FINAL DRAFT

Avian Conservation Implementation Plan
Cape Lookout National Seashore

National Park Service
Southeast Region

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In cooperation with

CALO 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 Cape Lookout National Seashore (CALO) to help identify and prioritize bird conservation opportunities in the park, 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 most of the parks in the Appalachians are located in and are primarily upland forested landscapes, 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 CALO will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with CALO staff 2) CALO 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 CALO resource management staff and managers, Southeast Coast Inventory and Monitoring (I&M) Network staff, and bird conservation partners and approved by CALO 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.

CALO is not obligated to undertake any of the proposed actions in this plan. The plan is provided to offer guidance to CALO to voluntarily support important park, regional, and perhaps national and international bird conservation projects for which CALO is a primary participant in the proposed actions.

Background

During the past thirty years, monitoring programs across North America have documented declines of certain bird species populations and their habitats, often severe

(Sauer et al. 2000). The decline has caused great concern among scientists, biologists, biodiversity proponents, ecologists, land managers, etc., and the bird conservation community in general. Birds are recognized as critical components of local and global genetic, species, and population diversity, providing important and often critical ecological, social, economic, and cultural values. Their overall decline has stimulated a worldwide focus on conservation efforts, and North American interest in bird conservation is rapidly becoming a focus of government, non-government, industry, and private interests and expenditures.

Many state, federal, and non-governmental wildlife agencies and non-government organizations (NGO's) have recognized this alarming bird decline trend and have joined forces in several extensive partnerships to address the conservation needs of various bird groups and their habitats. The primary initiatives are:

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

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

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

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

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

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

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

This ACIP fulfills one aspect of the plan outlined above and serves as a basis for future bird conservation actions in CALO and with adjacent partners or landowners.

Concurrently, the development of a Memorandum of Understanding (MOU) between the FWS and the NPS to implement Presidential Executive Order (EO) 13186, Responsibilities of Federal Agencies To Protect Migratory Birds (US Government 2000), calls for integration of programs and recommendations of existing bird conservation efforts into park planning and operations. Complementing each other, the MOU and the Southeastern Bird Conservation Initiative will advance bird conservation in the Southeast Region of the NPS beyond current regional NPS efforts.

Role of NPS in Avian Conservation

The interagency agreement that facilitates this partnership supports both FWS and NPS management policies. Specifically for the NPS, the agreement supports and advances the Strategy for Collaboration, a visionary document developed and signed by the Southeast Natural Resource Leaders Advisory Group (SENRLAG 2000), a consortium of 13 land and resource management agencies in the Southeastern United States whose vision is to encourage and support cooperation in planning and managing the region's natural resources. Furthermore, the agreement is aligned with and implements

a variety of NPS Management 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 33.6 million ha (83 million acres) of land and water with associated biotic resources (www.nps.gov). The 64 units in the Southeast Region of the NPS represent 16% of the total number of park units in the national park system and cover approximately 5% of the total land base in the entire system. Park units in the Southeast Region include national seashores (Canaveral National Seashore, Cape Lookout National Seashore), national parks (Great Smoky Mountains National Park, Everglades National Park), national recreation areas (Big South Fork National River and Recreation Area), national preserves (Big Cypress National Preserve), national battlefields (Cowpens National Battlefield, Fort Donelson National Battlefield), national monuments (Congaree Swamp National Monument, Ocmulgee National Monument), and others such as the Blue Ridge Parkway, Obed Wild and Scenic River, and Timicuan Ecological and Historic Preserve.

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

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

all lead to the conclusion that the NPS is an extremely valuable partner and contributor to bird conservation in the region.

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

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

Park Flight is a NPS international partnership initiative that directs funding toward a variety of NPS programs that involve conservation of neotropical migratory birds whose life history range covers a US national park and a Latin American protected area. A relatively new program, Park Flight offers parks the opportunity to partner with a Latin American national park or protected area to cooperate on developing bird conservation and education projects (NPS 2002).

Recent increases in NPS base funded programs such as inventory and monitoring, exotic species management, habitat restoration, and fire management all indicate that national park managers recognize that park lands are increasingly subject to a variety of threats and conditions that must be improved to provide the quality of national park experience articulated in the NPS Organic Act (1916). Programmatic funding in these areas will increase the ability of national parks to provide quality habitat and conditions for increased wildlife conservation, including birds. Furthermore, private interests and non-profit conservation organizations have initiated programs, including grant programs, to provide much needed funding to national parks to meet backlogs of identified yet unfunded needs.

Park Description

Largely undeveloped and accessible only by boat, Cape Lookout National Seashore is made up of four barrier islands covering 83 km (56 miles) of the central coast of North

Carolina. Most of the Seashore consists of North and South Core Banks, a 71km (44 mile)-long barrier system oriented in a southwest to northeast direction and separated by the infrequently maintained New Drum Inlet. Cape Lookout extends into the Atlantic Ocean from its southern end, and abandoned Portsmouth Village is located at its northern end. The other barrier system within the Seashore, Shackleford Banks, extends westward from Cape Lookout and, while smaller (13 km long), is considered ecologically more diverse than Core Banks.

Core Banks is a long, narrow expanse of low dunes, maritime grasslands, and extensive salt marshes. Shrub thickets border the grassland in many places, and a low maritime forest occupies small areas of higher ground, such as Guthries Hammock. The islands are generally about 1 to 2 meters in elevation and 1 to 2 kilometers in width. For the most part, they are open and treeless. Windblown salt spray is carried across the entire barrier.

The wide berm and low, scattered dunes of Core Banks are characteristic of overwash-influenced barrier systems that have not been altered by man-made structures. When storms occur, the dunes here offer little resistance to flooding. Another process that has shaped these islands is the opening and closing of inlets. Dramatic changes in the positions of inlets may take place in the period of a few years or even months. Many of the creeks in the marshes along Core Banks have probably been Inlets in the past.

While the physiography of Core Banks is more or less uniform along its length, the areas of Portsmouth Village and Cape Lookout are unique. Instead of exhibiting the typical zonation of a wide berm, low dunes, grasslands and shrub thickets, and salt marsh, the northern end of Portsmouth Island is characterized by vast tidal sand flats (averaging 1 km in width) located between the berm and the dunes of a series of marsh-fringed islands. At triangular Cape Lookout, continuous dunes similar to those on Shackleford Banks can be found on the southwest side, with several small freshwater marshes present in depressions between the dunes. With high dunes significantly reducing overwash, thickets have further stabilized the flats of the Cape's interior. A long spit extends from the western tip of Cape Lookout, where a jetty built in the early 1900s has encouraged accretion in this direction.

The dunes at the western end of Shackleford Banks are 10 to 13 meters (34 to 44 ft) above sea level and contain the highest elevations on Shackleford. The presence of high dunes on the western section may be due to the island's east-west orientation. Because the island faces the prevailing southwest winds rather than being parallel to them, sand is continually blown from the accreting beach into the dunes, where it is trapped and stabilized by the dune grass, *Uniola*. In the lee of this wall of rolling dune ridges, there is an impressive maritime forest, as well as several fresh and brackish marshes. On the side of the island that faces Back Sound, the beach is narrow and, in some places, the scarped bank is eroding away. Unlike most of the Outer Banks, the inner shore here is not fringed with salt marsh.

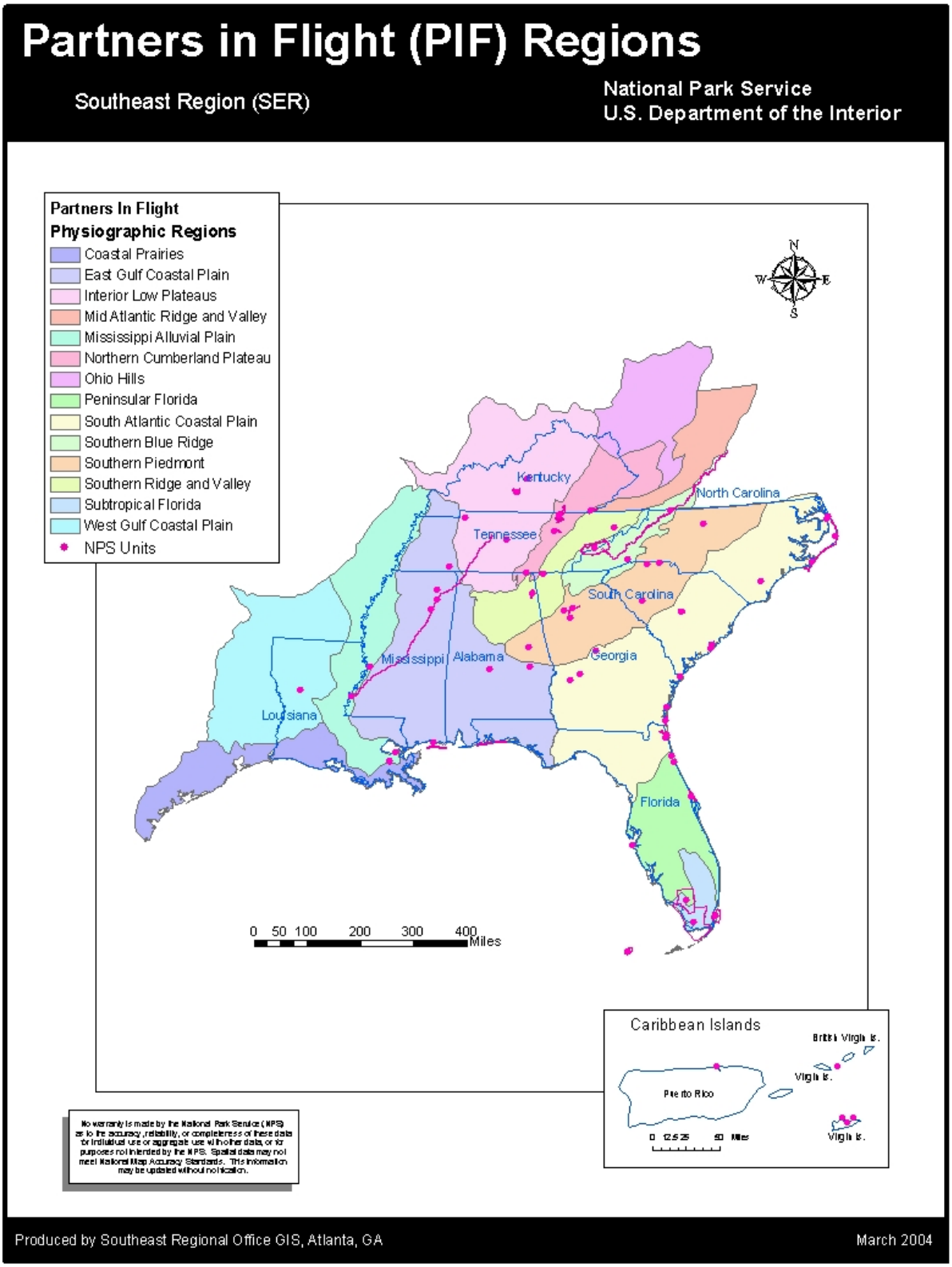
The western end of Shackleford is an accreting sandspit. Young dunes with *Spartina patens* and *Fimbristylis castanea* are forming along the edge of the curving berm, while areas of salt marsh are developing on the sound side of the spit. The eastern two-thirds of Shackleford Banks consists of low dunes, grassland, and salt marsh. In contrast to the western third, it is influenced by overwash. This part of the Island is characterized by dunes of less than 3 meters (10 ft) in height, open grassland (on overwash terraces), mesic meadows, and salt marsh. Shrub thickets occur in a few areas.

Specific issues of concern to Cape Lookout National Seashore include off-road vehicle use and associated impacts to dunes, threatened and endangered species, commercial fishing, military overflights, and non-native species.

Avian Resources of South Atlantic Coastal Plain

The South Atlantic Coastal Plain, consisting of about 10,121,457 million ha, includes parts of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida. This physiographic area is one of four coastal plain divisions recognized by Partners in Flight (see PIF and NPS maps below). 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 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.


Partners in Flight (PIF) Regions
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Partners In Flight
Physiographic Regions
Coastal Prairies
East Gulf Coastal Plain
Interior Low Plateaus
Mid Atlantic Ridge and Valley
Mississippi Alluvial Plain
Northern Cumberland Plateau
Ohio Hills
Peninsular Florida
South Atlantic Coastal Plain
Southern Blue Ridge
Southern Piedmont
Southern Ridge and Valley
Subtropical Florida
West Gulf Coastal Plain
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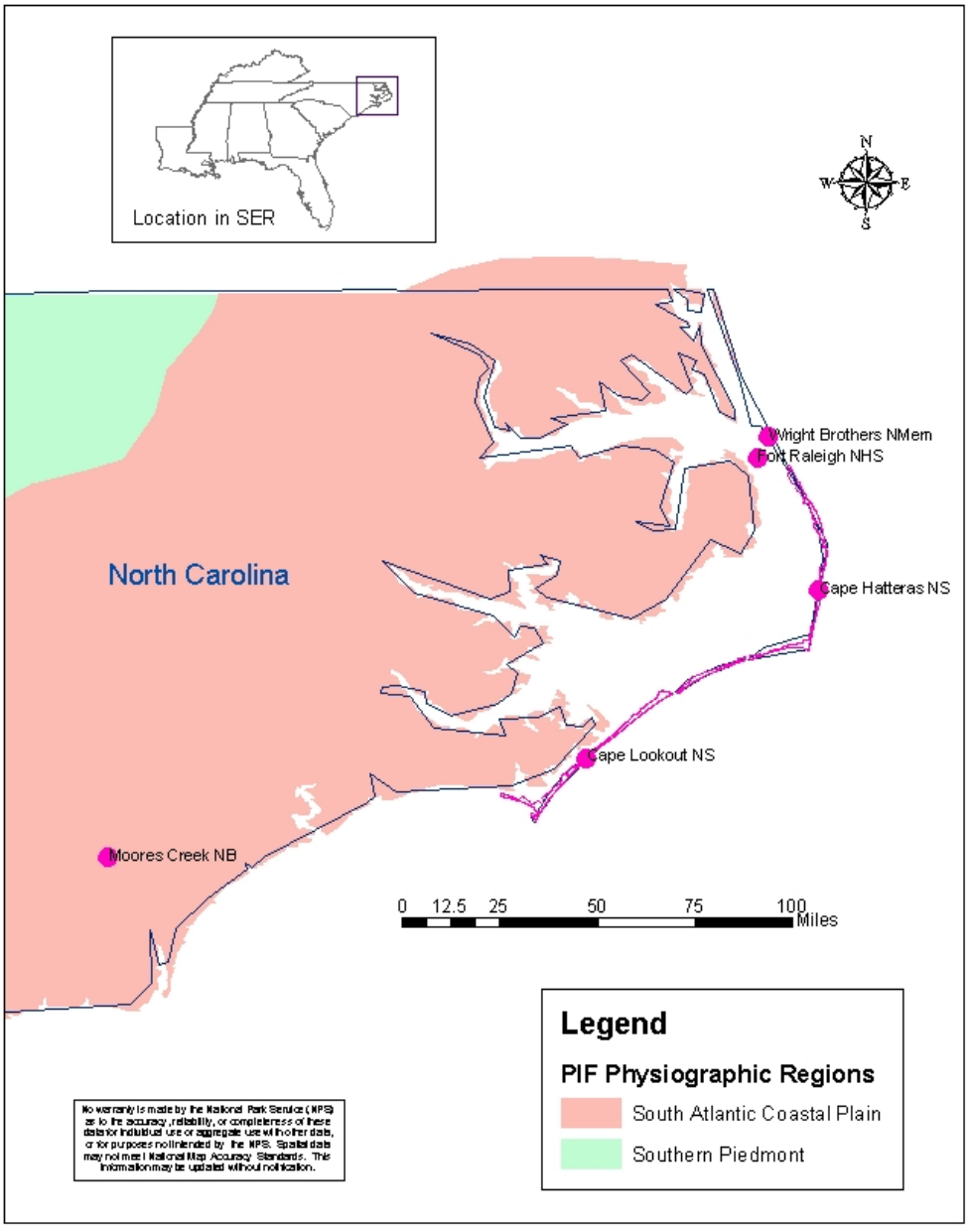
March 2004

Partners in Flight (PIF) Regions and NPS Locations

Southeast Region

National Park Service
U.S. Department of the Interior



Produced by Southeast Regional Office GIS, Atlanta, GA

February 2004

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 (300,000 acres) acres of annuals, and 243,000 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 CALO

Avian Biodiversity: CALO, like Cape Hatteras National Seashore is known worldwide for its rich avian fauna. The Federally threatened Atlantic Coast Piping Plover breeds here, as well as colonies of nesting terns and Black Skimmers and waders (herons and

egrets), dramatic shorebird and passerine migrations occur, and rare or vagrants species such as Gray Kingbird, Reddish Egret, and Sooty Tern sometimes occur. Indeed CALO was recognized as a Globally Important Bird Area (IBA) by the American Bird Conservancy in 2001 for its wide variety of birds and the value this barrier island park has for protection of these birds. CALO has an avian inventory and a recently updated checklist of birds that is available for the public, boasting over 270 species that have been seen along this string of barrier islands.

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

Inventory: Several high priority PIF species for the South Atlantic Coastal Plain occur in CALO (see below and Appendixes A-C). Prominent among these species are: Red Knot, Saltmarsh Sharp-tailed Sparrow, Piping Plover, Gull-billed Tern, Common Tern, Least Tern, Black Skimmer, Wilson's Plover, American Oystercatcher, Black Rail, Brown-headed Nuthatch, Nelson's Sharp-tailed Sparrow, Wilson's Plover, Seaside Sparrow, White Ibis, American Black Duck, Clapper Rail, Short-eared Owl, and many migrant passerines and shorebirds.

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

- Colonial Waterbirds are surveyed every third year in cooperation with the North Carolina Wildlife Resources Commission; colony surveys are conducted and nests and eggs counted of all nesting species
- Piping Plover courtship and nesting are conducted every year from first arrival to post fledging
- American Oystercatcher nesting surveys and monitoring are conducted annually
- Portions of two Christmas Bird Counts are conducted within the park
- Randomized recreational birding

Research: Scientific research is permitted within the park. Currently, American Oystercatcher productivity and disturbance studies are being conducted at CALO. This study is also being conducted in part at Cape Hatteras National Seashore and Cumberland Island National Seashore.

Threatened and Endangered Species: One Federally listed threatened species breeds, migrates, and winters in CALO, the Piping Plover. Furthermore, CALO is an area where Critical Habitat has been established for the wintering Great Lakes endangered population of the Piping Plover. Extirpated from the eastern US in the mid-1950's, the American Peregrine Falcon (now de-listed) occurs within CALO during migration and in winter. Other listed species such as Bald Eagle and Roseate Tern

occur as migrants in the park and are generally transient. State listed as threatened gull-billed terns also feed and occasionally nest in the park.

Several **North Carolina Watch List** species occur in CALO and include Osprey, Great Blue Heron, Gull-billed Tern, Common Tern, Least Tern, Black Skimmer, Wilson' Plover, American Oystercatcher, Black Rail, Virginia Rail, Willet, Short-billed Dowitcher, Saltmarsh Sharp-tailed Sparrow, American Black Duck, Clapper Rail, Seaside Sparrow, and Red Knot.

Outreach: CALO does not have an active educational/outreach/interpretive program related to birds. The only outreach the park has is an IBA exhibit at the lighthouse keeper's quarters and a new checklist.

Park Identified Needs for Avian Conservation

CALO has identified several projects that will enhance protection of avian communities at the seashore.

Inventory:

- The park desires to have additional waterfowl, secretive marshbird, and maritime forest bird (migration, breeding, and winter) inventory to better understand the bird community in the seashore and develop appropriate management strategies to assure long term protection of these areas

Monitoring:

- The park desires to increase its capability to monitor several key bird communities in additions to ongoing monitoring. These efforts would include monitoring wintering Piping Plover, conducting more consistent shorebird monitoring, conducting migration monitoring, Painted Bunting monitoring, Wilson's Plover monitoring, waterfowl monitoring, and raptor migration

Threat Management:

- An Off-road Vehicle Management Plan is needed to manage off-road vehicle (ORV) and associated disturbances to nesting, foraging, and resting birds in the seashore

- Additional park law enforcement and protection staff is needed to manage visitors and their activities near bird nesting areas. Disturbances associated with visitors, their vehicles and their unleashed pets are documented to have negative impacts to birds on the seashore (Cordes pers. comm., 2003)

- A Predator Management Plan is needed to guide the park on managing predators

Outreach:

- The park desires to strengthen it's outreach and visitor education programs since many threats to birds are associated with visitors and their uses of the seashore

Coordination with Regional Conservation Initiatives

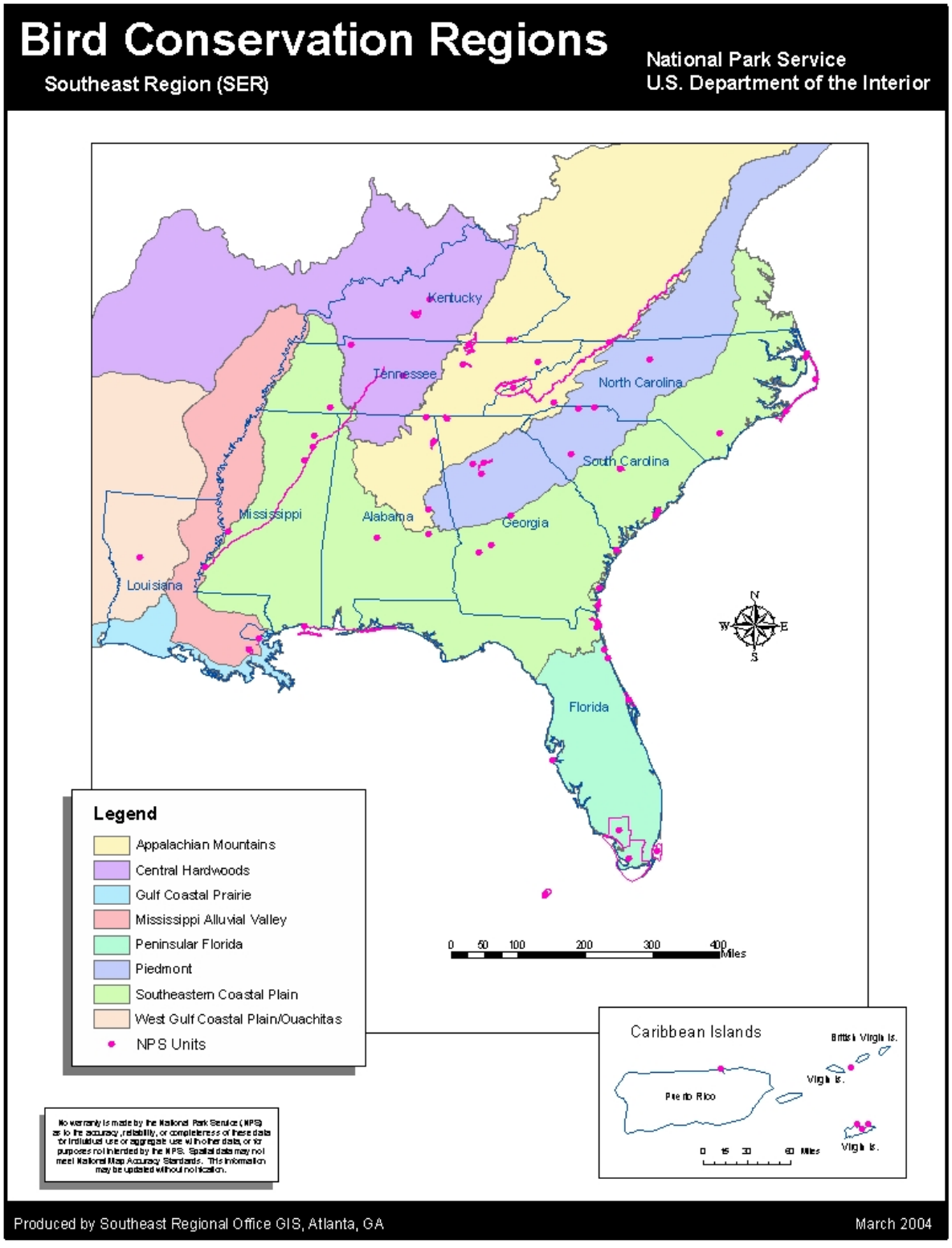
North American Bird Conservation Initiative: NABCI bird conservation planning units, referred to as Bird Conservation Regions (BCR), are often larger than other planning units associated with other plans, such as Partners In Flight. For example, CALO is within the NABCI Southeastern Coastal Plain BCR which extends from Virginia south to northern Florida and west to Louisiana north to western Kentucky, following the Atlantic and Gulf coastal plains (see BCR map below) and encompasses several PIF physiographic areas (the planning unit for PIF)(compare to PIF and NPS maps).

Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. Currently, the Southeastern Coastal Plain 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 CALO with implementation of aspects of this ACIP.

North American Waterfowl Management Plan (NAWMP): The NAWMP (http://northamerican.fws.gov/NAWMP/nawmphp.htm) is completed and has been revised several times, incorporating updated goals and strategies based on new information. This plan is one of the most successful bird conservation delivery programs in the United States, being monetarily supported by the North American Wetlands Conservation Act (NAWCA) and focused primarily on wetland and waterfowl protection, but increasingly these funds have also been utilized for upland non-game species protection. CALO has several needs that could be funded by NAWCA.

Partners In Flight: Goals and strategies for the South Atlantic Coastal Plain (SACP) can be found in the draft bird conservation plan, previously submitted to the park. The current plan identifies priority bird and habitat conservation goals that must be implemented in order to achieve bird conservation success in this region. CALO being a barrier island park with all major bird groups represented will to utilize all the bird conservation initiative plans. Since shorebird and colonial waterbird plans have not been developed on a regional basis, and the SACP plan covers these species, many of the recommendations in this plan will be derived from the SACP priorities.

Similar to NABCI BCR's, PIF physiographic areas often do not have designated coordinators. However, state level non-game agencies with investment in PIF will establish key personnel to develop partnerships among cooperators in the physiographic area. The State of North Carolina does have a PIF coordinator and can


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
No warranty is made by the National Park Service (NPS) as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the NPS. Spatial data may not meet National Map Accuracy Standards. This information may be updated without notification.
Produced by Southeast Regional Office GIS, Atlanta, GA
March 2004

be instrumental in assisting CALO to implement recommendations identified in this ACIP and projects important to bird conservation relative to North Carolina's role in implementation of the SACP 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. The developing regional shorebird plan will be important for CALO since many of CALO's avian resources are related to it's shoreline and shorebird use, primarily during migration and winter.

Waterbird Conservation for the Americas (WCA): The WCA plan has been completed and is available on the World Wide Web or can be ordered from the US Fish and Wildlife Service National Conservation Training Center (http://www.waterbirdconservation.org/). A regional step down plan is in preparation by FWS personnel and should be available in 2003. The developing regional colonial waterbird plan will be important for CALO since CALO is a primary nesting site for colonial waterbirds in North Carolina, and the east coast.

Integration of NABCI Goals and Objectives into Park Planning and Operations

NABCI Implementation Recommendations

To successfully achieve park 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, participation in these efforts at some level could become mandatory with the completion of an MOU with the FWS regarding EO 13186, (US Government 2000). The MOU will establish a formal agreement between the FWS and the NPS to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

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

High priority projects are identified in **bold** print. Priorities that the park is encouraged to seek NPS funding for are marked with and asterisk (*****). These projects are those that are critical to the stabilization or improvement of a bird population in the planning region.

Inventory: The park has inventoried its bird fauna exceptionally well. Nonetheless, additional inventory is needed to fully understand the status of birds in the park so that appropriate conservation actions can be implemented. Information regarding the status of high priority species (as identified in the South Atlantic Coastal Plain bird conservation plan and the North Carolina Watch List) is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna and habitats.

Additional surveys are needed

- **in salt marshes where several high priority species occur in both in summer and winter but data is lacking (secretive marshbirds)**
- **in maritime forests on Shackleford Banks and Guthrie's Hammock for neotropical breeding birds and migrants and residents breeders**
- **in Core Sound for waterfowl**
- **on beaches and spits for wintering gulls**

Additionally, CALO is encouraged to:

- **partner with Cape Hatteras National Seashore, Cedar Island National Wildlife Refuge, and Swanquarter National Wildlife Refuge and State of North Carolina to coordinate area inventory efforts**

- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000).**

Monitoring: The park has an active bird monitoring program, and has documented that many high priority species occur in the park. Efforts should be made to continue existing monitoring programs, striving to conform to established NPS or FWS survey protocols. The park is encouraged to consider establishing permanent monitoring stations in main habitat types to collect baseline data on the distribution and relative abundances of priority species. This information will be useful for documented potential changes in park avifauna resulting from habitat change or management activities. Links to literature detailing inventory and monitoring methodologies for various avian groups (e.g. songbirds, shorebirds, raptors, etc.) can be found at: http://biology.dbs.umt.edu/landbird/mbcp/groups.htm. Coordination with the Atlantic Coast Joint Venture Coordinator and North Carolina Wildlife Resources Commission staff is needed to further identify and implement high priority projects on park lands and to ensure that park efforts contribute to park or regional bird conservation rather than undertake an action or actions that are not needed or are better conducted in other areas. Specific recommendations are to:

- **continue to conduct existing colonial bird and nest monitoring programs and enter data into the appropriate database (NPSpecies, North Carolina Waterbird database, eBird (see below), or National Point Count Database (USGS 2001) (http://www.mp2-pwrc.usgs.gov/point/)**

- **continue to monitor Piping Plover and American Oystercatcher reproductivity (courtship, nesting, and fledging)**

- **continue and institutionalize the migration and wintering monitoring programs for Piping Plover (http://midwest.fws.gov/endangered/pipingplover/recplan-fnl.html)**

- **cooperate with North Carolina Wildlife Resources Commission to conduct American Oystercatcher and Wilson's Plover surveys in 2004**

- **consider establishing these surveys on a three year basis as with the colonial waterbird surveys**

- **conduct reproductive success surveys for North Carolina colonial waterbird species of concern (Gull-billed Tern, Common Tern, Black Skimmer, and Least Tern)**

- **consider monitoring Wilson's Plover nesting**

- **establish appropriate forest point count monitoring or banding programs following inventory on Shackleford Banks and Guthrie's Hammock**

- **improve capability to monitor shorebirds during migration and winter using International Shorebird Survey protocol and enter data into South Atlantic Migratory Bird Initiative (SAMBI) website (http://samigbird.fws.gov/)**

- **hire additional staff to support needed monitoring programs**

- **continue to support Christmas Bird Counts and work with count circle coordinators to extract seashore data from entire circle area, if different**

- **monitor winter population of Laridae (gulls) and other beach and shoreline birds**

- **establish weekly beach patrols to identify and assess beached bird and dead birds, primarily seabirds and waterfowl on beach**

- **cooperate with Cedar Island National Wildlife Refuge to conduct waterfowl surveys on Core Sound during routine mid-winter waterfowl surveys and at other key times (pre- and post-hunting season)**

- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000, Hunter 2000).**

- **partner with Cape Hatteras National Seashore, Cedar Island National Wildlife Refuge, and Swanquarter National Wildlife Refuge 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. In the coastal environment of the Outer Banks, excavation of drainage ditches, a constructed dune system, housing and commercial developments, and road construction have resulted in a barrier island system that marginally resembles the historic nature of the barrier island system. Bird conservationists have long recognized that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists. This is no exception for CALO.

Recently, habitat restoration efforts have increased on NPS lands due to the increased restoration emphasis of the Management Policies (NPS 2001). Parks may use a wide range of management tools to restore wetland, grassland, woodland, and other habitats.

Restoration tools include, but are not limited to, forest management practices (e.g. silviculture), prescribed fire, exotic species management, and public use and recreation management. In addition, parks can coordinate infrastructure development (e.g. roads and buildings) with restoration activities to mitigate potential adverse impacts.

Due to the protected nature of CALO lands, and generally those in the national park system, the condition of habitats for bird use may be of higher quality than other natural, developed, agricultural, or forest lands under other management regimes. However, national park lands are subject to a wide variety of threats, both inside and outside of the park, and habitats can be greatly improved for wildlife, and particularly bird use, by restoring processes important for habitat formation, succession, and structural development. Largely, these processes have not been managed historically in the national park system, but current policy allows for active management of species, populations, and lands to provide for long-term conservation of park resources for the enjoyment of future generations.

Protection, restoration, and enhancement of habitats in CALO can greatly contribute to established habitat goals identified in the South Atlantic Coastal Plain bird conservation plan and regional shorebird and colonial waterbird conservation plans.

The park is largely a barrier island system with associated vegetation communities along a gradient from the Atlantic Ocean to the Pamlico Sound. Much of this habitat provides suitable area and vegetative cover for nesting landbirds, but could be improved through management of ORV and recreational uses, allowing ocean overwash processes to shape landscape features, and use of prescribed fire in maritime forest and salt marshes to mimic historic disturbances. Specific recommendations are to:

- **maintain or restore natural character and function of the beach front and dune systems by**
    - **allowing natural processes to shape landscape features:**
        - **retain as many overwash fans as possible following storms events such as tropical storms, hurricanes, and northeasters**
        - **retain and protect inlet flats when new inlets are formed**
        - **protect new overwash fans and inlet flats from ORV use**
    - **managing ORV and recreational use to eliminate disturbance to birds nesting, foraging, and resting on the beach, overwash fans, and inlet flats**
- **preserve all remaining maritime forest and shrub-scrub areas for resident landbirds, neotropical migratory birds for breeding and migration stopover**

- **reintroduce historic disturbances such as fire to the landscape to improve habitat structure and productivity, especially in salt marshes and maritime forests**

- **restore hydrology where appropriate**

- **set aside vehicle and pedestrian free areas for shorebird migration and winter resting and foraging areas**

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

- **enhance soundside and marsh water quality to support aquatic biota necessary to support existing aquatic invertebrates and fish as food sources for waterbirds**

- **document all major habitat management activities, including information such as location (e.g. UTM coordinates), and a description of methods and of pre- and post-management habitat conditions. This information, when coupled with bird distribution and abundance data, is useful for assessing and replicating conservation actions**

- assess historic landscape cover and determine feasibility of restoring landscape within the context of the park's enabling legislation

Threat Management: The greatest current threat and potential impact to birds and their habitat at CALO is the use of off-road vehicles in areas where birds nest, forage, migrate, and rest, primarily beaches, inlet flats, and overwash areas. CALO is one of the few remaining areas in North Carolina that ORV's are permitted to use the beach during the summer months, during seabird, shorebird, and turtle nesting season (Allen, pers. comm.. 2003). This threat needs to be addressed immediately. Additionally, CALO is one of five national seashores that provide almost 95,000 ha (235,000 acres) of barrier island habitat in the Southeastern United States (does not include South Florida or the Caribbean parks), which provide and support nesting by many colonial waterbirds and shorebirds of high conservation concern. Growing recreational demand on national seashores due to shrinking availability of these habitats elsewhere results in increased conflicts between recreational use and resource protection of the seashore. National seashores, including CALO, may be realized as one of the few nationally protected areas where these birds may continue to find adequate areas for breeding, foraging, migrating, and wintering and thus, essential to their conservation. Yet, unless these national seashores are protected, the bird communities that have used these shores for decades, if not centuries, may disappear. The park is strongly encouraged to:

- **manage ORV use through development of ORV Management Plan as soon as possible, emphasizing maximum protection of resources**

- **enforce State and USFWS guidelines for buffer zones around nesting Piping Plover (USFWS Recovery Plan for Piping Plover; http://pipingplover.fws.gov/recplan/appendixg.html) and colonial waterbirds**

- **manage recreational uses of the seashore, including personal watercraft, kayaking, canoeing, kite boarding, fireworks, etc. to avoid or minimize disturbance to nesting, foraging, migrating, and wintering colonial waterbirds and shorebirds**

- **close access to bird nesting or other posted closed areas when law enforcement officers are not available and at night**

Impact of feral cats on birds on Core Banks is a documented problem (Cordes, pers. comm). Potentially, other predators may present bird conservation challenges at CALO. Staff has identified the need to address this issue to reduce predation pressures on beach nesting birds. The park is encouraged to:

- **Develop Predator Management Guidelines, similar to those developed at nearby Cape Hatteras National Seashore (USDI 2002) (Cape Hatteras National Seashore has recently completed a feral cat reduction campaign that could be used as a model for a similar program at CALO (Altman 2002, Harrison 2002))**

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

- **aggressively manage the seashore's predators of colonial seabirds and shorebirds**

- **hire additional law enforcement officers to provide protection for beach nesting, foraging, migrating, and wintering birds**

Additionally, the introduced Nutria and wild horses alter habitat through feeding. The extent of this feeding is believed to be causing habitat alterations unsuitable for birds in these areas. Results of ongoing research into habitat alterations are forthcoming and recommendation should be available to improve condition of habitat on Shackleford Banks where the horses occur.

Additionally, The US Department of Agriculture, Agricultural and Plant Health Inspection Services (APHIS) Wildlife Services unit (WS) is available to provide assistance with animal reduction capability (see contacts).

Although no significant exotic plants species are negatively impacting habitat at CALO, it is important to establish and continue inventory and monitoring for exotic plant species, especially the occurrence of Phragmites. If necessary, consult with regional Exotic Plant Management Team (EPMT) to remove exotic plant species. Currently, no EPMT provides service the CALO area. Until an EPMT is established that can provide assistance to CALO, staff is directed to consult with the regional pest management specialist (see contacts). Additional information on the North Carolina exotic plant pest council and opportunities to evaluate threats from exotic plant species can be found at http://www.se-eppc.org/.

Additionally, the park is encouraged to:

- **identify threats from low flying aircraft and potential expansion of Military Operation Areas (MOA)**
- prevent future installation of towers of any kind
- assess impact of waterfowl hunting on local populations of American Black Duck and other declining waterfowl
- place monofilament line disposal containers in fishing or beach access areas (contact Canaveral Seashore)
- provide maximum protection of potential nest areas during courtship and nest selection processes
- nominate Cape Lookout National Seashore as a Western Hemisphere Shorebird Reserve Network Site (WHSRN) ((http://www.manomet.org/WHSRN/)

Research

- **determine and mitigate causes for poor Piping Plover reproduction***
- **determine use of maritime habitats for neotropical migratory bird resting and foraging**
- **determine incidence of and relationship of human induced fish or fish part disposal occurrence to attraction and/or increase of predators that prey on nesting colonial seabirds and shorebirds**
- **determine ghost crab predation on nesting colonial seabirds and shorebirds**
- **list park needs and projects on Research Permit and Reporting System web site (RPRS)**

- develop contact with Cooperative Ecosystem Studies Unit (CESU) at the University of Georgia

- determine threats from low flying aircraft and potential expansion of Military Operation Areas (MOA)

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

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

- park staff to attend USFWS training on implementation of EO 13186 (US Government 2000) at the National Conservation Training Center (NCTC) (when available) or other training on migratory bird conservation in North America. NCTC has several courses and training related to conservation of migratory birds (http://training.fws.gov/courses.html).

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

Outreach

- **participate in International Migratory Bird Day (IMBD) events with a local partner (http://birds.fws.gov/imbd.html) such as Cedar Island National Wildlife Refuge and NCWRC; the IMBD them for 2004 is Colonial Waterbirds and this is an excellent opportunity to provide outreach opportunities**

- **park brochures on bird conservation activities should be updated and made available to all users**

- **bird walks offered a few times a week are recommended**

- **publish articles in local newspapers related to bird protection and conservation activities**

- **develop press releases describing important seashore bird conservation**

- **links bird conservation and management literature from park to park's web site home page**

- **coordinate colonial seabird management and information with other agencies that provide habitat for these birds, and in particular other national seashores**

- **nominate CALO as an Western Hemisphere Shorebird Reserve Network Site (WHSRN) (http://www.manomet.org/WHSRN/)**

- **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, especially on ferry service that transport visitors to the barrier islands**

- **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 and cats in the park

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

- 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 listing bird sightings and various bird information in North and South Carolina

- 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 it's 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 Carteret and Hyde County's initiatives or programs that could impact park resources**

- **develop and strengthen relationship with local bird clubs for potential cooperation and implementation of segments of this plan**

- **participate in the active conservation of birds and habitats with the South Atlantic Migratory Bird Initiative (SAMBI), an Atlantic Coast Joint Venture initiative***

- **contact US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the area**

- **develop partnership with Cedar Island National Wildlife Refuge staff to develop cooperative projects for bird conservation**

- **continue to enhance partnership with North Carolina Wildlife Resources Commission staff to develop cooperative projects for bird conservation**

- **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**

- evaluate local or regional land use data and plan potential for habitat protection across organizational boundaries and work with local communities to develop appropriate protection measures

Funding Opportunities: Internal NPS funding is often an effective source to obtain funding; however, the project will have to be a fairly high priority among the park's natural resource program to successfully compete for the limited funding available in the NPS. Therefore, partnerships and outside funding programs are often more productive for securing bird conservation funding. CALO 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. Suggestions include:

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

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, some of which are funded and staffed to assist in implementation of priority wetland enhancement, restoration, and management projects.

The Atlantic Coast Joint Ventures is very active in bird conservation in the South Atlantic Coastal Plain and are a primary contact for potential funding (http://northeast.fws.gov/migratorybirds/acjv.htm). Additional Internet links to Joint Ventures are:

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

Funding through NAWCA is highly underutilized by the NPS and any park unit that has wetland, water, or bird conservation needs associated with wetland are encouraged to investigate using this funding source. Naturally, there are certain requirements to be eligible for all grants and park managers are encouraged to consult with the nearest Joint Venture, BCR, PIF Coordinator, to learn how this program might be applicable to implementation of this plan, and other park wetland issues.

Internal FWS funding programs may be used to support projects, but no effective method of project proposal delivery to these sources is currently in place for the NPS. Current funding in these programs may result from FWS familiarity with NPS needs, or NPS participation in one of the area FWS Ecosystem Teams, where a project has been identified and proposed to be funded through the Ecosystem Team. CALO is encouraged to become a member of the Roanoke-Tar-Neuse-Cape Fear Ecosystem Team of the US Fish and Wildlife Service.

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

Specific congressional appropriations to protect migratory birds has recently been authorized under the Neotropical Migratory Bird Conservation Act (2000) (http://www.nfwf.org/programs/nmbcapp.htm). Appropriations through this Act are authorized up to $5 million per year. However, in 2000, appropriation was

approximately $3.75 million and a majority of this funding was directed toward projects in Central and South America.

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

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

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

Contacts

Primary contacts within the region can be obtained by viewing the web site for the Southeastern Bird Conservation Initiative, National Park Service at http://southeast.fws.gov/birds/npsbirds.htm. Primary contacts for CAHA 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: Area Importance	Score: Population Trend	Percent of BBS Population	Local Migratory Status[2]	Geographical or Historical Notes
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 $\leq$ 2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.

Ib. Overall High Priority Species. Species with total score 22-27. Ordered by total score. Consider deleting species with AI $\leq$ 2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.

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 (Alegal 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 A*@; ? 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
AWatchlist@ 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 Asuper-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.)				
Moderate Priority				
Prothonotary Warbler	21	3		Cavity nesting
Louisiana Waterthrush	21	3		Streamside
Rusty Blackbird	19		3	Roosts in trees, forages ground
Local or Regional Interest				
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				
Extremely High Priority				
Red-cockaded Woodpecker	32	5	5	Cavity nesting
Swainson's Warbler	28	4		Understory, forages ground
High Priority				
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
Moderate Priority				
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	
Local or Regional Interest				
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)				
Extremely High Priority				
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.)				
High Priority				
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	
Moderate Priority				
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)				
Extremely High Priority				
Wood Stork (Southeast)	29	4	3	FL, GA, se SC
High Priority				
Brown Pelican (Southeast)	24	4	3	Coastal
White Ibis	22	4	2	
Local or Regional Interest				
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)				
Moderate Priority				
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.)				
Local or Regional Interest				
Forster's Tern	19	3	2	Marshes, NC
Glossy Ibis	17	3	2	Marshes
Common Tern	16	3	2	Protected islets, NC
EMERGENT WETLANDS				
Extremely High Priority				
Saltmarsh Sharp-tailed Sparrow	30		4	Coastal
High Priority				
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
Moderate Priority				
American Bittern	21	3	3	Most wintering, local breeding
Least Bittern	20	3		
Northern Harrier	20		3	
Local or Regional Interest				
Peregrine Falcon	19		3	
Bald Eagle	17	3	3	
BEACHFRONT				
Extremely High Priroity				
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	
High Priority				
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

North Carolina Watch List

NORTH CAROLINA PRIORITY BIRD SPECIES

Mark Johns
Partners in Flight Biologist
NC Wildlife Resources Commission
Division of Wildlife Management
2002

Bird (mostly, but not all, nongame) conservation priorities for North Carolina as developed by NC Partners in Flight, developed from the Partners in Flight physiographic bird conservation bird plans. Priority bird species rankings based on Partners in Flight Prioritization Process (contact: Chuck Hunter, USFWS at Chuck_Hunter@fws.gov) and the expertise of the NC Partners in Flight Steering Committee and State Working Group. Most species are listed in the habitat(s) considered important towards its conservation. For more detailed habitat considerations, or monitoring/research issues for individual species within the general habitat type contact Mark Johns, NCWRC at johnsme@mindspring.com. This list is not a replacement for official State or Federal protected species lists. All species priority levels are for the breeding season unless otherwise indicated. Note that the priority level a species is designated does not necessarily lead to the type of conservation action necessary. As new information becomes available this list will be updated or adjusted. This list is based on work originally done in the late 90's by Chuck Hunter and the NC Partners in Flight Steering Committee and State Working Group.

Abbreviation codes key:

EH= Extremely high conservation concern (restricted range, undergoing numerous threats locally and throughout their range)
H= High conservation concern (generally more widespread then EH species but the area under consideration is a center of abundance, the species is declining locally, or both)
M= Moderate conservation concern (generally common and widespread but they are both relatively abundant and undergoing declines in the area)
PR= Present (or possible) but not a priority for physiographic area, may need further monitoring/research attention in North Carolina, more information on current distribution and trends may be needed in localized areas
SACP= South Atlantic Coastal Plain physiographic region
SPIED= Southern Piedmont physiographic region
SBR= Southern Blue Ridge physiographic region

Southern Pine

SACP

EH Species:
Red-cockaded Woodpecker
Bachman's Sparrow

H Species:
Brown-headed Nuthatch
Henslow's Sparrow (winter)
Northern Bobwhite

M Species:
Summer Tanager

PR Species:
American Kestrel
Red-headed Woodpecker
Northern Flicker
Whip-poor-will
Chuck-will's widow

Shrub-Scrub

SACP

EH Species:
Painted Bunting (eastern subspecies)
Henslow's Sparrow

H Species:
Prairie Warbler
American Woodcock
Northern Bobwhite
Field Sparrow

M Species:
Eastern Towhee
Orchard Oriole

PR Species:
Yellow-breasted Chat
Gray Catbird
Common Yellowthroat
White-eyed Vireo
Brown Thrasher
Lark Sparrow
Vesper Sparrow (winter)
Loggerhead Shrike
Barn Owl

Hardwood-Conifer

SACP

EH Species:
Black-throated Green Warbler

H Species:
Worm-eating Warbler
Wood Thrush

M Species:
Red-headed Woodpecker
Yellow-throated Warbler
Summer Tanager
Eastern Wood-Pewee
Hooded Warbler

PR Species:
Whip-poor-will
Chuck will's widow
Black Vulture
Sharp-shinned Hawk
Cooper's Hawk
Northern Flicker

Hardwoods (both bottomland and upland systems)

SACP

EH Species:
Cerulean Warbler (Roanoke River system)
Swainson's Warbler

H Species:
Hooded Warbler
Prothonotary Warbler
Northern Parula

Wood Thrush
American Woodcock
Wood Duck
Bald Eagle

M Species:
Black-and-white Warbler
Scarlet Tanager
Louisiana Waterthrush
Rusty Blackbird (winter)

PR Species:
Mississippi Kite
Yellow-crowned Night-Heron
Black-crowned Night-Heron
Worm-eating Warbler
Kentucky Warbler
Yellow-throated Vireo
Acadian Flycatcher
Ovenbird
Blue-gray Gnatcatcher
Chimney Swift

Reservoirs and other man made lakes

SACP

H Species:
Bald Eagle

PR Species:
Osprey
Great Blue Heron
Tree Swallow

Prairies and Grasslands

SACP

EH Species:
Henslow's Sparrow
Bachman's Sparrow

H Species:
Northern Bobwhite
Loggerhead Shrike
Short-eared Owl (winter, possible breeder)
Barn Owl

M Species:
Northern Harrier (mainly winter)
Grasshopper Sparrow (mainly winter)
Eastern Kingbird
Eastern Meadowlark
Sedge Wren (winter)

PR Species:
Dickcissel
Bobolink (migrant, possible breeder)
Horned Lark (winter, possible breeder)

Emergent Wetlands

SACP

EH Species:
Black Rail
Saltmarsh Sharp-tailed Sparrow (winter, possible breeder)

H Species:
Bald Eagle
Least Bittern
American Black Duck (mainly winter)
Yellow Rail (winter)
King Rail
Clapper Rail
Seaside Sparrow

M Species:
American Bittern (winter, possible breeder)
Northern Harrier (winter mainly)
Sedge Wren (winter, possible breeder)

PR Species:
Virginia Rail
Sora (winter, possible breeder)
Purple Gallinule
Nelson's Sharp-tailed Sparrow (winter)
Forster's Tern

Colonial Nesting long-legged Waders

SACP

PR Species:
Great Blue Heron
Great Egret
Snowy Egret
Little Blue Heron
Tricolored Heron
Black-crowned Night-Heron
Yellow-crowned Night-Heron
White Ibis
Glossy Ibis

Colonial Nesting "Seabirds"

SACP

H Species:
Gull-billed Tern
Sandwich Tern
Common Tern
Least Tern
Black Skimmer

M Species:
Royal Tern
Brown Pelican

Shorebirds: Beach-Dune-Spoil

SACP

EH Species:
Piping Plover

H Species:
Wilson's Plover
American Oystercatcher
Red Knot (winter)

M Species:
Sanderling (winter)

PR Species:
Willet
Whimbrel (winter)

Shorebirds: Mudflat-Muck-Farm-Impoundment

SACP

H Species:
American Avocet (mainly winter)
Marbled Godwit (mainly migrant)
Semipalmated Sandpiper (migrant)
Western Sandpiper (winter)
Short-billed Dowitcher (winter)

M Species:
Stilt Sandpiper (migrant)
Buff-breasted Sandpiper (migrant)
Black-bellied Plover (winter)
Dunlin (winter)

PR Species:
Upland Sandpiper (migrant)

Open Water (including Pelagic)

SACP

EH Species:
Herald (Trinidade) Petrel (pelagic, non-breeding)
Bermuda Petrel (pelagic, non-breeding)
Black-capped Petrel (pelagic, non-breeding)
Fea's Petrel (pelagic, non-breeding)

H Species:
Cory's Shearwater (pelagic, non-breeding)
Audubon's Shearwater (pelagic, non-breeding)

Canada Goose (Atlantic and Maritime populations)
Tundra Swan (winter)
Wood Duck
Bald Eagle

M Species:
Common Loon (winter)
Canvasback (winter)

PR Species:
Greater Shearwater (pelagic, non-breeding)
Wilson's Storm-Petrel (pelagic, nonbreeding)
Mallard
Brant
Blue-winged Teal
Northern Pintail
Redhead
Ring-necked Duck
Lesser Scaup
Greater Scaup
Surf Scoter
White-winged Scoter
Black Scoter
Anhinga

APPENDIX D

US Fish and Wildlife Service Species of Conservation Concern in the Southeastern 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