FINAL DRAFT

Avian Conservation Implementation Plan
Congaree National Park

National Park Service
Southeast Region



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In cooperation with

COSW 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 Congaree National Park (COSW) to help identify and prioritize bird conservation opportunities, and to provide information and guidance for the successful implementation of needed conservation activities. This plan may identify goals, strategies, partnerships, and perhaps specific projects allowing the park to participate in existing bird conservation planning and implementation efforts associated with the North American Bird Conservation Initiative (NABCI). Under the auspice of NABCI, appropriate bird and habitat conservation goals may be recommended as identified in the appropriate existing national or regional bird conservation efforts aligned with this initiative: Partners In Flight (PIF), North American Waterfowl Management Plan (NAWMP), US Shorebird Conservation Plan (USSCP), and Waterbird Conservation for the Americas (WCA). For example, parks in the Appalachians and the Cumberland Plateau will have few if any high priority waterbird conservation issues at a regional landscape or greater scale. As such, little information regarding waterbird conservation will be presented in the ACIP, unless there is an identified park need for this species group, or other mandates, such as federal laws. Similarly, because COSW is upland and bottomland hardwood forest landscape, recommendations will be provided in the ACIP for landbird and habitat conservation and will be derived from the appropriate PIF bird conservation plans, PIF being largely a landbird conservation initiative. However, all high priority bird conservation issues for COSW will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with COSW staff 2) COSW bird conservation partners 3) the PIF South Atlantic Coastal Plain Bird Conservation Plan, Version 1.0 (Hunter et al. 2001), 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 COSW resource management staff and managers, Southeast Coast Inventory and Monitoring Network (SEC I&M) staff, and bird conservation partners and approved by COSW 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.

COSW is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to COSW to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which COSW 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-governmental organizations (NGO's) have recognized this alarming bird decline trend and have joined forces in several extensive partnerships to address the conservation needs of various bird groups and their habitats. The primary initiatives are:

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

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

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

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

The Southeastern Bird Conservation Initiative: National Park Service: In 1999, the Southeast Region of the National Park Service (NPS) recognized the importance of

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

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

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

This ACIP fulfills one aspect of the plan outlined above and serves as a basis for future bird conservation actions in COSW 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 (US Government 2000), Responsibilities of Federal Agencies to Protect Migratory Birds, calls for integration of programs and recommendations of existing bird conservation efforts into park planning and operations. Complementing each other, the MOU and the Southeastern Bird Conservation Initiative will advance bird conservation in the Southeast Region of the NPS beyond current regional NPS efforts.

Role of NPS in Avian Conservation

The interagency agreement that facilitates this partnership supports both FWS and NPS management policies. Specifically for the NPS, the agreement supports and advances the Strategy for Collaboration, 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 Polices (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, Cumberland Island 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 (Fort Matanzas National Monument, Ocmulgee National Monument), and others such as the Blue Ridge Parkway, Obed Wild and Scenic River, and Timicuan Ecological and Historic Preserve.

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

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

Nationally, the status of birds in national parks is largely unknown, although many parks have adequate knowledge regarding bird occurrence in the parks (http://www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm). Parks often play a role in ongoing regional bird conservation efforts. Indeed many of these parks are often important to regional, national, or international bird conservation, and many

have been designated as Important Bird Areas (IBA's) by the National Audubon Society. To date, there are approximately 64 NPS units that are designated IBA's, 35 of which are considered of global importance (http://abcbirds.org/iba/aboutiba.htm). In the Southeast Region, the NPS has 13 global IBA's.

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

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

Congaree National Park (COSW) encompasses 8,900 ha (22,200 acres) of predominately forested habitats in central South Carolina, including 4,050 ha (10,000 acres) of old-growth and 4,050 ha (10,000 acres) of regenerating bottomland hardwood forest, and 800 ha (1,977 acres) of former pine plantation and upland habitats. Located 20 miles southeast of Columbia, it borders the northeast side of the Congaree River. Densely forested, most of the Park is located within the river floodplain. A wide variety of forest communities are represented, with dominant tree species ranging from upland pines to wetland cypress and tupelo gum. The Congaree River forest environment is characterized by silty clay soils, oxbow lakes, swales and sloughs, and meandering creeks. The Congaree River is the major source of floodwaters, sediment, and nutrients

delivered to the Park, although several tributary creeks also flow through it. The significance of COSW lies in its (1) unique bottomland hardwood forest community associated with the swamp-like floodplain; (2) remarkably large trees, including loblolly pine, bald cypress, tupelo, sweetgum, sycamore, cottonwood, oak, and holly trees; and, (3) the intact floodplain ecosystem.

Threats to the health and viability of the surface and ground water in the Park include: (1) chemical runoff from agricultural fields; (2) an Environmental Protection Agency Superfund Site located five miles from the Park's northwest boundary; (3) aquaculture operations on the north boundary perimeter; (4) highway treatment residues; and (5) discharges and corporate expansion of two neighboring companies: a nuclear fuel production plant and a pulp and paper manufacturer. Also upstream from the Park is the Teepak Company, a manufacturer of synthetic skins for meat products, and the Carolina Eastman Company, a manufacturer of synthetic filament products. The Congaree River receives effluent from many smaller manufacturing plants and from sewage-treatment facilities in Columbia and adjacent counties. All of these plants are monitored by the State Department of Health and Environmental Control and the State Water Resources Commission. Little, however, is known about their operation or impacts, if any, on Park resources.

Exotic species and past land use practices also pose threats to Park resources. Although efforts are underway to control populations within the park, feral hog rooting and herbivory causes potentially severe impacts to forest community structure. The past suppression of fire has altered successional processes in parts of the Park, while forestry practices have led to the creation of species-poor pine plantations in some areas.

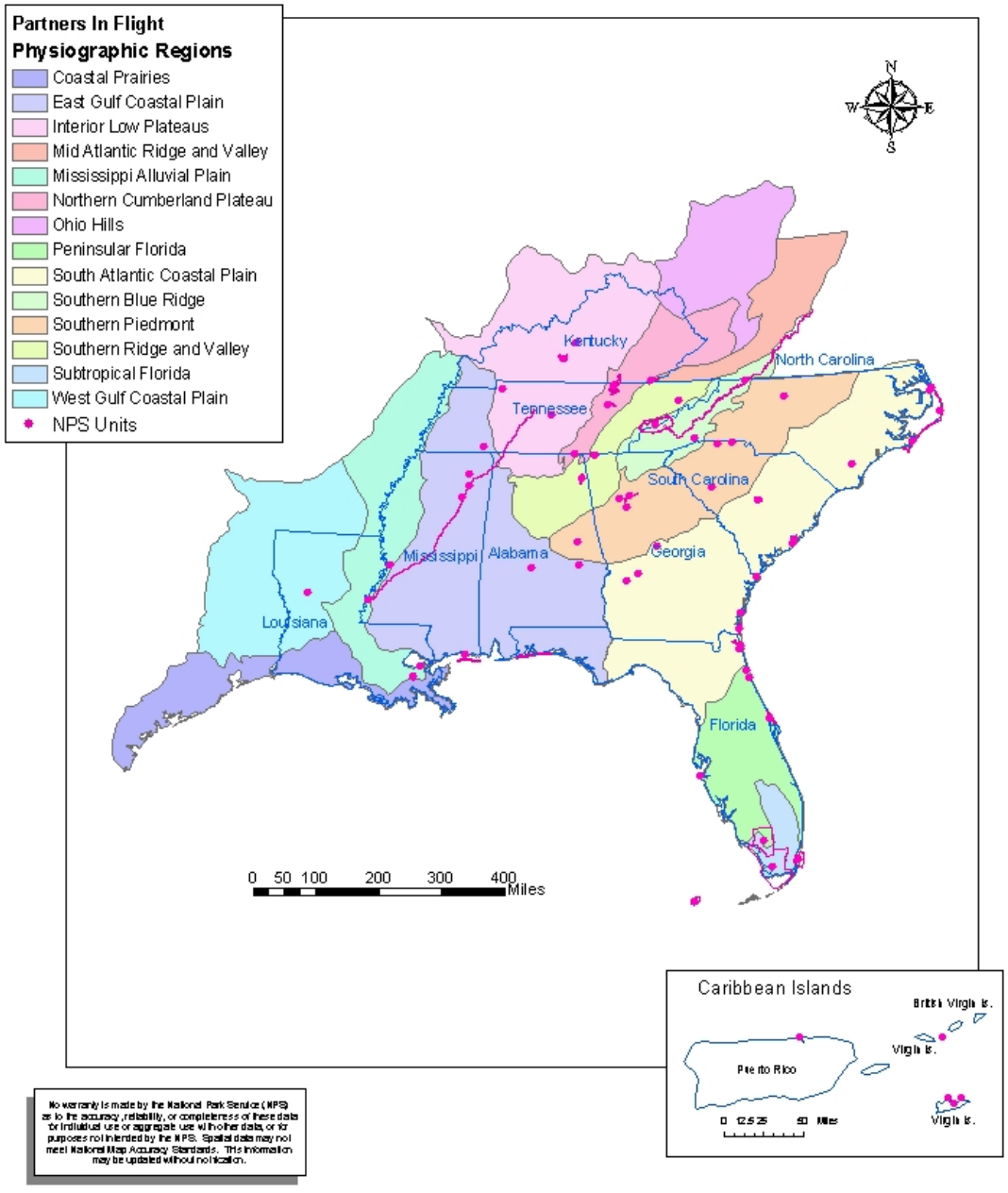
Avian Resources of South Atlantic Coastal Plain

The South Atlantic Coastal Plain, consisting of about 10.1 million has (25 million acres), includes parts of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida (see PIF and NPS location maps below). This physiographic area is one of four coastal plain divisions recognized by Partners in Flight. Although these coastal plain areas share many conservation issues, differences in key species and habitats exist. For instance, the South Atlantic Coastal Plain includes (1) the largest forested floodplains outside of the Mississippi Alluvial Plain, (2) unique non-alluvial wetlands (Dismal Swamp, pocosins, Carolina Bays, Okefenokee Swamp), (3) the largest remnants of the former longleaf pine dominated ecosystems (especially flatwoods and sandhills, and to a lesser extent savannas), (4) the best remaining examples of "natural" barrier and sea islands and maritime forests in the Southeast, and (5) biologically rich Apalachicola Bluff forests. Also present within this physiographic area are extensive tidal wetlands and commercial forests. Physical characteristics include a predominantly flat, weakly dissected alluvial plain with active fluvial deposition and shore zone processes along coastlines. Elevation ranges from 0 feet increasing towards the fall line to 600 feet. Major blackwater rivers (with headwaters in the coastal plain) include Chowan, Waccamaw, Satilla, St. Mary's, Suwanee, and St. John's (originating in Peninsular

Partners in Flight (PIF) Regions

Southeast Region (SER)

National Park Service
U.S. Department of the Interior



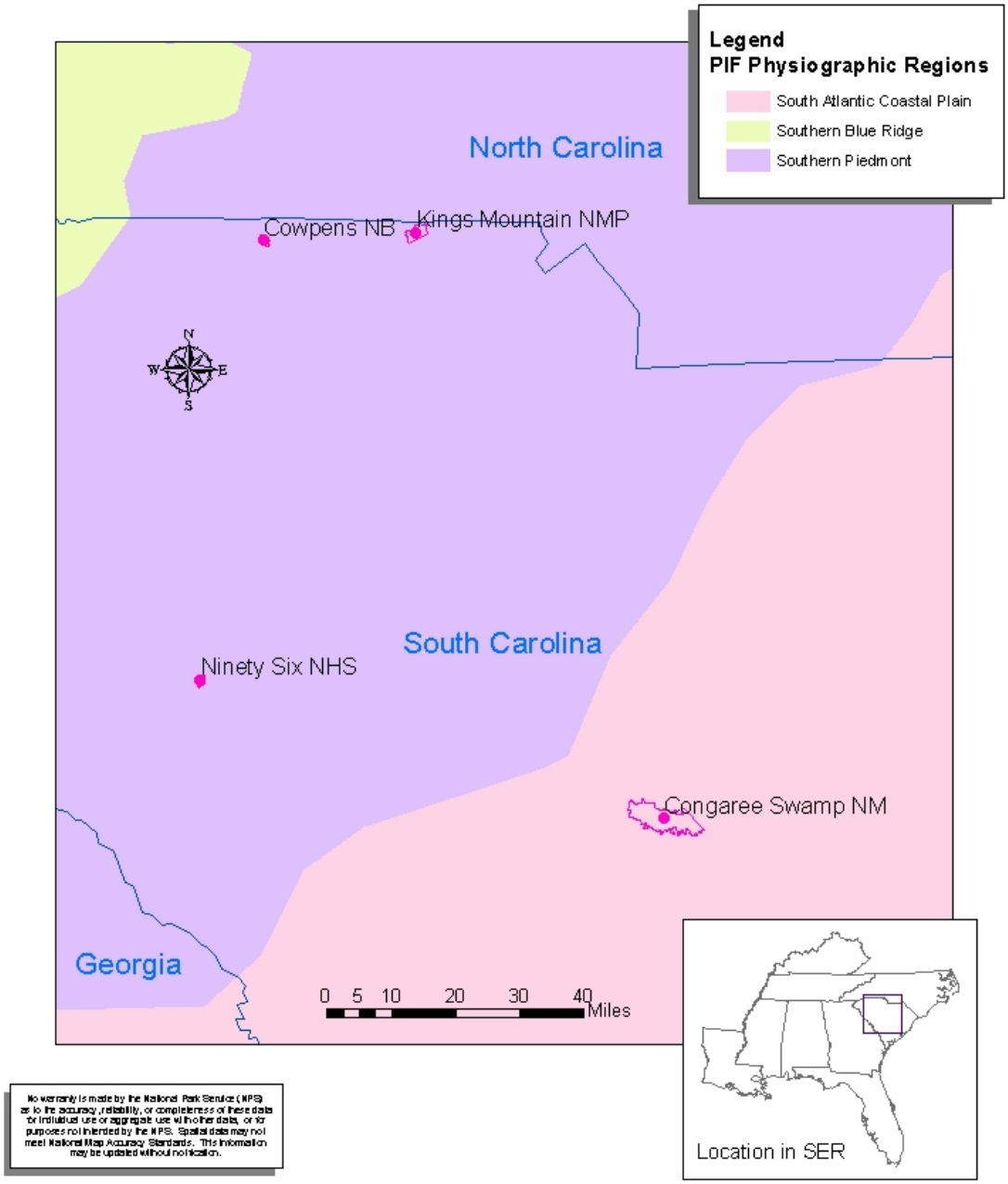
Produced by Southeast Regional Office GIS, Atlanta, GA

March 2004

Partners in Flight (PIF) Regions and NPS Locations

National Park Service
U.S. Department of the Interior

Southeast Region (SER)



Produced by Southeast Regional Office GIS, Atlanta, GA

February 2004

Florida). Major brownwater rivers (with headwaters originating in the Southern Piedmont or Southern Blue Ridge) include Roanoke, Tar, Neuse, Cape Fear, Pee Dee, Santee-Cooper, Ashepoo-Combahee-Edisto (ACE), Savannah, Ogeechee, Altamaha, and Apalachicola (Chattahoochee and Flint). Average annual precipitation is 40-60 inches except on the Florida Gulf Coast where it is 52-64 inches.

Land conversion for both agricultural and urban expansion has resulted in a 40 percent loss of natural vegetation (closer to 65 percent along some coastlines) in this physiographic area. Potential natural vegetation (i.e., absent frequent disturbances) is referred to as "southern mixed" forests and oak/hickory/pine, with intervening southern floodplain forest and pocosins, as well as live oak/sea oats along coastlines. However, disturbances are frequent and therefore, upland forests historically were characterized by open pine (predominantly longleaf) forests. Today, predominant vegetation remains slash (Florida) and longleaf pines, with loblolly pine becoming common nearer to the Southern Piedmont and the northern portions of this physiographic area. Oak/gum/cypress forest cover type is common along floodplains and prevalent species include laurel oak, water tupelo, swamp tupelo, swamp chestnut oak, cherrybark oak, and baldcypress. Pond pine and Atlantic white cedar become important within the Lower Coastal Plain, especially in pocosin and other non-alluvial wetland types. Live oak becomes important along coastal areas and frequently is included with other coastal pines and hardwoods in various types of "hammocks."

Within the South Atlantic Coastal Plain, fire is the single most important driving disturbance force. Natural burns occur over medium to large size areas between natural barriers (e.g., floodplains, other wetlands) with moderate frequency and low intensity. Fires most often occurred during the growing season, in many cases started by lightning, and were essential for supporting numerous plant communities and dependent animals, including many bird species. In addition to fire, hurricanes, tornadoes, and floods are frequent as disturbance agents. Ice storms, though rare, are devastating where they occur. Finally, southern pine beetles are important disturbance agents.

Conservation issues within the South Atlantic Coastal Plain include:

(1) management and conservation of forested floodplains and related wintering waterfowl and migratory landbird needs;

(2) monitoring and protection of colonially nesting terns and skimmers, as well as vulnerable shorebirds, especially in areas with increased human disturbance and habitat loss;

(3) research and protection of Wood Storks and White Ibises;

(4) conservation of nongame waterbird habitats (under the purview of other bird conservation groups such as the Western Hemispheric Shorebird Reserve Network, Waterbird Society, North American Waterfowl

Management Plan, and the International Association of Fish and Wildlife Agencies' Migratory Shore and Upland Gamebird Subcommittees);

(5) best management practices for forested wetlands, maritime communities, southern pine forests, and upland hardwood (including riparian) forests; and

(6) conservation and protection of vulnerable nearctic-neotropical migratory landbirds.

Over 300 bird species occur annually in the South Atlantic Coastal plain as nesting, post nesting dispersers, transients, and /or wintering residents. Among these species, the South Atlantic Coastal Plain supports critically important populations for a number of extremely high priority bird species. Species in need of the greatest conservation attention include Henslow's Sparrow, Wood Stork, Bachman's Sparrow, Swallow-tailed Kite, Swainson's Warbler, Eastern Painted Bunting, Black-capped and Bermuda Petrels, Red-cockaded Woodpecker, Southeastern American Kestrel, Wayne’s Black-throated Green Warbler, Saltmarsh Sharp-tailed Sparrow, Red Knot, Piping Plover, and Snowy Plover (Gulf Coast). Other priority species also of conservation interest include Florida Sandhill Crane, White Ibis, Loggerhead Shrike, Cerulean Warbler, Prothonotary Warbler, Seaside Sparrow, Brown-headed Nuthatch, American Woodcock, Northern Bobwhite, Common Ground-Dove, Yellow-throated Warbler, Rusty Blackbird, Black Skimmer, Least Tern, Black Rail, Peregrine Falcon, Bald Eagle, American Oystercatcher, Red-throated Loon, and most migrating and wintering shorebirds and rails, Brant, American Black Duck, Lesser and Greater Scaup, Tundra Swan, and Wood Duck.

Conservation objectives for the South Atlantic Coastal Plain revolve mostly around (1) stabilizing or increasing populations of high priority breeding bird species, (2) wintering species, (3) and increasing the quality and availability of stopover habitat for transient species. Although waterbirds are treated here, these species groups are mostly the subjects of other planning efforts. For landbird species, the primary habitat objectives proposed in this plan include the following:

1. Retain and restore 526,000 ha (1.3 million acres) of native warm season grass habitats, with as much associated with longleaf pine as feasible.

2. Provide at least 121,457 ha (300,000 acres) of 5 -year idle lands, 121,457 has (300,000 acres) of annuals, and 245,000 ha (600,000 acres) of 10-20 year idle lands.

3. Maintain and improve the habitat quality of 8 forested wetland sites for Swallow-tailed Kite, maintain and stabilize at least 1 forested wetland site for Cerulean Warbler, at least 10 sites for Wayne’s Black-throated Green Warbler, and 30 sites for Swainson’s Warblers, which requires 10 patches over 40,485 ha (100,000 acres), 15 patches over 8,100 ha (20,000

acres), 7 patches over 4,050 ha (10,000 acres), and 30 patches over 2,400 ha (6,000 acres).

4. Protect 100% of remaining maritime communities and increase acreage wherever restoration is possible.

5. Increase longleaf pine forest acreage from 607,300 ha (1.5 million acres) to over 890,700 ha (2.2 million acres) and improve conditions favoring warm-season grassy ground cover, on at least 263,157 ha (650,000 acres) by year 2025.

Avian Conservation in COSW

Avian Biodiversity*:* COSW has an avian inventory and a checklist of birds that is available for the public. Managers recognize the need to update the checklist. A listing of COSW birds can be found on their web site http://www.nps.gov/cosw/coswbird.htm*.* The list contains over 170 species which have been recorded in the park and others that are likely to occur in the park.

Verified records of birds in COSW have been entered into the NPS I&M program's database, NPSpecies, and may be viewed via the internet at http://www.nature.nps.gov/im/app/npspp with a user identification and password combination authorized by the NPS for NPS personnel and NPS cooperators. Many other avian observational data need to be verified and entered into the database.

Park Priorities: Park staff and consultants have not identified any particular species that is a park management concern or high priority for conservation. Rather, park staff is concerned about conserving all birds and their habitats in COSW. However, several species that occur in COSW are high priority for conservation in the South Atlantic Coastal Plain and conservation efforts in the park could focus on these species or groups of species.

Inventory: COSW has an incomplete avian inventory and is not planning to conduct additional inventory projects. COSW is one of several parks in the NPS Southeast Coast I&M Network for which a plan to conduct high priority inventory projects has been prepared (USDI 2000). The plan suggests that a potential of 250 avian species can be found in COSW, yet only 177 are confirmed. Additional inventory is therefore warranted.

Threatened and Endangered Species: No Federally listed threatened or endangered species is known to nest in COSW. However, the Federally endangered Red-cockaded Woodpecker nested as recently as 1993 (but is believed extirpated from the region), and Bald Eagles have been observed foraging in the park during the breeding season. Wood Storks forage in the park outside of the breeding season. In 2001, reports of several individuals of Bachman's Warbler in COSW prompted a 2002 COSW/USFWS coordinated survey for this species. No Bachmans' Warblers were located (Watson and Koches 2003).

Of South Carolina listed species, the Swallow-tailed Kite occurs irregularly as a transient in the park. Several South Carolina Species of Concern occur in the park as well (Appendix C).

Several high priority PIF species for the South Atlantic Coastal Plain breed in COSW (Appendixes A and B). Prominent among these species are: Swainson's Warbler, Northern Parula, Worm-eating Warbler, Hooded Warbler, Yellow-throated Warbler, Louisiana Waterthrush, and Wood Thrush. Several additional high priority PIF species occur in the park, but primarily as migrants or during the winter.

Monitoring: Currently, two monitoring projects are ongoing at COSW.

- The area is included in a local Christmas Bird Count (CBC)
- One Monitoring Avian Productivity and Survivorship (MAPS) station is being operated by South Carolina Department of Natural Resources in bottomland hardwoods.

Additionally, random recreational birding is conducted and many bird observations are recorded for the park.

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

Outreach: COSW has implemented several avian outreach and educational programs. They are:

- Participation in International Migratory Bird Day
- Development of a park and birds poster
- Incorporation of nighttime bird migrations into interpretive talks

Park Identified Needs for Avian Conservation

COSW has identified at least three projects that would increase the avian knowledge of the park.

Inventory: **The inventory and checklist need to be updated.**

Monitoring: **A monitoring program is needed for pine specialists, bottomland hardwood forest, and Neotropical migrants during migration.**

Habitat Restoration: **Longleaf Pine habitats are desired to be restored to potentially reintroduce the Red-cockaded Woodpecker.**

Coordination with Regional Conservation Initiatives

The 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, COSW is within the Southeast Coastal Plain BCR that extends from Virginia to Alabama (see BCR map below) and encompasses several PIF physiographic areas (the planning unit for PIF)(compare to PIF map).

Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. Currently, the Southeast Coastal Plain does not have a designated coordinator; however, a bird conservation coordinator for the Atlantic Coast Joint Venture has responsibility for bird conservation planning in this region. This person should be consulted to implement portions of this plan.

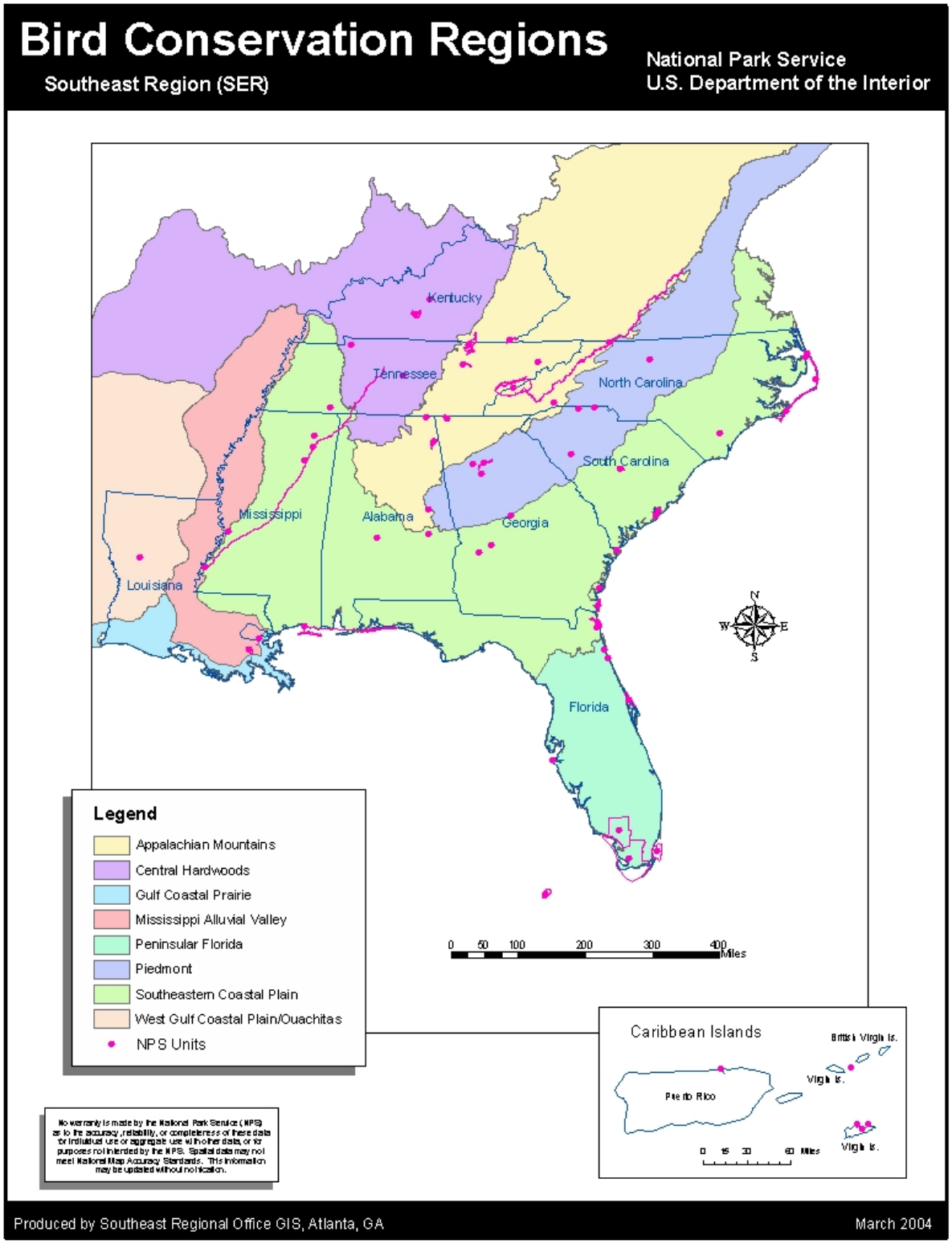
North American Waterfowl Management Plan (NAWMP): The NAWMP (http://northamerican.fws.gov/NAWMP/nawmphp.htm) is completed and has been revised several times, incorporating updated goals and strategies based on new information. This plan is one of the most successful bird conservation delivery programs in the United States, being monetarily supported by the North American Wetlands Conservation Act (NAWCA).

Partners In Flight: Goals and strategies for the South Atlantic Coastal Plain can be found in the draft bird conservation plan, previously submitted to the park. The park will receive updates of the plan as they are completed. The current plan identifies priority bird and habitat conservation goals that must be implemented in order to achieve bird conservation success in this region. COSW being largely a landbird park will utilize this plan more than any other plan to participate in NABCI implementation.

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 South Carolina has a PIF coordinator and can be instrumental in assisting COSW to implement recommendations identified in this ACIP and projects important to bird conservation relative to South Carolina's role in implementation of the South Atlantic Coastal Plain PIF plan.

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. Since COSW has little habitat of regional importance to shorebird conservation, recommendations for shorebird conservation are not presented.

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


Bird Conservation Regions
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Kentucky
Tennessee
North Carolina
South Carolina
Mississippi
Alabama
Georgia
Louisiana
Florida
N
W
E
S
0 50 100 200 300 400 Miles
Legend
Appalachian Mountains
Central Hardwoods
Gulf Coastal Prairie
Mississippi Alluvial Valley
Peninsular Florida
Piedmont
Southeastern Coastal Plain
West Gulf Coastal Plain/Ouachitas
NPS Units
Caribbean Islands
British Virgin Is.
Virgin Is.
Puerto Rico
Virgin Is.
0 15 30 60 Miles
Produced by Southeast Regional Office GIS, Atlanta, GA
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and Wildlife Service National Conservation Training Center (http://www.waterbirdconservation.org/). Few waterbird conservation priorities exist on the South Atlantic Coastal Plain and none are presented here for COSW.

Integration of NABCI Goals and Objectives into Park Planning and Operations

NABCI Implementation Recommendations

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

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

To the extent appropriate, each of these program areas will be discussed separately and within each, specific opportunities identified that, when implemented, will enable 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, implementation of EO 13186 (US Government 2000), Responsibilities of Federal Agencies to Protect Migratory Birds, will require NPS to incorporate a wide range of bird conservation programs into planning and operations. The development of the MOU between the FWS and the NPS will establish a formal agreement to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

Should the park decide to implement any of the projects identified in this plan, 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. Although the avifauna of COSW is well documented, distribution and abundance data are desired to fully understand the status of birds in the park so that conservation actions for birds can be identified and implemented. Status of high priority species as identified in the South Atlantic Coastal Plain bird conservation plan, the South Carolina list of Rare, Threatened, and Endangered Birds, and the USFWS Species of Conservation Concern is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna.

Additional presence/absence data are needed for:

- **Pine specialists, particularly Bachman's Sparrow and Brown-headed Nuthatch***
- **Neotropical migrants during spring and fall migrations***
- **Wintering species in all habitats***

Abundance and distribution data is needed for:

- **for High Priority forest and bottomland dwelling species (e.g., Swainson's Warbler, Bachman's Warbler, Worm-eating Warbler, Hooded Warbler, Louisiana Waterthrush, and Wood Duck, etc.)***
- **established forest point counts in winter**

Additionally, COSW is encouraged to:

- **partner with South Carolina Department of Natural Resources and local Audubon Society (www.columbiaaudubon.org) to coordinate area inventory efforts***
- **verify other avian observational data collected in the park and enter into the appropriate database (NPSpecies, National Point Count database, etc.)**
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000).**

Monitoring: The park does not have an active monitoring program although the area is frequented by local birders and was the site for an intensive search for Bachman's Warbler in 2002 (Watson and Koches 2003). Future monitoring programs should be

based on regional monitoring needs in the South Atlantic Coastal Plain and Southeast Coastal I&M Network needs. The park is encouraged to consider establishing permanent monitoring stations in main habitat types to systematically collect 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/mbcp/groups.htm. Close coordination with South Carolina Department of Natural Resources bird conservationists and South Atlantic Coastal Plain BCR level coordinators is necessary to identify and implement high priority projects on park lands and to ensure that park efforts contribute to park or regional bird conservation rather than undertake an action or actions that are not needed or are better conducted in other areas. Monitoring programs should strive to conform to established NPS or FWS survey protocols. Specific recommendations are to:

- **continue to conduct Christmas Bird Count and work count coordinator to distinguish park bird data from bird data outside park***
- **evaluate MAPS station in park and potentially expand to include additional stations and habitat coverage***
- **establish a monitoring program based on regional needs and identified high priority species***
- **monitor Neotropical migrants during spring and fall migrations***
- **monitor status of detected High Priority forest and bottomland dwelling species such as Swainson's Warbler, Worm-eating Warbler, and Wood Duck***
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**
- **partner with South Carolina Department of Natural Resources and local Audubon Society (www.columbiaaudubon.org) to coordinate area monitoring efforts***

Habitat Restoration: Landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscapes were influenced by Native American burning, wildfire, bison, beaver, and elk, as well as by insect outbreaks and weather events (Hunter et al. 2001, Williams 2002), thus resulting in a landscape mosaic that supported a rich and diverse bird fauna in the Southeast (Barden 1997; Brawn et al. 2001). The arrival of Europeans and the subsequent change in landscape has dramatically effected

bird habitat and bird populations. Bird conservationists have long recognized that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists.

Recently, habitat restoration efforts have increased on NPS lands due to the increased restoration emphasis of the Management Policies (USDI 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 COSW 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 COSW can greatly contribute to established habitat goals identified in the South Atlantic Coastal Plain bird conservation plan.

The park is largely a floodplain bottomland hardwood forest and some upland pine communities, both of which are old forests. A large area of the park is designated or proposed wilderness which offers a prime opportunity to allow the development of old growth conditions throughout the park. In the short term however, the quality of forests for bird use could be improved through use of prescribed fire or other forest management practices to restore the structural complexity of the forests required for many of the high priority bird species that occur there. Specific recommendations are to:

- **manage regenerating bottomland forests toward old growth conditions, implementing management techniques (e.g. selective thinning where appropriate) to develop desired understory structure for high priority species such as Swainson's Warbler, Worm-eating Warbler, Kentucky Warbler and other dense understory nesting species***

- **selectively thin pine plantations and use prescribed fire to restore herbaceous understory vegetation; develop plan to eventually replant these areas to Longleaf Pine**

- **restore hydrology where appropriate**

- **restore Longleaf Pine along the bluff zone for potential reintroduction of Red-cockaded Woodpecker***

- **acquire as much land as possible within the authorized boundary of the park**

- **protect existing snag trees, where not identified as a safety hazard, as important to cavity nesting birds**

- **document all major habitat management activities, including the 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**

- enhance water quality to support aquatic biota necessary to support existing wetland and bottomland forest nesting and foraging birds

Threat Management: Several factors at COSW potentially lead to cumulative threats to birds, and other wildlife in the park. Many of these factors can be addressed administratively and others will require management of landscape conditions. The factors identified that affect park habitats and the ability of the park to protect birds and their habitat are varied. In relation to these, the park is encouraged to:

- **work with the local community, residential and commercial developers 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 (The Nature Conservancy, The Timber Company, Fort Jackson, Manchester State Forest, for example)**

- **work with upstream interests to work toward maintaining and improving water quality through the park**

- **cooperate with USDA APHIS Wildlife Services, other NPS units and local landowners to consider various methods to reduce the hog population**

- **reintroduce fire at appropriate scale as determined through research**

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

- **hire additional law enforcement officers to curtail poaching and boundary infringements**

- **mitigate any identified hydrological impacts from operation of Saluda Dam on park habitats and wildlife**

- **establish and continue inventory and monitoring for exotic plant species**

- **increase capability to conduct educational and outreach opportunities for park birds and habitats**

- **develop Trail Management Plan to minimize habitat disturbance**

- **develop a Wilderness Management Plan**

- develop a new General Management Plan

- remove the non-functional tower within the park boundary

Research

- **assess feasibility of reintroduction of the Red-cockaded Woodpecker***

- **develop a clear understanding of the historical fire regime and other disturbance factors on historical forest structure***

- **determine impacts on park habitats and wildlife from hydrological alteration caused by operation of Saluda Dam**

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

- **identify research needs with Friends of Congaree**

- determine if aircraft overflights from Shaw and McIntire Air Force Bases have a potential impacts on birds

- develop contact with Piedmont-South Atlantic Coast Cooperative Ecosystem Studies Unit (CESU) at the University of Georgia, Athens, Georgia

Compliance: Park compliance with the Migratory Bird Treaty Act and the Executive Order 13186 (US Government 2000), Responsibilities of Federal Agencies to Protect Migratory Birds, is necessary to assure that park activities incorporate bird conservation into park planning and operations. Further, to ensure that migratory birds are considered in all phases of park planning processes, especially during the National Environmental Policy Act (NEPA) and the Director's Order #12 Compliance processes, the park should consider adding specific language in project evaluations that requires

consideration and implications of park projects on migratory birds. The MOU being developed between the NPS and the

FWS will likely contain specific language requiring a park to consider implications of park projects on migratory birds. Additional considerations are to encourage:

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

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

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

Outreach

- **continue to participate in International Migratory Bird Day (IMBD) events with a local partner (http://birds.fws.gov/imbd.html) such as the Columbia Audubon Society or Manchester State Forest, etc.**

- **update the bird checklist for public availability**

- **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)**

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

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

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

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

- subscribe to Carolinabirds, an electronic forum for discussing bird issues in North and South Carolina (see http://www.duke.edu/~cwcook/cbirds.html)

- 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 local initiatives that could impact park resources**

- **continue to develop and strengthen relationship with Columbia Audubon Society** (http://www.columbiaaudubon.org)

- **become an active member of the South Atlantic Migratory Bird Initiative (SAMBI)**

- **contact US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the area, particularly for protecting upstream and adjacent private land habitat values**

- **work with the local community, residential and commercial developers and other land conservation interests in the region to minimize habitat fragmentation, protect and enhance vegetative and habitat corridors, and potentially restore habitats beneficial to wildlife and bird species of the region (The Nature Conservancy, The Timber Company, Fort Jackson, Manchester State Forest, Congaree Trust, for example)**

- **become an active member in the USFWS Savannah-Santee-Pee Dee Ecosystem Team whose function is to address and manage regional resource management issues, particularly values associated with wildlife and their habitats (see contacts)**

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

- **develop partnership with South Carolina Department of Natural Resources**

- **encourage and facilitate graduate research in the park**

- evaluate local or regional land use data and plan potential for habitat protection across organizational boundaries

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. Funding for conservation projects for Neotropical migrants is also available through the Park Flight program. COSW is encouraged to enter all high priority projects into the NPS Performance Management Information System (PMIS) database. Needed at COSW is:

- **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)**

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

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

Funding through NAWCA is highly underutilized by the NPS and any park unit that has wetland, water, or bird conservation needs associated with wetland are encouraged to investigate using this funding source. Naturally, there are certain requirements to be eligible for all grants and park managers are encouraged to consult with the nearest Joint Venture, BCR, PIF Coordinator, to learn how this program might be applicable to implementation of this plan, and other park wetland issues. COSW 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 have recently been authorized under the Neotropical Migratory Bird Conservation Act (2000) (http://www.nfwf.org/programs/nmbcapp.htm). Appropriations through this Act are authorized up to $5 million per year. However, in 2000, appropriation was approximately $3.75 million and a majority of this funding was directed toward projects in Central and South America.

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

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

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

Contacts

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

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APPENDIX A

HIGH PRIORITY SPECIES IN THE SOUTH ATLANTIC COASTAL PLAIN BIRD CONSERVATION REGION

(From Hunter et al. 2001, Table 1. Priority bird species for South Atlantic Coastal Plain: Entry criteria and selection rationale.)

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score		Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
			Area Importance	Population Trend			
Ia.	Bewick's Wren Appalachian	35	5	5		C	Nearly extinct
	Kirtland's Warbler[5]	35	5	5		A	Mostly SC, GA
	Black-capped Petrel	32	5	5		P	Concentrations off NC
	Bermuda Petrel[5]	32	2	5		P	Increasingly regular off NC
	Red Knot South Atlantic	32	5	5		C	Mostly GA, FL
	Red-cockaded Woodpecker[5]	32	5	4	80.4*	R	
	Snowy Plover Southeast	31	3	5		D	St. Joseph Peninsula to Dog Island, FL Gulf
	Painted Bunting Eastern	31	5	5		B	GA, SC, n. FL, se NC
	Roseate Tern[5] North American	30	3	4		A	Highly Pelagic
	Black-throated Green Warbler Wayne's (Coastal)	30	5	4	100.0*	B	VA, NC, SC
	Bachman's Sparrow	30	5	5	36.6*	R	Primarily breeding
	Saltmarsh Sharp-tailed Sparrow	30	5	3		C	
	Wood Stork[5] Southeast	29	4	4	44.3?	D	FL, GA, se SC
	Henslow's Sparrow	29	5	4		D	Winters FL, GA, SC(?), breeding ne NC, se VA
	Swallow-tailed Kite North American	28	4	3	10.8	B	SC, GA, FL
	American Kestrel Southeastern	28	5	4		D	

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
	Piping Plover[5]	28	4	4		D	Mostly winter, breeding NC, possibly SC
	American Oystercatcher North American	28	5	3		D	
Ib.	Short-tailed Hawk Florida	27	2	3		B	St. Marks to Lower Suwannee, FL
	Black Rail	27	4	4		D	
	Sandhill Crane Florida	27	3	3		R	FL, GA
	Brown-headed Nuthatch	27	5	5	38.7*	R	
	Nelson's Sharp-tailed Sparrow	27	3	3		C	
	Audubon's Shearwater Caribbean	26	5	3		P	
	Yellow Rail	26	4	3		C	
	Wilson's Plover	26	4	3		D	Mostly breeds, irregular in winter in GA, FL
	Bicknell's Thrush	26	5	3		A	
	Swainson's Warbler	26	4	1	15.9	B	
	Seaside Sparrow	26	5	3		D	Atl. and Gulf pops. may represent full species
	Whimbrel	25	5	5		A	
	Buff-breasted Sandpiper	25	3	4		A	
	Black-throated Blue Warbler	25	5	3		A	
	Cerulean Warbler	25	2	3		B	Roanoke River, NC; elsewhere?
	Brown Pelican Southeast	24	5	1		R	
	Marbled Godwit	24	3	4		C	
	Bobolink	24	5	5		A	
	Buff-breasted Sandpiper	24	3	3		A	
	Brant	23	3	5		C	Mostly NC
	King Rail	23	5	4		D	

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
	Sandhill Crane Greater	23	5	3		C	FL, GA
Ib (cont.).	White Ibis	23	5	4[4]		D	
	Stilt Sandpiper	23	4	5		A	
	Solitary Sandpiper	23	5	3		A	
	American Woodcock	23	5	4		D	Mostly winter, some breeding
	Wood Thrush	23	3	5	8.5*	B	
	Northern Parula	23	5	5	23.7*	B	
	Cape May Warbler	23	5	3		A	
	Worm-eating Warbler	23	3	2	14.7	B	
	Connecticut Warbler	23	5	3		A	
	Hooded Warbler	23	4	4	15.0*	B	
	Cory′s Shearwater	22	5	3		P	
	White Ibis	22	4	4	15.7?	D	
	American Black Duck	22	3	5		D	Breeds VA, NC; formerly wintered to GA
	Clapper Rail	22	5	3		D	
	Semipalmated Sandpiper	22	5	5		A	
	Purple Sandpiper	22	4	2		C	
	Short-billed Dowitcher	22	5	5		A	Many winter
	Short-eared Owl	22	3	5		C	
	Black Tern	22	5	5		A	
	Sedge Wren	22	4	2		C	
	Veery	22	5	5		A	
	Yellow-throated Warbler	22	4	3	25.5*	D	Mostly breeding, some winter coastal GA, ne FL
	Prairie Warbler	22	3	4	17.9*	B	
	Bay-breasted Warbler	22	3	3		A	
	Louisiana Waterthrush	22	4	2	8.1	B	
	Field Sparrow	22	5	5		D	Primarily winter
	Le Conte′s Sparrow	22	3	2		C	Mostly GA, SC

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
IIa.	American Bittern	21	4	5		D	Most wintering, local breeding
	Canvasback	21	4	4		C	
	Northern Bobwhite	21	4	5		R	
	Black-bellied Plover	21	4	5		A	Many winter
	Willet	21	5	3		D	
	Ruddy Turnstone	21	5	5		A	Many winter
	Sanderling	21	5	5		A	Many winter
	Western Sandpiper	21	5	3		A	Many winter
	Gull-billed Tern	21	5	4	11.5?	D	
	Least Tern	21	5	5		B	
	Black Skimmer	21	4	5		D	
	Yellow-billed Cuckoo	21	4	5		B	
	Black-throated Green Warbler (all, including Wayne's)	21	5	3		A	
	Grasshopper Sparrow	21	5	5		D	Primarily migration, some breeding and wintering
	Least Bittern	20	5	3		B	
	Lesser Scaup	20	5	5		C	
	Black Scoter	20	4	5		C	
	Northern Harrier	20	4	4		C	
	American Avocet	20	3	3		C	
	Least Sandpiper	20	5	5		A	
	Dunlin	20	4	5		C	
	Sandwich Tern	20	5	3		B	
	Common Ground-Dove	20	3	5	17.6?	R	FL to se SC
	Palm Warbler	20	3	5		C	
	Eastern Towhee	20	5	5	24.5*	D	

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score		Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
			Area Importance	Population Trend			
IIb (cont.).	Red-throated Loon	19	5	4		C	Major concentrations from Back Bay, VA, to Cape Fear, NC, uncommon to rare elsewhere
	Common Loon	19	5	3		C	
	Greater Scaup	19	3	5		C	
	Greater Yellowlegs	19	5	3		A	Some winter
	Pectoral Sandpiper	19	5	3		A	
	Royal Tern	19	5	3	30.6?	D	
	Barn Owl	19	5	3		D	
	Least Flycatcher	19	3	5		A	
	Carolina Chickadee	19	4	4	11.4	R	
	Rusty Blackbird	19	3	5		C	
IIb.	Chuck-will′s-widow	21	5	2	21.7*	B	
	Prothonotary Warbler	21	4	1	34.4*	B	
	Acadian Flycatcher	20	4	1	13.7	B	
	White-eyed Vireo	20	5	2	17.8	D	Primarily breeding
	Yellow-throated Vireo	19	4	1	10.8*	B	
	Pine Warbler	19	5	2	22.2*	D	
	Summer Tanager	19	5	2	18.6*	B	
	Orchard Oriole	19	5	2	12.9*	B	
IIIa.	Kentucky Warbler	19	2	1	2.5	B	
IIIb.	Bald Eagle[5]	17	3	2		D	

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
Regional Interest	Great Blue Heron	13	4	1		D	
	Great Egret	14	4	2		D	
	Snowy Egret	14	4	2		D	
	Little Blue Heron	15	4	2		D	
	Tricolored Heron	18	4	3		D	
	Black-crowned Night-Heron	17	4	5		D	
	Yellow-crowned Night-Heron	18	5	2		D	
	Glossy Ibis	17	4	3		D	
	Canada Goose Atlantic pops.	No Score				C	Mostly NC, SC
	Tundra Swan	20	4	1		C	Mostly ne NC
	Wood Duck	17	3	2		D	
	Mallard	15	5	3		D	Mostly winter
	Blue-winged Teal	17	5	3		A	Some winter
	Northern Pintail	16	3	5		C	
	Redhead	21	3	4		C	
	Ring-necked Duck	19	4	2		C	
	Surf Scoter	20	3	4		C	Mostly NC
	White-winged Scoter	17	3	4		C	Mostly NC
	Mississippi Kite	19	3	1		B	Most common FL to SC; Rare and local NC
	Limpkin	16	2	2		R	Iso. pop. Apalachicola, FL
	Semipalmated Plover	17	5	3		A	Many winter
	Spotted Sandpiper	18	5	3		A	Many winter
	Lesser Yellowlegs	18	5	3		A	Many winter
	Common Tern	16	3	4		D	Of special concern VA, NC
	Forster's Tern	19	2	3		D	
	Whip-poor-will	18	3	1		B	
	Red-headed Woodpecker	19	4	2	4.8	D	Primarily breeding

Priority Entry Criteria[1]	Species	Total PIF Priority Species Score	Score: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
Regional Interest (cont.).	Eastern Wood-Pewee	18	4	2		B	
	Eastern Kingbird	18	4	4		B	
	Loggerhead Shrike	19	3	4		D	Rare now in NC, VA
	Black-and-white Warbler	14	2	1		D	Primarily breeding, rare winter coastal GA, FL
	Yellow-breasted Chat	16	4	1		B	
	Eastern Meadowlark	16	2	5		D	

[1]Entry criteria:

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 ≤ 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.

IIa. Area Priority Species. Species with slightly lower score total 19-21 with PT+AI=8+. Ordered by total score. These are overall moderate priority species.

IIb. Species with High Percent of BBS Population. Species with score total 19-21 with percent of BBS population above a threshold established (based on relative size of physiographic area), not already listed above, ordered by total score (*signifies highest percentage among physiographic area). These are overall moderate priority species.

IIIa. 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.

IIIb. Additional Federally Listed Species. Federal listed species if not already included above. Overall low priority, but appropriate legal obligations (•legal priority species•) to protect through appropriate management and monitoring still apply. Only Bald Eagle meets this criterion in some Southeast physiographic areas.

Other 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.

[3]Highest percent of breeding population recorded in temperate North America indicated by •*•; ? indicates species widespread outside of temperate North America and/or waterbirds poorly sampled by Breeding Bird Survey within physio. area.

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

[5]Species listed as either Federal Endangered or Threatened.

APPENDIX B

SOUTH ATLANTIC COASTAL PLAIN
BIRD ASSEMBLAGES AND HABITAT CONSERVATION PRIORITIES
(from Hunter et al. 2001, Table 4. South Atlantic Coastal Plain Bird-Habitat Associations TB=threats breeding score, TN=threats non-breeding score)

	Total Score	TB	TN	Notes
PRAIRIES, SAVANNAS, AND GRASSLANDS, OPEN COUNTRY				
Extremely High Priority				
Bachman's Sparrow	30	4	4	Primarily breeding
Henslow's Sparrow	29		4	FL, GA, SC(?)
High Priority				
Sandhill Crane (Florida)	27	4	3	FL, GA
Henslow's Sparrow	26	4		NC, VA
Yellow Rail	26		4	
Bobolink	24		4	
Buff-breasted Sandpiper	24		3	Turf farms, airports, pastures
Sandhill Crane (Greater)	23		3	FL, GA
American Woodcock	23	3	3	Primarily winter
Northern Bobwhite	22	3	3	
Short-eared Owl	22		4	
Sedge Wren	22		3	
LeConte's Sparrow	22		4	Most in GA and SC
Moderate Priority				
Grasshopper Sparrow	21	3	3	Primarily migration
Loggerhead Shrike	20	4	3	Rare now in NC, VA
Palm Warbler	20		2	
Northern Harrier	20		3	
Barn Owl	19	3	3	
Local or Regional Interest				
Eastern Kingbird	18	3	2	
Eastern Meadowlark	17	3	3	
Bald Eagle	17	3	3	
EARLY SUCCESSIONAL SHRUB-SCRUB				
Extremely High Priority				
Bewick's Wren (Appalachian)	35		5	Nearing extinction
Painted Bunting (Eastern)	31	4		GA, SC, n. FL, se NC
Bachman's Sparrow	30	4	4	Primarily breeding
Henslow's Sparrow	29		4	FL, GA, SC (?)

Table 4 (cont.).

	Total Score	TB	TN	Notes
EARLY SUCCESSIONAL (CONT.)				
<u>High Priority</u>				
Henslow's Sparrow	26	4		NC, VA
American Woodcock	23	3	3	Primarily winter
Prairie Warbler	23	3		
Northern Bobwhite	22	3	3	
Field Sparrow	22	3	3	Primarily winter
<u>Moderate Priority</u>				
Common Ground-Dove	20	4	3	FL to se SC
Eastern Towhee	20	3	2	
Palm Warbler	20		2	
White-eyed Vireo	19	3	2	Primarily breeding
Orchard Oriole	19	3		
<u>Local or Regional Interest</u>				
Whip-poor-will	18	3		Ground nesting
Yellow-breasted Chat	16	3	2	
SOUTHERN PINE (SAVANNAS, FLATWOODS, SANDHILLS)				
<u>Extremely High Priority</u>				
Red-cockaded Woodpecker	32	5	5	Cavity nesting
Bachman's Sparrow	30	4	4	Primarily breeding, ground nesting
Henslow's Sparrow	29		4	Flatwoods, savannas, ground
American Kestrel (Southeast)	28	4	3	Primarily sandhills, cavity nesting
<u>High Priority</u>				
Brown-headed Nuthatch	27	3	3	Cavity nesting
Prairie Warbler	23	3		Understory
Northern Bobwhite	22	3	3	Ground
<u>Moderate Priority</u>				
Red-headed Woodpecker	21	3	3	Primarily breeding, cavity nesting
Chuck-will's-widow	21	3		Ground, open understory
Pine Warbler	19	2	2	

Table 4 (cont.).

	Total Score	TB	TN	Notes
CONIFER-HARDWOOD ''GENERALISTS'' (INCLUDING SPECIES USING BOTH PINE DOMINATED AND HARDWOOD DOMINATED STANDS)				
Extremely High Priority				
Black-throated Green Warbler	30	4		VA, NC, ne SC; canopy, often non-alluvial wetlands
High Priority				
Wood Thrush	24	3		Midstory nesting, ground foraging
Northern Parula	23	3		Canopy
Hooded Warbler	23	3		Understory
Worm-eating Warbler	23	3		Ground nesting
Yellow-throated Warbler	22	3		Mostly breeding, canopy
Moderate Priority				
Yellow-billed Cuckoo	21	3		Upper midstory
Carolina Chickadee	20	2	1	Cavity nesting
''Watchlist'' Species				
Kentucky Warbler	20	3		Ground nesting
Local or Regional Interest				
Acadian Flycatcher	20	3		Midstory
Summer Tanager	19	3		Canopy
Yellow-throated Vireo	19	3		Canopy
Eastern Wood-Pewee	18	3		Midstory
Black-and-white Warbler	14	2	2	Primarily breeding, ground nesting
FORESTED WETLANDS (ALLUVIAL AND NON-ALLUVIAL, EXCEPT POND PINE [TALL] POCOSIN)				
Extremely High Priority				
Swallow-tailed Kite (Southeast)	28	4		Nests in ''super-emergent" trees
Swainson's Warbler	28	4		Understory, forages ground
High Priority				
Short-tailed Hawk (Florida)	27	4		St. Marks to Lower Suwannee, FL
Cerulean Warbler	25	4		Roanoke River, NC
American Woodcock	23	3	3	Understory, forages ground
American Black Duck	22	4	3	Breeds VA, NC; formerly wintered to GA

Table 4 (cont.).

	Total Score	TB	TN	Notes
FORESTED WETLANDS (CONT.)				
<u>Moderate Priority</u>				
Prothonotary Warbler	21	3		Cavity nesting
Louisiana Waterthrush	21	3		Streamside
Rusty Blackbird	19		3	Roosts in trees, forages ground
<u>Local or Regional Interest</u>				
Wood Duck	19	3	3	Cavity nesting
Mississippi Kite	19	3		Edge nesting
Bald Eagle[1]	17	3	3	
Limpkin (Florida)	17	3	3	Apalachicola, Suwannee
POND PINE (TALL) POCOSIN				
<u>Extremely High Priority</u>				
Red-cockaded Woodpecker	32	5	5	Cavity nesting
Swainson's Warbler	28	4		Understory, forages ground
<u>High Priority</u>				
Brown-headed Nuthatch	27	3	3	Cavity nesting
American Woodcock	23	3	3	Understory, forages ground
Prairie Warbler	23	3		Understory
Northern Bobwhite	22	3	3	Ground
Prothonotary Warbler	22	3		Cavity nesting
<u>Moderate Priority</u>				
Red-headed Woodpecker	21	3	3	Primarily breeding, cavity nesting
Rusty Blackbird	19		3	Roosts in trees, forages ground
Chuck-will's-widow	21	3		Ground, open understory
Louisiana Waterthrush	21	3		Streamside
Pine Warbler	19	2	2	
<u>Local or Regional Interest</u>				
Wood Duck	19	3	3	Cavity nesting
MARITIME WOODLANDS (many of the same species under pine-hardwood, but also transient landbirds and 2 breeding species)				
<u>Extremely High Priority</u>				
Kirtland's Warbler	35		5	
Painted Bunting (Eastern)	31	4		GA, SC, ne FL, se NC; edges

Table 4 (cont.).

	Total Score	TB	TN	Notes
MARITIME WOODLANDS (CONT.)				
<u>High Priority</u>				
Bicknell's Thrush	26		4	
Black-throated Blue Warbler	25		4	
Cape May Warbler	23		3	
Connecticut Warbler	23		2	
Veery	22		3	
Bay-breasted Warbler	22		3	
<u>Moderate Priority</u>				
Black-throated Green Warbler (All, including Wayne's)	21		3	
Common Ground-Dove	20	4	3	Ground nesting
Least Flycatcher	19		2	
COLONIAL TREE AND/OR BRUSH NESTING WATERBIRDS (most species feed in emergent wetlands, open water, or mudflats)				
<u>Extremely High Priority</u>				
Wood Stork (Southeast)	29	4	3	FL, GA, se SC
<u>High Priority</u>				
Brown Pelican (Southeast	24	4	3	Coastal
White Ibis	22	4	2	
<u>Local or Regional Interest</u>				
Tricolored Heron	18	2	2	
Yellow-crowned Night-Heron	18	3	2	
Black-crowned Night-Heron	17	2	2	
Little Blue Heron	15	3	2	
Great Egret	14	2	2	
Snowy Egret	14	2	2	
Great Blue Heron	13	2	2	
COLONIAL GROUND NESTING WATERBIRDS (most species feeding in open water or emergent wetlands)				
<u>Moderate Priority</u>				
Black Skimmer	21	3	2	Beaches, dunes, rooftops
Gull-billed Tern	21	3		Marshes, protected islets
Least Tern	21	4		Beaches, dunes, rooftops
Sandwich Tern	20	3		Protected islets
Royal Tern	19	3	2	Protected islets

Table 4 (cont.).

	Total Score	TB	TN	Notes
COLONIAL GROUND NESTING WATERBIRDS (CONT.)				
<u>Local or Regional Interest</u>				
Forster's Tern	19	3	2	Marshes, NC
Glossy Ibis	17	3	2	Marshes
Common Tern	16	3	2	Protected islets, NC
EMERGENT WETLANDS				
<u>Extremely High Priority</u>				
Saltmarsh Sharp-tailed Sparrow	30		4	Coastal
<u>High Priority</u>				
Black Rail	27	4	4	
Nelson's Sharp-tailed Sparrow	27		4	Coastal
Yellow Rail	26		4	
Seaside Sparrow	26	3	3	Coastal
King Rail	23	3	3	
American Black Duck	22	4	3	Mostly NC, formerly to GA
Clapper Rail	22	3	3	Coastal
<u>Moderate Priority</u>				
American Bittern	21	3	3	Most wintering, local breeding
Least Bittern	20	3		
Northern Harrier	20		3	
<u>Local or Regional Interest</u>				
Peregrine Falcon	19		3	
Bald Eagle	17	3	3	
BEACHFRONT				
<u>Extremely High Priority</u>				
Red Knot (South Atlantic)	32		4	Mostly GA, FL
Snowy Plover (Southeast Gulf)	31	5	4	St. Joseph Peninsula to Dog Island
Piping Plover	28	4	4	Mostly winter, local breeding NC (SC?)
American Oystercatcher (Eastern North America)	28	4	4	
<u>High Priority</u>				
Wilson's Plover	26	4	4	
Purple Sandpiper	22		3	Rocky coastal areas

Table 4 (cont.).

	Total Score	TB	TN	Notes
BEACHFRONT (CONT.)				
Moderate Priority				
Willet	21	3	2	
Black-bellied Plover	21		3	Many overwinter
Sanderling	21		4	Many overwinter
Ruddy Turnstone	21		4	Many overwinter
Local or Regional Interest				
Peregrine Falcon	19		3	Some overwinter
ESTUARIES, MUDFLATS, AND IMPOUNDMENTS				
High Priority				
Whimbrel	25		4	Some overwinter
Marbled Godwit	24		4	
Stilt Sandpiper	23		3	Mostly inland
Solitary Sandpiper	23		2	Mostly inland
Semipalmated Sandpiper	22		3	
Short-billed Dowitcher	22		3	Many winter
Buff-breasted Sandpiper	25		4	Mostly inland
Black Tern	22		3	
Moderate Priority				
Western Sandpiper	21		4	Many winter
American Avocet	20		4	
Dunlin	20		3	
Least Sandpiper	20		2	Many winter
Greater Yellowlegs	19		2	Some winter
Pectoral Sandpiper	19		2	Mostly inland
High Percent of Continental Population				
Semipalmated Plover	17		2	Many winter
Spotted Sandpiper	18		2	Many winter
Lesser Yellowlegs	18		2	Many winter
OPEN WATER				
Extremely High Priority				
Black-capped Petrel	32		3	Pelagic
Bermuda Petrel	32		5	Pelagic
Roseate Tern (North American)	30		3	Pelagic

Table 4 (cont.).

	Total Score	TB	TN	Notes
OPEN WATER (CONT.)				
<u>High Priority</u>				
Brant	23		3	Mostly NC
Audubon′s Shearwater (Caribbean)	26		4	Pelagic
Cory′s Shearwater	22		3	Pelagic
American Black Duck	22	4	3	Breeds VA, NC; formerly wintered to GA
<u>Moderate Priority</u>				
Canvasback	21		2	
Lesser Scaup	20		3	
Black Scoter	20		3	
Greater Scaup	19		3	
Common Loon	19		3	
Red-throated Loon	19		3	Major concentrations from Back Bay, VA, to Cape Fear, NC, uncommon to rare elsewhere
<u>Local or Regional Interest</u>				
Tundra Swan	20		3	NC (especially, Mattamuskeet NWR)
Wood Duck	19	3	3	
Mallard	15	2	2	Mostly winter
Blue-winged Teal	17		2	Some overwinter
Northern Pintail	16		2	
Redhead	21		3	
Rin-necked Duck	19		3	
Surf Scoter	20		3	
White-winged Scoter	17		3	
Canada Goose (Atlantic pop.)	???			

APPENDIX C

South Carolina Rare, Threatened & Endangered Bird Inventory (June 9th, 2003)

SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	LEGAL STATUS
ACCIPITER COOPERII	COOPER'S HAWK	G5	S?	SC
AIMOPHILA AESTIVALIS	BACHMAN'S SPARROW	G3	S3	SC
CHARADRIUS WILSONIA	WILSON'S PLOVER	G5	S3?	ST
EGRETTA CAERULEA	LITTLE BLUE HERON	G5	S?	SC
ELANOIDES FORFICATUS	AMERICAN SWALLOW-TAILED KITE	G5	S2	SE
FALCO PEREGRINUS ANATUM	AMERICAN PEREGRINE FALCON	G4T3	S?	DM/SE
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S2	FT/SE
ICTINIA MISSISSIPPIENSIS	MISSISSIPPI KITE	G5	S4	SC
LANIUS LUDOVICIANUS	LOGGERHEAD SHRIKE	G4	S3	SC
LIMNOTHLYPIS SWAINSONII	SWAINSON'S WARBLER	G4	S4	SC
MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER	G5	S?	SC
MYCTERIA AMERICANA	WOOD STORK	G4	S1S2	FE/SE
PELECANUS OCCIDENTALIS	BROWN PELICAN	G4	S1S2	SC
PICOIDES BOREALIS	RED-COCKADED WOODPECKER	G3	S2	FE/SE
PLEGADIS FALCINELLUS	GLOSSY IBIS	G5	S?	SC
STERNA ANTILLARUM	LEAST TERN	G4	S3	ST
THRYOMANES BEWICKII	BEWICK'S WREN	G5	S1?	SE
TYTO ALBA	BARN-OWL	G5	S4	SC

GRANK - the Nature Conservancy rating of degree of endangerment world-wide:

G1 - Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction
G2 - Imperiled globally because of rarity or factor(s) making it vulnerable
G3 - Either very rare throughout its range or found locally in a restricted range, or having factors making it vulnerable
G4 - Apparently secure globally, though it may be rare in parts of its range
G5 - Demonstrably secure globally, though it may be rare in parts of its range
GH -Of historical occurrence throughout its range, with possibility of rediscovery
GX -Extinct throughout its range
G? -Status unknown

SRANK - the Nature Conservancy rating of degree of endangerment in South Carolina:

S1 - Critically imperiled state-wide because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation
S2 - Imperiled state-wide because of rarity or factor(s) making it vulnerable
S3 - Rare or uncommon in state
S4 - Apparently secure in state
S5 - Demonstrably secure in state
SA - Accidental in state (usually birds or butterflies that are far outside normal range)
SE - Exotic established in state
SH - Of historical occurrence in state, with possibility of rediscovery
SN - Regularly occurring in state, but in a migratory, non-breeding form
SR - Reported in state, but without good documentation
SX - Extirpated from state
S? - Status unknown

LEGAL STATUS – Federal

FE - Federal Endangered
FT - Federal Threatened
PE - Proposed for Federal listing as Endangered
PT - Proposed for Federal listing as Threatened
C - Candidate for Federal listing
NC - Of Concern, National (unofficial - plants only)
RC - Of Concern, Regional (unofficial - plants only)
SE - State Endangered (official state list - animals only)
ST - State Threatened (official state list - animals only)
SC - Of Concern, State
SX - State Extirpated

APPENDIX D

USFWS SPECIES OF CONSERVATION CONCERN (2002) in the SOUTHEAST COASTAL PLAIN (BCR 27)

Black-capped Petrel
Audubon's Shearwater
Little Blue Heron
Reddish Egret
Swallow-tailed Kite
Short-tailed Hawk
American Kestrel (resident *paulus* ssp. only)
Peregrine Falcon
Yellow Rail
Black Rail
Limpkin
Snowy Plover
Wilson's Plover
American Oystercatcher
Whimbrel
Marbled Godwit
Red Knot
Semipalmated Sandpiper
Stilt Sandpiper
Buff-breasted Sandpiper
Short-billed Dowitcher
Gull-billed Tern
Common Tern
Least Tern (except where Endangered)
Black Tern
Black Skimmer
Common Ground-Dove
Burrowing Owl
Chuck-will's-widow
Brown-headed Nuthatch
Bewick's Wren
Wood Thrush
Northern Parula
Black-throated Green Warbler
Prairie Warbler
Cerulean Warbler
Swainson's Warbler
Bachman's Sparrow
Henslow's Sparrow
Le Conte's Sparrow
Nelson's Sharp-tailed Sparrow
Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
Painted Bunting
Orchard Oriole