	GFC	FWS
<u>Birds</u>			
<i>Ajaia ajaja</i>	Roseate spoonbill	SSC	
<i>Ammodramus maritimus juncicolus</i>	Wakulla seaside sparrow	SSC	

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

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

APPENDIX C

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

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