

**FINAL DRAFT**

# Avian Conservation Implementation Plan Carl Sandburg Home National Historic Site

National Park Service  
Southeast Region



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

CARL 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 Carl Sandburg Home (CARL) to serve as guidance to identify, document, and undertake bird conservation activities in the park and with neighboring communities, organizations, and adjacent landowners. 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, including CARL, 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 CARL will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with CARL staff 2) the PIF Southern Blue Ridge Bird Conservation Plan, Version 1.0 (Hunter et al Southern Blue Ridge Bird Conservation Plan, Version 1.0 (Anderson et al. 2000), 4) NPS databases, and 5) personal communications with bird conservation specialists throughout North America, especially in the southeastern United States. This plan has been reviewed by CARL resource management staff and managers, Appalachian Highland Network Inventory and Monitoring (AHN I&M) staff, and bird conservation partners and approved by CARL 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.

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

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 (ACIP),
- 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 CARL and with adjacent partners or landowners.

Concurrently, the development of a Memorandum of Understanding (MOU) between the FWS and the NPS (Appendix A) to implement Presidential Executive Order (EO) 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds**, 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** (March 2000), a visionary document developed and signed by the Southeast Natural Resource Leaders Advisory Group (SENRLAG), a consortium of 13 land and resource management agencies in the Southeastern United States whose vision is to encourage and support cooperation in planning and managing the region's natural resources. Furthermore, the agreement is aligned with and implements a variety of NPS Management Policies (2001) including but not limited to External Threats and Opportunities (Chapter 1.5), Environmental Leadership (Chapter 1.6), Cooperative Planning (Chapter 2.3.1.9), Land Protection (Chapter 3), and

especially Natural Resource Management (Chapter 4) that details policy and management guidelines which apply to bird conservation. Important policies in this chapter include:

- Planning for Natural Resource Management (4.1.1)
- Partnerships (4.1.4)
- Restoration of Natural Systems (4.1.5)
- Studies and Collection (4.2)
- General Principles for Managing Biological Resources (4.4.1)
- Plant and Animal Population Management Principles (4.4.1.1)
- Management of Native Plants and Animals (4.4.2)
- Management of Endangered Plants and Animals (4.4.2.3)
- Management of Natural Landscapes (4.4.2.4)
- Management of Exotic Species (4.4.4)
- Pest Management (4.4.5)
- Fire Management (4.5) and
- Water Resource Management (4.6)

The NPS is the fourth largest landowner in the United States, consisting of over 380 national park units covering 83 million acres of land and water with associated biotic resources ([www.nps.gov](http://www.nps.gov)). The 64 units in the Southeast Region of the NPS represent 16% of the total number of park units in the national park system and cover approximately 5% of the total land base in the entire system. Park units in the Southeast Region include national seashores (Canaveral National Seashore, Cape Hatteras National Seashore), national parks (Great Smoky Mountains National Park, Everglades National Park), national recreation areas (Big South Fork National River and Recreation Area), national preserves (Big Cypress National Preserve), national battlefields (Cowpens National Battlefield, Fort Donelson National Battlefield), national monuments (Fort Matanzas National Monument, Ocmulgee National Monument), and others such as the Blue Ridge Parkway, Obed Wild and Scenic River and Timicuan Ecological and Historic Preserve.

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

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

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

In 1968, Carl Sandburg Home National Historic Site became the first park to honor a poet. Carl Sandburg was a biographer, a folksinger, a lecturer, a Pulitzer Prize winning author, and was known as the Poet of the People, often writing about social justice.

The Sandburg's moved to this farm, named Connemara, in 1945 and remained there for 22 years.

This 107 ha (43 acres) site contains relatively steep and rugged terrain, as well as low areas that were cleared for agricultural purposes. Second-growth deciduous hardwoods occupy ~80 ha (32 acres) of the upland areas in the Park. Specifically, this vegetational community is comprised primarily of oak, hickory, tulip poplar, maple, black gum, and white pine. Small streams originate on Big Glassy and Little Glassy Mountains and flow through the site; however, they are dammed at several locations to form small lakes and ponds. Wooded slopes contain granitic outcrops with an array of plant species specific to this unique habitat.

## **Avian Resources of the Southern Blue Ridge**

The Southern Blue Ridge Physiographic Area (SBR) includes the Central Blue Ridge, Southern Blue Ridge and Metasedimentary Mountains subsections of the Southern Appalachians that covers portions of Northern Georgia, Western North Carolina, Northwestern South Carolina, Eastern Tennessee and Southern Virginia (see PIF and NPS location maps below). Topography consists of tall mountains with long broad ridges, steep slopes, deep ravines and wide intermountain valleys. The combinations of landform, elevation, and soils, along with the area's humid and temperate climate, make the Southern Blue Ridge one of the most biologically diverse areas in North America. The region supports large numbers of plant and animal species including the highest diversity of salamanders in the world, extremely rich forests with a tremendous diversity of tree and herbaceous species, and very high densities of breeding birds.

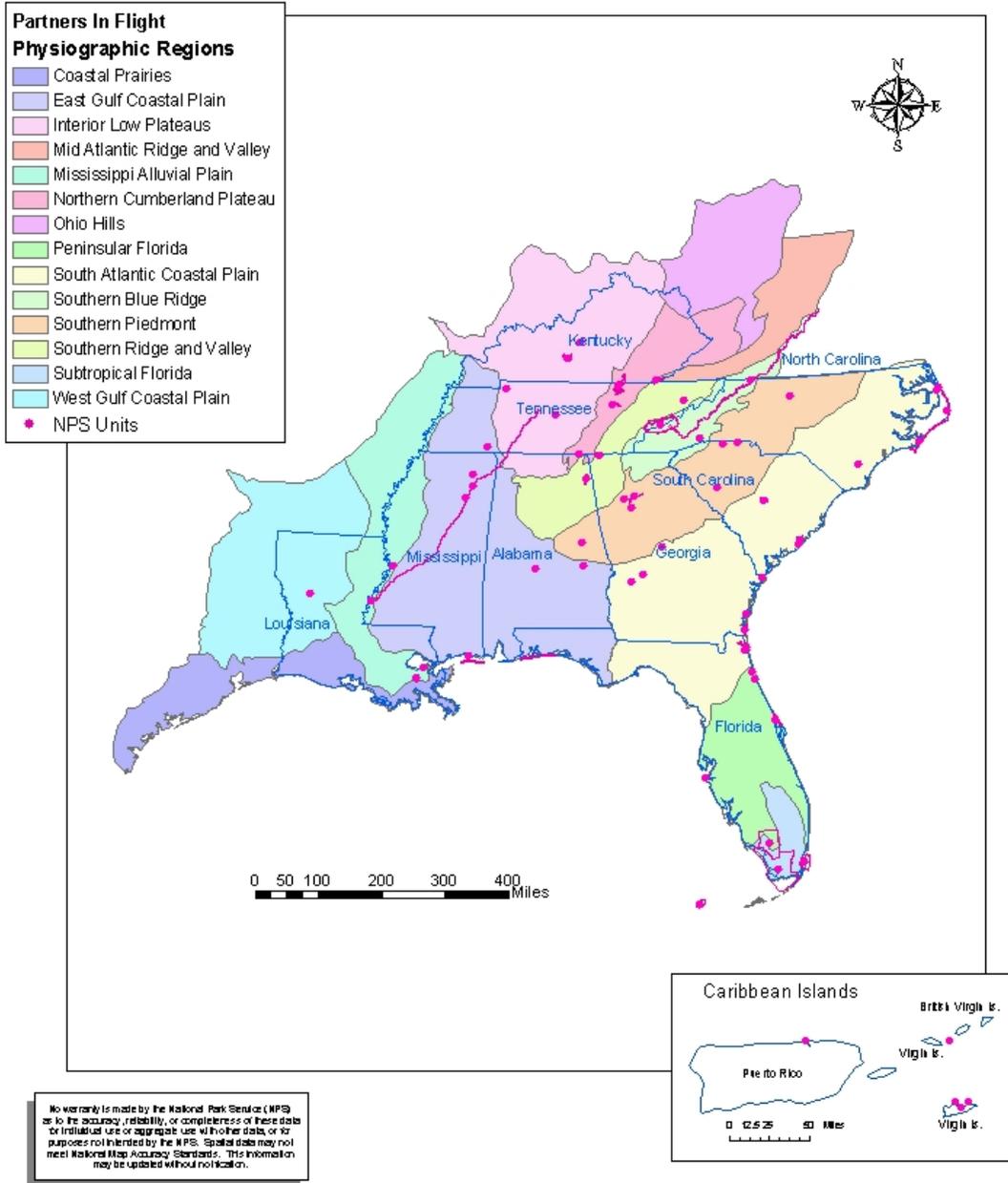
Six forest types and 3 general habitat categories have been identified as important bird habitats. These include spruce-fir, high-elevation (including northern) hardwoods, hemlock-white pine, cove (mixed mesophytic) hardwoods, Appalachian oak hardwoods, and southern yellow pine forests, as well as, early successional habitats, lowland riparian woodlands and urban/suburban "backyards"/rural woodlots. Bird species have been scored according to the Partners in Flight prioritization process and grouped into three broad suites associated with: (1) high-elevation forests, (2) habitat conditions associated with frequently disturbed forests, and (3) mature forests of all types. Conservation opportunities and management recommendations have been described and suggested for each habitat type. Specific landscape habitat recommendations for the Southern Blue Ridge include:

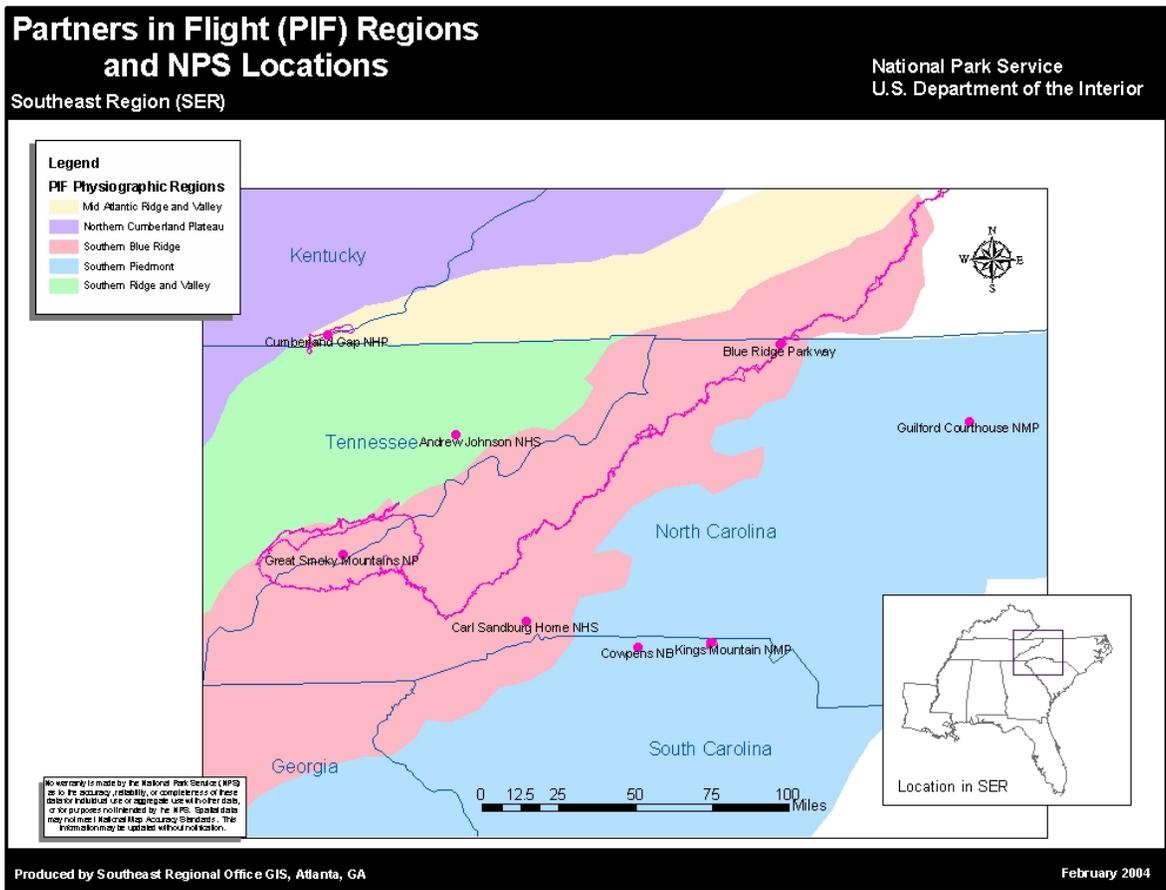
1. protecting and restoring imperiled spruce-fir and Table mountain/pitch pine forest communities,
2. increasing the amount of late successional northern hardwoods, hemlock-white pine, cove hardwoods, southern yellow pine forests,
3. improving structural complexity for presently closed canopy, mid-successional stands in all forest types for understory and canopy dependent forest species,

# Partners in Flight (PIF) Regions

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4. protecting and restoring sensitive mountain wetlands and bald communities, and
5. increasing the amount of early successional, shrub scrub habitat in high-elevation (again including northern) hardwoods, Appalachian oak, and southern yellow pine forests, and (6) improving the condition and increasing the amount of lowland riparian habitats.

Over 155 bird species nest in the Southern Blue Ridge. Widespread and representative species include Dark-eyed Junco, Northern Cardinal, Black-throated Blue Warbler, Carolina Wren and Blue-headed Vireo. Appalachian populations of Bewick's Wren, Yellow-bellied Sapsucker, Northern saw-whet owl, and Black-capped Chickadee, as well as Golden-winged, Swainson's and Cerulean warblers are rare or uncommon, have very specific habitat requirements and serve as umbrella, or focal, species for conservation planning efforts. Of these birds, a large proportion is Nearctic-Neotropical migrants dependent on mature forest. Examples include Louisiana Waterthrush, Acadian Flycatcher, Veery, Ovenbird and Canada Warbler. Furthermore, species associated with frequently disturbed and/or early successional habitats like Prairie

Warbler, Field Sparrow, and Northern Bobwhite have also suffered significant population declines in the recent past and warrant conservation attention.

The vast majority of bird conservation recommendations in the Southern Blue Ridge bird conservation plan can be integrated into existing NPS programs including habitat restoration, fire management, exotic species management, and interpretation and education programs (see Integration of NABCI Goals and Objectives into Park Planning and Operations later in this ACIP).

## **Avian Conservation in CARL**

*Avian Biodiversity:* CARL has an avian inventory and a checklist of birds that is available for the public. The checklist needs to be updated. Approximately 100 species have been confirmed in the park and additional inventory efforts are likely to yield substantial additional species.

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

**Park Priorities:** Park staff and consultants have identified Eastern Bluebird as a park management concern and high priority for conservation. Margaret Sandburg was an active member of the Audubon Society, had an interest in birds, and established an Eastern Bluebird Trail at the site that provided nest boxes for the bluebirds. Aside from this management interest, park staff is concerned about conserving all birds and their habitats in CARL.

**Inventory:** A complete inventory has been recognized as important information for park managers and is being conducted within the framework of the NPS I&M Program. The current park checklist is being confirmed during this process by contract personnel at the site. CARL is one of several parks in the NPS Cumberland/Piedmont I&M Network for which a plan to conduct high priority inventory projects has been prepared (Nichols et al. 2000). A request for proposals to complete the inventory was released in March of 2003 and completion of the inventory effort is expected to begin in spring of 2003.

**Threatened and Endangered Species:** The Federally listed threatened Bald Eagle is reported to be a year round resident in the park. It is unknown if the Bald Eagle breeds at the site.

Two North Carolina Natural Heritage Program Rare Bird species occur in CARL: the Sharp-shinned Hawk and the Brown Creeper. The Red-breasted Nuthatch also occurs on the North Carolina Natural Heritage Program Watch List.

Several high priority PIF species for the Southern Blue Ridge occur in CARL (see below and Appendixes A and B). Prominent among these species are Red-breasted Nuthatch, Brown Creeper, Louisiana Waterthrush, Wood Thrush, Brown-headed Nuthatch, Eastern Wood-Pewee, Yellow-throated Warbler, Black-and-White Warbler, Black-throated Green Warbler, and Scarlet Tanager. Additional PIF high priority species occur in the park and can be found by comparing the park checklist and Appendix A.

**Monitoring:** Currently, two avian monitoring projects are being conducted at CARL:

- Bluebird Trail and nest box monitoring
- A portion of the Henderson County Christmas Bird Count covers the park

Additionally, the Elisha Mitchell Audubon Society of Henderson and Buncombe Counties North Carolina, regularly conduct recreational birding at the site.

**Research:** Scientific research is permitted within the park, but no active avian research other than existing avian inventory and monitoring is ongoing.

**Outreach:** Two to three bird walks are held in the spring and fall for the public.

## **Park Identified Needs for Avian Conservation**

CARL has presently not identified any projects that would increase the avian knowledge of the park.

## **Coordination with Regional Conservation Initiatives**

### *North American Bird Conservation Initiative*

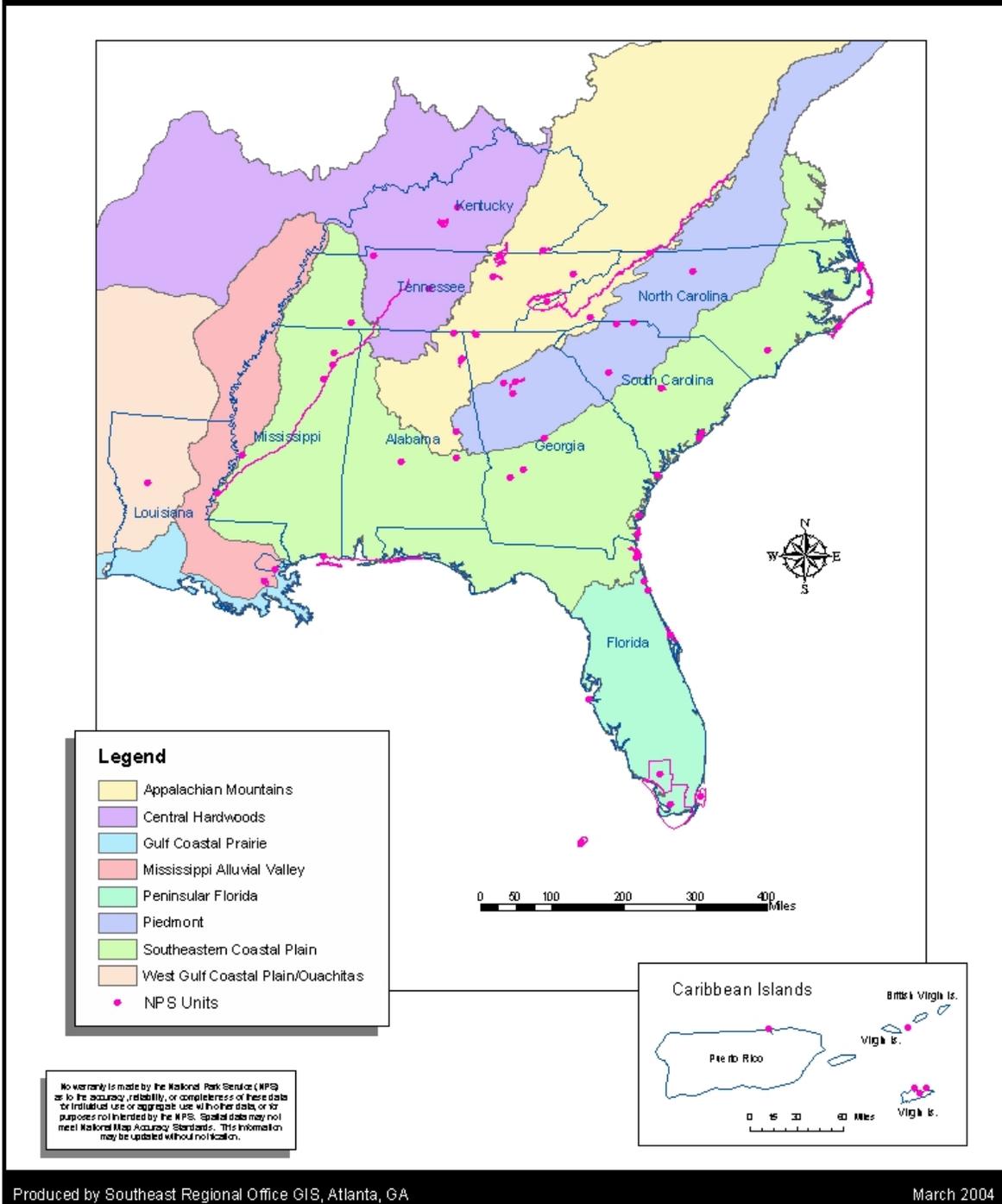
NABCI bird conservation planning units, referred to as Bird Conservation Regions (BCR), are often larger than other planning units associated with other plans, such as Partners In Flight. For example, CARL is within the NABCI Appalachian BCR that extends from New York to Georgia (see NABCI map below) and encompasses several PIF physiographic areas (the planning unit for PIF)(compare to PIF map).

Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. Currently, the Appalachian BCR does have a designated coordinator and can provide valuable assistance to CARL with implementation of aspects of this ACIP. Communication with this coordinator will be important to fully assess the park's role in regional and landscape scale bird conservation.

# Bird Conservation Regions

Southeast Region (SER)

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Produced by Southeast Regional Office GIS, Atlanta, GA

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### *North American Waterfowl Management Plan (NAWMP)*

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

### *Partners In Flight*

Goals and strategies for the Southern Blue Ridge can be found in the draft bird conservation plan, previously submitted to the park. A revised version of this plan should be available in the near future and may be substantially different from the current format; however, bird and habitat conservation priorities are not likely to be significantly changed. The park will receive updates of the plan as they are completed. The current plan identifies priority bird and habitat conservation goals that must be implemented in order to achieve bird conservation success in this region. CARL being largely a landbird park will utilize this plan more than any other plan to participate in NABCI implementation.

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

### *United States Shorebird Conservation Plan (USSCP)*

The USSCP has been completed and is available on the world wide web (<http://shorebirdplan.fws.gov/>). A regional step down plan is in preparation by FWS personnel and should be available in 2004. Since CARL has little habitat of regional importance to shorebird conservation, recommendations for shorebird conservation are not presented.

### *Waterbird Conservation for the Americas (WCA)*

The WCA plan has been completed and is available on the World Wide Web or can be ordered from the US Fish and Wildlife Service National Conservation Training Center (<http://www.waterbirdconservation.org/>). Few waterbird conservation priorities exist on the Southern Blue Ridge and none are presented here for CARL.

## Integration of NABCI Goals and Objectives into Park Planning and Operations

### NABCI Implementation Recommendations

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

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

To the extent appropriate, each of these program areas will be discussed separately and within each, specific opportunities identified that, when implemented, will enable to park to meet its mandates (current and expected), as well as integrate NABCI into its planning and operations. With emphasis added; the park is not expected to implement any of these recommendations or be obligated to pursue any opportunity other than those the park is required to do by law or NPS program or policy. In other words, participation in this effort is currently voluntary. However, participation in these efforts at some level could become mandatory with the completion of an MOU with the FWS regarding EO 13186, **Responsibilities of Federal Agencies to Protect Migratory Birds**. The MOU will establish a formal agreement between the FWS and the NPS to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

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

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

## **Inventory**

The park is in the process of completing inventory and verifying existing avian records. Once inventory is completed, distribution and abundance data are desired to fully understand the status of birds in the park so that conservation actions for birds can be implemented (Nichols et al. 2000). Status of high priority species as identified in the Southern Blue Ridge bird conservation plan and the North Carolina Natural Heritage Program's Rare Bird Species is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna.

### **Additional presence/absence surveys are needed**

- **for High Priority forest and riparian species that may not be adequately surveyed with existing or planned inventory effort\***
- **along stream corridors for high priority riparian species such as Louisiana Waterthrush, Acadian Flycatcher\***
- **at established forest point counts in winter**

Additionally, CARL is encouraged to:

- **verify other avian observational data collected in the park and enter into the appropriate database (NPSpecies, National Point Count Database, eBird (Cornell Laboratory of Ornithology; <http://www.ebird.org/about/index.jsp>))\***
- **standardize inventory and monitoring methodology to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000)**

## **Monitoring**

The park does not have an active bird monitoring program. Efforts should be made to establish a long term monitoring program for high priority species that occur in the park, striving to conform to established NPS or FWS survey protocols. Close coordination with the Appalachian Mountains BCR coordinator and the North Carolina PIF coordinator is needed to identify and implement high priority projects on park lands and to ensure that park efforts contribute to park or regional bird conservation rather than undertake an action or actions that are not needed or are better conducted in other areas. Specific recommendations are to:

- **identify the highest priority species occurring in the park and establish a monitoring program to detect these species\***
- **enter monitoring data into appropriate database (NPSpecies, National Point Count Database, eBird, etc.)\***

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

### **Habitat Restoration**

Historical landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscape alteration by Native Americans for a variety of uses (Williams 2002), wildfire, bison, beaver, and elk effects, and weather, etc., (Hunter et al.) resulted in a landscape mosaic that supported a rich and diverse bird fauna in the Southeast (Barden 1997; Brawn 2001). The arrival of Europeans and the subsequent change in landscape has dramatically effected bird habitat and bird populations. Bird conservationists have recognized for a long time that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists. Recently, habitat restoration efforts have increased nationwide and on NPS lands, NPS receiving restoration emphasis and guidance in the 2001 Management Policies (NPS 2001). Habitat restoration efforts that parks may undertake are wetland restoration, grassland restoration, woodland restoration, etc. utilizing a wide range of tools to accomplish the restoration. Some of these tools may be but are not limited to forest management practices, exotic species management, public use and recreation management, infrastructure development management, and prescribed fire.

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

The park is largely a second growth deciduous hardwood forest, covering sometimes steep and rugged terrain. Small streams originate on Big Glassy and Little Glassy Mountains and flow through the site; however, they are dammed at several locations to form small lakes and ponds. Wooded slopes contain granitic outcrops with an array of plant species specific to this unique habitat. Old fields for historic agriculture are present as well. Much of this habitat provides suitable area and vegetative cover for nesting landbirds, but could be improved through use of habitat and riparian restoration, and prescribed fire to restore the structural complexity of the forests in CARL that are required for many of the high priority bird species that occur there. Specific recommendations are to:

- **manage forests toward old growth conditions, implementing appropriate management techniques to develop desired understory structure for high priority birds\***
- **restore riparian zones by consideration of dam removal and habitat restoration programs\***
- **restore grasslands to native warm season grasses (except where park goals for the site are implemented)\***
- **protect existing snag trees, where not identified as a safety hazard, as important to cavity nesting birds**
- assess historic landscape cover and determine feasibility of restoring landscape within the context of the park's enabling legislation.

### **Threat Management**

The park is subject to a wide range of threats and activities that could negatively impact quantity and quality of habitat for birds and other wildlife. Although these threats are unquantified, loss of adjacent habitat due to development and exotic plants and animals are believed to be primary threats. The park is encouraged to:

- **work with the local community and other land conservation interests in the region to minimize habitat fragmentation and potentially restore habitats beneficial to wildlife and bird species of the region\***
- **establish contact with Natural Resource Conservation Service (NRCS) district conservationist to discuss implementation of various private landowners protection or management programs adjacent to park\***
- **manage dog walkers in the park to avoid disturbance to birds and other wildlife\***

Impact of exotic species on birds at CARL is largely unquantified, yet domestic dogs and feral cats occur in the park and may damage birds directly through predation or habitat alteration. Park managers are encouraged to:

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

The US Department of Agriculture, Agricultural and Plant Health Inspection Services (APHIS) Wildlife Services unit (WS) is available to provide mammal management capability (see contacts).

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

Although no significant exotic plants species are negatively impacting habitat at CARL, it is important to establish and continue inventory and monitoring for exotic plant species. If necessary, consult with regional Exotic Plant Management Team (EPMT) based at the Blue Ridge Parkway.

- **consult with the regional pest management specialist (see contacts) to establish an exotic plant management program\***

### **Research**

- **list park needs and projects on Research Permit and Reporting System web site (RPRS)\***
- develop contact with Southern Appalachian Mountains Cooperative Ecosystem Studies Unit (CESU) at the University of Tennessee, Knoxville, TN

### **Compliance**

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

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

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

## **Outreach**

- **update bird checklist\***
- **participate in International Migratory Bird Day (IMBD) events with a local partner (<http://birds.fws.gov/imbd.html>)\***
- **continue to manage and monitor Eastern Bluebird Trail\***
- **continue to offer bird walks to visitors, emphasizing the Sandburg's interests in birds and encourage development of outreach and educational programs to enhance visibility of bird conservation issues, which may include organized bird walks, owl prowls, and raptor surveys with the public\***
- **encourage partnership with Elisha Mitchell Audubon Society and other local birding interests to assist with implementation of various aspects of this plan\***
- **encourage accurate documentation and reporting from recreational birding outings by visitors (see Cornell University's eBird monitoring program**
- **work with adjacent landowners and neighbors, the local community, and public officials to curb unregulated and free roaming feral and domestic dogs and cats in the park**
- **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>)**
- **park interpretation/education staff are encouraged to attend USFWS training on Migratory Bird Education at NCTC**
- **consider adding links to bird conservation information, data, etc., to the park's web site home page**

## **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:

- **continue to keep abreast of Buncombe and Henderson County initiatives that could impact park resources\***

- **continue to develop and strengthen relationship with Elisha Mitchell Audubon Society for implementation of aspects of this plan\***
- **contact NRCS district conservationists and US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the adjacent lands\***

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

- **develop partnership with North Carolina Wildlife Resources Commission, especially the North Carolina PIF coordinator to implement aspects of this plan\***
- **contact the nearest Joint Venture office (see Funding section for explanation of Joint Ventures) or BCR coordinator to develop partnerships and funding proposals tiered to priorities established by the park, this ACIP, and the Southern Blue Ridge bird conservation plan\***

### **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. Within this ACIP, identified priority projects that are considered to be high park priorities as well as NABCI priorities are marked with an asterisk (\*). CARL is encouraged to enter all high priority projects into the NPS Performance Management Information System (PMIS) database.

Funding for conservation projects for Neotropical migrants is also available through the Park Flight program.

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

partnerships called Joint Ventures were established. Nationally, 14 (11 US, 3 Canada) Joint Ventures have been established, several which are funded and staffed. Internet links to Joint Ventures are:

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

Funding through NAWCA is highly underutilized by the NPS and any park unit that has wetland, water, or bird conservation needs associated with wetland are encouraged to investigate using this funding source. Naturally, there are certain requirements to be eligible for all grants and park managers are encouraged to consult with the nearest Joint Venture, BCR, PIF Coordinator, to learn how this program might be applicable to implementation of this plan, and other park wetland issues. CARL is within the operational Atlantic Coast Joint Venture and Appalachian Mountains BCR. Contacts with the coordinators of these initiatives will provide opportunity to investigate use of this funding source and developing proposals.

Internal FWS funding programs may be used to support projects, but no effective method of project proposal delivery to these sources is currently in place for the NPS. Current funding in these programs may result from FWS familiarity with NPS needs, or NPS participation in one of the area FWS Ecosystem Teams, where a project has been identified and proposed to be funded through the Ecosystem Team.

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

Specific congressional appropriations to protect migratory birds has recently been authorized under the Neotropical Migratory Bird Conservation Act (2000) (<http://www.nfwf.org/programs/nmbcapp.htm>). Appropriations through this Act are authorized up to \$5 million per year. However, in 2004, appropriation was approximately \$4 million and a majority of this funding was directed toward projects in Central and South America.

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

Other prominent funding sources available to NPS managers for bird conservation are listed on this projects web site at:

<http://southeast.fws.gov/birds/NPSHighlits.htm>.

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

### **Contacts**

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

### **Bird Conservation**

Keith Watson  
US Fish and Wildlife Service  
Appalachian Mountains BCR  
Asheville,  
828-350-8228  
[Keith\\_Watson@fws.gov](mailto:Keith_Watson@fws.gov)

Gordon Warburton  
North Carolina Wildlife Resources  
Commission  
Marion, NC  
828-659-7537  
[warburg@wnclink.com](mailto:warburg@wnclink.com)

Dean Demarest  
US Fish and Wildlife Service  
Atlanta, GA  
404-679-7371  
[dean\\_demarest@fws.gov](mailto:dean_demarest@fws.gov)

Chris McGrath  
North Carolina Wildlife Resources  
Commission  
828-683-0671  
[mcgrathc1@mindspring.com](mailto:mcgrathc1@mindspring.com)

Craig Watson  
US Fish and Wildlife Service  
Atlantic Coast Joint Venture  
Charleston, SC  
843-727-4707 ext. 16  
[Craig\\_Watson@fws.gov](mailto:Craig_Watson@fws.gov)

### **National Park Service**

Janene Donovan  
Carl Sandburg Home NHS  
Flat Rock, NC  
828 693-4178  
[Janene\\_Donovan@nps.gov](mailto:Janene_Donovan@nps.gov)

### **North Carolina**

Mark E. Johns  
North Carolina Partners In Flight  
Biologist  
919-852-5124  
[johnsme@mindspring.com](mailto:johnsme@mindspring.com)

Teresa Leibfreid  
Cumberland/Piedmont I&M Coordinator  
270 758-2135  
[Teresa\\_Leibfreid@nps.gov](mailto:Teresa_Leibfreid@nps.gov)

Toby Obenauer  
Blue Ridge Parkway  
Exotic Plant Management Team  
828-350-3821 ext. 213  
[Toby\\_Obenauer@nps.gov](mailto:Toby_Obenauer@nps.gov)

Raymond Albright  
Southern Appalachian Mountains CESU  
Knoxville, TN  
Phone: (865) 974-8443  
[Ray\\_Albright@nps.gov](mailto:Ray_Albright@nps.gov)

**Others**

Marilyn Westphal  
Elisha Mitchell Audubon Society  
[mjwestphal@unca.edu](mailto:mjwestphal@unca.edu)

Simon Thompson  
Ventures Birding and Nature Tours  
Skyland, NC 28776  
828-253-4247  
[Travel@birdventures.com](mailto:Travel@birdventures.com)

John F. Heisterberg  
USDA APHIS Wildlife Services  
North Carolina  
919-786-4480  
[jon.f.heisterberg@aphis.usda.gov](mailto:jon.f.heisterberg@aphis.usda.gov)

Robert V. Carter, Jr.  
District Conservationist  
828-693-1629 x 101  
[Bob.Carter@nc.usda.gov](mailto:Bob.Carter@nc.usda.gov)

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## APPENDIX A

### HIGH PRIORITY SPECIES IN THE SOUTHERN BLUE RIDGE BIRD CONSERVATION REGION (from Table 1, Hunter et al. 1999)

Entry criteria for identifying priority species, with indications for why the species is considered to be of conservation interest (definitions below).

Priority Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Percent of BBS Population
			Area Importance	Population Trend	
Ia.	Bewick's Wren Appal. subsp.	35	5	5	9.1
	Yellow-bellied Sapsucker S. App. pop.	33	5	5	
	Northern Saw-whet Owl S. App. pop.	32	5	4	
	Red-breasted Nuthatch S. App. pop.	30	5	4	
	Brown Creeper S. App. pop.	30	5	4	
	Winter Wren S. App. Pop.	30	5	4	
	Golden-crowned Kinglet S. App. pop.	30	5	4	
	Golden-winged Warbler	30	4	5	2.3
	Red Crossbill Types I & 2	30	5	4	
	Swainson's Warbler	29	4	4	3.1
	Black-capped Chickadee S. App. pop.	28	5	5	
Ib.	Black-throated Blue Warbler	26	5	4	10.9
	Cerulean Warbler	26	3	3	
	Louisiana Waterthrush	26	5	5	5.7
	Acadian Flycatcher	26	5	5	5.0
	Worm-eating Warbler	25	5	2	7.9
	Wood Thrush	24	4	5	2.3
	Kentucky Warbler	24	3	5	1.3
	Yellow-throated Vireo	23	4	5	
	Brown-headed Nuthatch (GA)	23	3	3	

Table 1 (continued).

Priority Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Percent of BBS Population lb. (cont.)
			Area Importance	Population Trend	
	Blackburnian Warbler	23	4	4	
	Canada Warbler	23	5	3	3.2
	Ruffed Grouse	22	3	5	
	Eastern Wood-Pewee	22	5	5	
	Blue-winged Warbler	22	3	3	
	Chestnut-sided Warbler	22	4	5	
	Prairie Warbler	22	3	4	
	Yellow-throated Warbler	22	5	3	7.0
	Black-and-white Warbler	22	5	5	
	Hooded Warbler	22	5	2	7.1
II.	Peregrine Falcon	21	3	5	
	Chimney Swift	21	4	4	
	Black-throated Green Warbler	21	5	3	
	Scarlet Tanager	21	5	4	
	Northern Bobwhite	20	3	5	
	Ruby-throated Hummingbird	20	4	5	
	Ovenbird	20	4	4	
	Field Sparrow	20	3	5	
	Eastern Phoebe	19	5	4	
	Carolina Wren	19	4	5	
	Blue-gray Gnatcatcher	19	5	5	
	Gray Catbird	19	4	5	
	Yellow-breasted Chat	19	3	5	
III.	Prothonotary Warbler	21	2	3	
	Chuck-will's-widow	19	2	3	
	Red-headed Woodpecker	18	2	3	
IV.	Downy Woodpecker	18	5	5	
	Indigo Bunting	18	5	5	
	Northern Flicker	17	4	5	
	Chipping Sparrow	17	4	5	
	Blue Jay	16	4	5	5.2
	Barn Swallow	14	4	5	
V.	Blue-headed Vireo	19	5	2	5.7
VI.	NONE				
VII.	Olive-sided Flycatcher	21	2	5	
	Rose-breasted Grosbeak	21	3	4	
	Black-billed Cuckoo	20	3	4	
	Veery	19	4	3	

Table 1 (continued).

Priority Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Percent of BBS Population
			Area Importance	Population Trend	
	Warbling Vireo	19	2	4	
	Northern Parula	19	5	2	
	Baltimore Oriole	19	2	4	
	Vesper Sparrow	17	2	5	
	Alder Flycatcher	16	2	3	
	Dark-eyed Junco	15	4	3	
	Common Raven	11	2	1	

- I. Species with total score above 22. 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. Divide species scoring 28+ as highest priority species (I a), with 22-27 as high priority species (I b).
- II. Slightly lower score total 19-21 with  $PT+AI=8+$ . Ordered by total score. These are moderate priority species.
- III. Add WatchList species (Global scores, minus AI, of 18+), 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.
- IV. Abundant but declining species,  $AI+PT=9$  or 10, not already listed in I, II, or III. Ordered by total score. Among Southeast physiographic areas, Northern Flickers, Common Yellowthroats, Indigo Buntings, and Chipping Sparrows are frequently included under this criterion and though still abundant and widespread these species probably deserve more monitoring attention at a regional or national level. In a number of physiographic areas, however, species meeting this criterion include starlings, grackles, cowbirds, blue jays, and house sparrows, species for which conservation interest is only on how their populations negatively effect higher priority species.
- V. High percent of Breeding Bird Survey (BBS) population ( $>5\%$  in physiographic areas  $<200,000 \text{ km}^2$ ,  $>10\%$  in physiographic areas  $>200,000 \text{ km}^2$ ) if not already listed above. Ordered from highest to lowest percentages, also include species with exceptionally high relative abundance (detection rates on BBS routes). These are likely secure species, but are still designated "High Responsibility" within physiographic area.
- VI. Federal listed species if not already included above. Appropriate legal obligations to protect and monitor these species still apply. Only Bald Eagle meets this criterion in some Southeast physiographic areas.
- VII. Local 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 low priority species within physiographic area, but may be more important within one or more States.

Include for each species: Total Score, AI, PT, and, when data available, percent of BBS population.

## APPENDIX B

### SOUTHERN BLUE RIDGE BIRD ASSEMBLAGES AND HABITAT CONSERVATION PRIORITIES (from Table 2 Hunter et al. 1999)

Species suites for focusing conservation action. Once species are grouped into the above tiers (Appendix A), then habitats and species suites are identified to look for patterns within and among habitats and species suites, within each physiographic area. Species are drawn from tiers I, II, and VII in Table 1. Overall level of conservation action needed is identified (as defined at end of table).

Species Suite Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Overall Conservation Action
			Area Importance	Population Trend	
<u>High Peaks</u>					
<u>Forest</u>					
Ia.	Northern Saw-whet Owl S. App. pop.	32	5	4	I
	Red-breasted Nuthatch S. App. pop.	30	5	4	V
	Brown Creeper S. App. pop.	30	5	4	III
	Winter Wren S. App. Pop.	30	5	4	V
	Golden-crowned Kinglet S. App. pop.	30	5	4	V
	Red Crossbill Type I	30	5	4	III
	Black-capped Chickadee S. App. pop.	28	5	5	II
VII.	Olive-sided Flycatcher	21	2	5	II
<u>Disturbed</u>					
<u>Forest</u>					
Ia.	Bewick's Wren Appal. subsp.	35	5	5	I
	Yellow-bellied Sapsucker S. App. pop.	33	5	5	I
	Red-cockaded Woodpecker	30	2	5	II
	Golden-winged Warbler	30	4	5	II

Table 2 (cont.).

Species Suite Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Overall Conservation Action
			Area Importance	Population Trend	
<u>Disturbed</u>					
<u>Forest (cont.)</u>					
Ib.	Bachman's Sparrow	25	2	3	II
	Brown-headed Nuthatch (GA)	23	3	3	V
	Ruffed Grouse	22	3	5	III
	Chestnut-sided Warbler	22	4	5	IV
	Prairie Warbler	22	3	4	IV
	II.	Peregrine Falcon	21	3	5
	Northern Bobwhite	20	3	5	III
	Field Sparrow	20	3	5	V
	Gray Catbird	19	4	5	V
	Yellow-breasted Chat	19	3	5	V
VII.	Vesper Sparrow	17	2	5	V
	Alder Flycatcher	16	2	3	V
	Common Raven	11	2	1	VI
<u>Mature</u>					
<u>Forest</u>					
Ia.	Swainson's Warbler	29	4	4	III
Ib.	Black-throated Blue Warbler	26	5	4	III
	Cerulean Warbler	26	3	3	II
	Louisiana Waterthrush	26	5	5	V
	Acadian Flycatcher	26	5	5	V
	Worm-eating Warbler	25	5	2	VI
	Wood Thrush	24	4	5	IV
	Kentucky Warbler	24	3	5	V
	Yellow-throated Vireo	23	4	5	V
	Blackburnian Warbler	23	4	4	III
	Canada Warbler	23	5	3	IV
	Eastern Wood-Pewee	22	5	5	IV
	Yellow-throated Warbler	22	5	3	IV
	Black-and-white Warbler	22	5	5	IV
	Hooded Warbler	22	5	2	VI
<u>Mature Forest</u>					
<u>(cont.)</u>					
II.	Chimney Swift	21	4	4	III

Table 2 (cont.).

Species Suite Entry Criteria	Species	Total PIF Priority Score	Concern Scores		Overall Conservation Action
			Area Importance	Population Trend	
	Black-throated Green Warbler	21	5	3	IV
	Scarlet Tanager Ruby-throated Hummingbird	21	5	4	IV
	Ovenbird	20	4	5	V
	Eastern Phoebe	20	4	4	IV
	Carolina Wren	19	5	4	IV
	Blue-gray Gnatcatcher	19	4	5	V
	Blue-gray Gnatcatcher	19	5	5	V
VII.	Rose-breasted Grosbeak	21	3	4	V
	Black-billed Cuckoo	20	3	4	V
	Veery	19	4	3	VI
	Warbling Vireo	19	2	4	V
	Northern Parula	19	5	2	VI
	Baltimore Oriole	19	2	4	V
	Dark-eyed Junco	15	4	3	IV

## Overall Conservation Action:

- I. Crisis recovery (*e.g.*, many but not all endangered species or otherwise non-listed but extremely vulnerable species).
- II. Immediate management and/or policy action needed for population stabilization, part of rangewide effort (*e.g.*, Bachman's Sparrow, Golden-winged Warbler, Cerulean Warbler).
- III. Management to reverse, stabilize, or increase populations in the physiographic area (*e.g.*, Brown-headed Nuthatch, Painted Bunting, Bicknell's Thrush).
- IV. Long-term planning and responsibility in the physiographic area (*e.g.*, monitoring species with high percent of BBS population, with unclear or stable population trends).
- V. Investigations (Survey/Inventory or Research) to better determine status or level of threat (*e.g.*, high scoring but poorly monitored species such as Swallow-tailed Kite, Henslow's Sparrow, Swainson's Warbler, Southern Appalachian populations of some spruce-fir forest birds).
- VI. Monitor potentially encouraging population trends or expansions (*e.g.*, Swainson's Hawk, Prothonotary Warbler, Worm-eating Warbler).

## APPENDIX C

### NATURAL HERITAGE PROGRAM LIST OF THE RARE BIRDS OF NORTH CAROLINA

Scientific Name	Common Name		<u>Status</u>		<u>Rank</u>
Province: Habitat (Counties of occurrence)		N.C.	U.S.	N.C.	
<b>Global</b>					
<b>BIRDS</b>					
<i>Accipiter striatus</i> MPS: forests and woodlands (for nesting) [breeding evidence only] (Avery, Mitchell+, Orange*, Watauga*, Yancey*)	Sharp-shinned Hawk	SR	-	S2B,S4N	G5
<i>Aegolius acadicus pop 1</i> M: spruce-fir forests or mixed hardwood/spruce forests (for nesting) [breeding season only] (Avery, Buncombe, Graham, Haywood, Jackson, Macon, Mitchell, Swain, Transylvania, Watauga, Yancey)	Northern Saw-whet Owl - Southern Appalachian population	T	FSC	S2B,S2N	G5T?
<i>Aimophila aestivalis</i> PSC: open longleaf pine forests, old fields [breeding season only] (Bladen, Brunswick, Buncombe*, Carteret, Chatham, Columbus, Craven, Cumberland, Halifax*, Harnett, Hoke, Jones, Macon*, Moore, Onslow, Pender, Richmond, Robeson, Sampson, Scotland, Wake*, Warren)	Bachman's Sparrow	SC	FSC	S3B,S2N	G3
<i>Ammodramus henslowii</i> C: clearcut pocosins and other damp weedy fields [breeding season only] (Beaufort, Bertie, Brunswick, Carteret, Columbus, Edgecombe, Gates, Martin, Onslow, Pender, Pitt, Wilson)	Henslow's Sparrow	SR	FSC	S2B,S1N	G4
<i>Anhinga anhinga</i> C: wooded lakes or ponds, or open swamps (for nesting) [breeding evidence only] (Bertie, Bladen, Brunswick, Carteret*, Columbus*, Craven, Cumberland, Dare, Halifax, Jones, New Hanover, Robeson)	Anhinga	SR	-	S2B,SZN	G5
<i>Botaurus lentiginosus</i> CT: fresh or brackish marshes [breeding season only] (Beaufort*, Carteret, Hyde, Pamlico)	American Bittern	SR	-	S1B,S3N	G4
<i>Catharus guttatus</i> M: spruce-fir forests (for nesting) [breeding season only] (Avery, Haywood, Mitchell, Swain, Yancey)	Hermit Thrush	SR	-	S1B,S5N	G5
<i>Certhia americana</i> M: high elevation forests, favoring	Brown Creeper	SC	-	S3B,S5N	G5

Scientific Name	Common Name	N.C.	Status		Rank	
			U.S.	N.C.	Global	
spruce-fir mixed with hardwoods (Avery, Buncombe, Haywood, Jackson, Mitchell, Swain, Transylvania, Watauga, Yancey)						
<i>Charadrius melodus</i>	Piping Plover	T	T	S2B,S2N	G3	
T: ocean beaches and island-end flats [breeding evidence only] (Brunswick, Carteret, Currituck, Dare, Hyde, New Hanover, Onslow, Pender)						
<i>Charadrius wilsonia</i>	Wilson's Plover	SR	-	S3B,SZN	G5	
T: beaches, island-end flats, estuarine islands [breeding evidence only] (Brunswick, Carteret, Dare, Hyde, New Hanover, Onslow, Pender)						
<i>Chondestes grammacus</i>	Lark Sparrow	SR	-	S1B,SZN	G5	
S: barren, sandy fields with scattered saplings in the sandhills region [breeding season only] (Cumberland, Hoke, Richmond, Scotland)						
<i>Circus cyaneus</i>	Northern Harrier	SR	-	S1B,S4N	G5	
T: extensive brackish marshes (for nesting) [breeding evidence only] (Carteret, Dare, Hyde)						
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	SR	-	S2B,SZN	G5	
M: deciduous forests, mainly at higher elevations [breeding season and habitat only] (Ashe*, Avery, Buncombe, Burke, Caldwell, Haywood, Henderson, Jackson, McDowell, Mitchell+, Transylvania, Watauga)						
<i>Columbina passerina</i>	Common Ground-Dove	SR	-	SHB,SZN	G5	
T: dunes, sandy fields, margins of maritime woods and thickets [breeding season only] (Brunswick, New Hanover, Pender)						
<i>Contopus cooperi</i>	Olive-sided Flycatcher	SC	FSC	SUB,SZN	G4	
M: montane conifer forests (mainly spruce-fir) with openings or dead trees [breeding season only] (Haywood, Macon*, McDowell*, Mitchell*, Swain, Yancey)						
<i>Coturnicops noveboracensis</i>	Yellow Rail	SR	-	S2N	G4	
TC: brackish or fresh marshes, wet fields [winter season only] (Carteret, Currituck, Dare, Hyde, New Hanover*)						
<i>Dendroica cerulea</i>	Cerulean Warbler	SR	FSC	S2B,SZN	G4	
MC: mature hardwood forests; steep slopes and coves in mountains, natural levees in Coastal Plain [breeding season only] (Bertie, Buncombe, Clay, Graham, Halifax, Haywood, Johnston, Macon, McDowell, Northampton, Polk, Rutherford,						

Scientific Name	Common Name	N.C.	Status		Rank	
			U.S.	N.C.	Global	
<b>Province: Habitat (Counties of occurrence)</b> Transylvania, Watauga, Wilkes)						
<i>Dendroica magnolia</i> M: spruce-fir forests, especially in immature stands [breeding season only] (Avery, Buncombe, Graham, Haywood, Jackson*, McDowell, Mitchell, Watauga, Yancey)	Magnolia Warbler	SR	-		S1S2B,SZN, G5	
<i>Dendroica virens waynei</i> C: nonriverine wetland forests, especially where white cedar or cypress are mixed with hardwoods [breeding season only] (Beaufort, Bladen, Brunswick, Camden, Carteret, Craven, Cumberland, Dare, Gates, Hyde*, Jones, Pamlico, Tyrrell, Washington)	Black-throated Green Warbler - Coastal Plain population	SR	-		S3B,SZN G5TU	
<i>Egretta caerulea</i> T: forests or thickets on maritime islands [breeding sites only] (Brunswick, Carteret, Columbus*, Cumberland, Currituck, Dare, Hyde, Jones, New Hanover, Robeson)	Little Blue Heron	SC	-		S3B,S3N G5	
<i>Egretta thula</i> T: forests or thickets on maritime islands [breeding sites only] (Brunswick, Carteret, Columbus*, Currituck, Dare, Hyde, New Hanover, Robeson)	Snowy Egret	SC	-		S3B,S3N G5	
<i>Egretta tricolor</i> T: forests or thickets on maritime islands [breeding sites only] (Brunswick, Carteret, Currituck, Dare, Hyde, New Hanover)	Tricolored Heron	SC	-		S3B,S3N G5	
<i>Empidonax alnorum</i> M: high elevation shrub/sapling thicket [breeding season only] (Alleghany, Ashe, Avery, Buncombe, Haywood, Jackson, Mitchell, Watauga, Yancey)	Alder Flycatcher	SR	-		S2B,SZN G5	
<i>Falco peregrinus</i> MT: cliffs (for nesting); coastal ponds and mudflats (for foraging in winter) [nesting evidence; regular wintering sites] (Avery, Brunswick, Buncombe, Burke, Carteret, Dare, Haywood, Hyde*, Jackson, Madison, Rutherford, Stokes, Surry, Transylvania, Wilkes*, Yancey)	Peregrine Falcon	E	-		S1B,S2N G4	
<i>Haematopus palliatus</i> T: estuaries, oyster beds, mudflats [breeding evidence only] (records not yet entered)	American Oystercatcher	SR	-		S3B,S4N G5	
<i>Haliaeetus leucocephalus</i> PCT: mature forests near large bodies of water (for nesting); lakes and	Bald Eagle	T	T (PD)		S3B,S3N G4	

Scientific Name	Common Name	Status	Rank		Global
			N.C.	U.S.	
<p>sounds [nesting sites; regular non-breeding sites] (Alexander, Anson, Beaufort, Bertie, Bladen, Brunswick, Burke, Camden, Catawba, Chatham, Chowan, Columbus, Craven, Currituck, Dare, Davidson, Durham, Gaston, Granville, Guilford, Halifax, Harnett, Haywood, Hyde, Johnston*, Lenoir, Martin*, Mecklenburg, Montgomery, Nash, Northampton*, Onslow, Orange, Pamlico, Pasquotank, Pitt, Richmond, Rowan, Stanly, Tyrrell, Vance*, Wake, Warren*, Washington, Wilson)</p>					
<i>Himantopus mexicanus</i>	Black-necked Stilt	SR	-	S2B	G5
T: fresh or brackish ponds and impoundments [breeding sites only] (Beaufort, Brunswick, Carteret, Dare, Onslow, Pamlico)					
<i>Ictinia mississippiensis</i>	Mississippi Kite	SR	-	S2B	G5
C: mature, extensive bottomland forests, mainly in Roanoke River floodplain [regular summer locations only] (Bladen, Carteret, Columbus, Halifax, Harnett, Johnston, Martin, Nash, Richmond, Scotland, Wayne)					
<i>Lanius ludovicianus ludovicianus</i>	Loggerhead Shrike	SC	-	S3B,S3N	G4T4
PSC: fields and pastures [breeding season only] (Alamance+, Ashe+, Bladen+, Brunswick, Carteret, Catawba, Chatham, Cleveland, Davie, Edgecombe+, Forsyth, Franklin, Gaston, Granville+, Greene+, Guilford, Halifax, Iredell, Johnston+, Lenoir+, Lincoln, Mecklenburg, Montgomery, Moore, New Hanover+, Pitt, Polk, Richmond, Robeson, Rowan, Rutherford, Scotland+, Stanly, Transylvania+, Wake+, Wayne)					
<i>Lanius ludovicianus migrans</i>	Migrant Loggerhead Shrike	SC	FSC	SUB,SUN	G4T3Q
M: fields and pastures [breeding season only]					
<i>Laterallus jamaicensis</i>	Black Rail	SR	FSC	S3B,S2N	G4
TCP: brackish marshes, rarely fresh marshes [breeding season only] (Carteret, Craven, Currituck, Dare, Hyde, Onslow, Pamlico)					
<i>Loxia curvirostra pop 1</i>	Southern Appalachian Red Crossbill	SC	FSC, S3B,S3N,		G5T?
M: coniferous forests, preferably spruce-fir (Ashe*, Avery, Buncombe, Burke, Haywood, Jackson, McDowell, Mitchell, Swain, Transylvania, Yancey)					
<i>Mycteria americana</i>	Wood Stork	E	E	S1N	G4
T: fresh or brackish ponds (for foraging) [regular non-breeding					

Scientific Name	Common Name	Status	Rank		Global
			N.C.	U.S.	
Province: Habitat (Counties of occurrence) sites] (Brunswick)					
<i>Passerculus sandwichensis</i> M: grassy fields and pastures [breeding season only] (Alleghany, Ashe, Watauga)	Savannah Sparrow	SR	-	S2B,S5N	G5
<i>Passerina ciris ciris</i> T: maritime shrub thickets and forest edges [breeding season only] (Brunswick, Carteret, New Hanover, Onslow, Pender)	Eastern Painted Bunting	SR	FSC	S3B,SZN	G5T3T4
<i>Pelecanus occidentalis</i> T: maritime islands [breeding sites only] (Brunswick, Carteret, Dare, New Hanover)	Brown Pelican	SR	-	S3B,S4N	G4
<i>Phalacrocorax auritus</i> CP: lakes with scattered trees for nesting [breeding sites only] (Chatham, Craven)	Double-crested Cormorant	SR	-	S1B,S5N	G5
<i>Picoides borealis</i> PSC: mature open pine forests, mainly in longleaf pine [breeding evidence only] (Anson, Beaufort, Bertie, Bladen, Brunswick, Camden*, Carteret, Chatham*, Columbus, Craven, Cumberland, Currituck*, Dare, Duplin, Edgecombe*, Forsyth*, Gates, Halifax*, Harnett, Hertford*, Hoke, Hyde, Johnston, Jones, Lee*, Lenoir*, Montgomery, Moore, Nash*, New Hanover, Northampton*, Onslow, Orange*, Pamlico*, Pender, Pitt*, Richmond, Robeson, Sampson, Scotland, Tyrrell, Wake*, Wayne, Wilson*)	Red-cockaded Woodpecker	E	E	S2	G3
<i>Plegadis falcinellus</i> T: forests or thickets on maritime islands [breeding sites only] (Brunswick, Carteret, Currituck, Dare, Hyde, New Hanover)	Glossy Ibis	SC	-	S2B,SZN	G5
<i>Poecile atricapillus praticus</i> M: high elevation forests, mainly spruce-fir [breeding season only] (Avery, Buncombe*, Haywood, Jackson, Swain, Transylvania, Yancey*)	Southern Appalachian Black-capped Chickadee	SC	FSC	S3	G5T?
<i>Pooecetes gramineus</i> M: high elevation pastures and grassy fields [breeding season only] (Ashe, Avery, Haywood, Mitchell, Watauga)	Vesper Sparrow	SR	-	S2B,S2N	G5
<i>Porphyryula martinica</i> C: freshwater ponds with floating vegetation [breeding sites only] (Brunswick, Onslow*, Robeson)	Purple Gallinule	SR	-	SHB	G5
<i>Riparia riparia</i> MP: high, vertical banks for	Bank Swallow	SR	-	SUB,SZN	G5

Scientific Name	Common Name	Status	Rank		Global
			N.C.	U.S.	
Province: Habitat (Counties of occurrence) nesting [breeding sites only] (Avery, Wilkes*)					
<i>Rynchops niger</i>	Black Skimmer	SC	-	S3B,S3N	G5
T: sand flats on maritime islands [breeding sites only] (Brunswick, Carteret, Dare, Hyde, New Hanover, Onslow, Pender)					
<i>Sphyrapicus varius appalachiensis</i>	Appalachian Yellow-bellied Sapsucker	SC	FSC	S3B,S5N	G5T?
M: mature, open hardwoods with scattered dead trees [breeding season only] (Avery*, Buncombe, Clay*, Graham, Haywood, Henderson, Jackson, Macon, Mitchell*, Swain, Transylvania, Watauga, Yancey)					
<i>Sterna antillarum</i>	Least Tern	SC	-	S3B,SZN	G4
T: beaches, sand flats, open dunes (Brunswick, Carteret, Craven, Dare, Hyde, New Hanover, Onslow, Pender)					
<i>Sterna caspia</i>	Caspian Tern	SR	-	S1B,S2N	G5
T: sand flats on maritime islands [breeding sites only] (Dare, Hyde*)					
<i>Sterna dougallii</i>	Roseate Tern	E	E	SAB,SZN	G4
T: sand flats on maritime islands [breeding evidence only] (Carteret*, Dare)					
<i>Sterna hirundo</i>	Common Tern	SC	-	S3B,SZN	G5
T: sand flats on maritime islands [breeding sites only] (Carteret, Dare, Hyde, New Hanover, Onslow, Pender)					
<i>Sterna nilotica</i>	Gull-billed Tern	T	-	S3B,SZN	G5
T: sand flats on maritime islands [breeding sites only] (Brunswick, Carteret, Dare, Hyde, Onslow*)					
<i>Thryomanes bewickii altus</i>	Appalachian Bewick's Wren	E	FSC	SHB,SZN	G5T2Q
M: woodland borders or openings, farmlands or brushy fields, at high elevations [breeding season only] (Ashe*, Avery*, Buncombe*, Haywood*, Jackson*, Macon*, Transylvania*)					
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	SR	-	S3B,SZN	G4
M: old fields and successional hardwoods (Alleghany, Ashe, Watauga; plus many additional counties)					
<i>Vermivora pinus</i>	Blue-winged Warbler	SR	-	S2B,SZN	G5
M: low elevation brushy fields and thickets [breeding season only] (Alleghany, Ashe, Buncombe*, Cherokee*, Graham*, Macon)					
<i>Vireo gilvus</i>	Warbling Vireo	SR	-	S2B,SZN	G5
M: groves of hardwoods along rivers and streams [breeding season only] (Alleghany,					

Ashe, Avery, Buncombe, Cleveland, Halifax,  
Henderson, Macon\*, Orange, Watauga)

**NATURAL HERITAGE PROGRAM LIST OF THE  
WATCH LIST BIRDS OF NORTH CAROLINA**

Only the breeding season populations are of concern; provinces and habitats are for these populations only.

Scientific Name	Common Name	Province: Habitat (Counties of occurrence)	Status		Rank		Global
			N.C.	U.S.	N.C.		
<i>Accipiter cooperii</i> MPSC: forests and woodlands	Cooper's Hawk		SC	-		3S4B,S4N,G5	
<i>Accipiter gentilis</i> M: extensive, remote forests, mainly at high elevations	Northern Goshawk		W3	-		SUB,SZN	G5
<i>Ammodramus caudacutus</i> T: tidal marshes	Saltmarsh Sharp-tailed Sparrow		W3	-		SUB,S4N	G4
<i>Ammodramus savannarum</i> PSCM: pastures and other grasslands	Grasshopper Sparrow		W1,W5	-		S3B,S1N	G5
<i>Anas discors</i> TC: fresh to slightly brackish marshes, usually at impoundments	Blue-winged Teal		W2	-		SHB,S2N	G5
<i>Anas rubripes</i> TC: fresh or brackish marshes, often at impoundments	American Black Duck		W1	-		S3B,S4N	G5
<i>Asio flammeus</i> TC: coastal marshes	Short-eared Owl		W3	-		SUB,S3N	G5
<i>Asio otus</i> M: high elevation forests in northern mountains	Long-eared Owl		W3	-		SUB,SZN	G5
<i>Carduelis pinus</i> M: spruce-fir forests	Pine Siskin		W3	-		SUB,S4N	G5
<i>Coragyps atratus</i> MPSC: forested areas for nesting; forests or open country for foraging	Black Vulture		SC	-		S3S4	G5
<i>Corvus corax</i> MP: cliffs for nesting; forests or fields (mainly at high elevations) for foraging	Common Raven		W2	-		S3	G5
<i>Dendroica coronata</i> M: spruce-fir forests, especially in immature stands	Yellow-rumped Warbler		W3	-		SUB,S5N	G5
<i>Dolichonyx oryzivorus</i> M: meadows and other grasslands	Bobolink		W3,W5	-		SUB,SZN	G5
<i>Elanoides forficatus</i> C: extensive swamps and bottomlands, often forages over nearby fields or marshes	Swallow-tailed Kite		W3	-		SUB,SZN	G5
<i>Empidonax minimus</i> M: open hardwood forests, groves, streamside trees	Least Flycatcher		W2	-		S3B,SZN	G5
<i>Empidonax traillii</i> MP: wet thickets in open country, often along streams in broad valleys	Willow Flycatcher		W2	-		S3B,SZN	G5

Scientific Name	Common Name	Status		Rank		Global
		N.C.	U.S.	N.C.		
<i>Eudocimus albus</i> T: forests or thickets on maritime islands	White Ibis		W2	-	S3B,S3N	G5
<i>Falco sparverius</i> MPSC: open country; nests in cavities, even in buildings or poles in cities	American Kestrel		W1,W5	-	S3B,S5N	G5
<i>Helmitheros vermivorus pop 1</i> C: nonriverine wet hardwoods, pocosins	Worm-eating Warbler - Coastal Plain population		W5	-	S3B,SZN	G5T?
<i>Icterus galbula</i> MP: hardwood groves or streamside trees, in open country	Baltimore Oriole		W2	-	S3B,S3N	G5
<i>Ixobrychus exilis</i> TCSP: fresh or brackish marshes	Least Bittern		W3	-	S3B,SZN	G5
<i>Limnothlypis swainsonii</i> CSMP: forests with dense understory, often with cane in Coastal Plain and rhododendron in mountains	Swainson's Warbler		W2,W5	-	S3B,SZN	G4
<i>Lophodytes cucullatus</i> PMC: lakes and ponds, with dead trees for nesting	Hooded Merganser		W3	-	S1B,S4N	G5
<i>Nyctanassa violacea</i> TCP: swamps; woods or thickets on maritime islands	Yellow-crowned Night-Heron		W2,W3	-	S3B,SZN	G5
<i>Pheucticus ludovicianus</i> M: hardwood forests at mid- to high elevations	Rose-breasted Grosbeak		W1	-	S3B,SZN	G5
<i>Rallus elegans</i> TCPS: fresh to slightly brackish marshes	King Rail		W1,W3	-	S3B,S3N	G4G5
<i>Regulus satrapa</i> M: spruce-fir forests; hardwood forests mixed with spruce or hemlock	Golden-crowned Kinglet		W2	-	S3S4B,S5N	G5
<i>Sitta canadensis</i> M: high-elevation coniferous forests, preferably spruce-fir	Red-breasted Nuthatch		W2,W5	-	S3B,S4N	G5
<i>Spiza americana</i> PC: fallow fields and pastures with tall forbs	Dickcissel		W3,W5	-	S2B,SZN	G5
<i>Sterna forsteri</i> T: salt or brackish marshes, nesting on wrack material or matted grasses	Forster's Tern		W2	-	S3B,S5N	G5
<i>Sterna fuscata</i> T: sand flats on maritime islands; forages over open ocean	Sooty Tern		W2	-	SUB,S3N	G5
<i>Sterna sandvicensis</i> T: sand flats on maritime islands	Sandwich Tern		W2,W5	-	S3B,SZN	G5
<i>Tachycineta bicolor</i> MPC: cavities near ponds or other open water	Tree Swallow		W2	-	S2S3B,S4N	G5

Scientific Name	Common Name	Status		Rank	
		N.C.	U.S.	N.C.	Global
<i>Troglodytes troglodytes</i> M: cool, moist forests at mid- to high elevations	Winter Wren	W2,W5	-	S3B,S5N	G5
<i>Tyto alba</i> MPSCCT: extensive open country, nesting in old buildings, silos, large tree cavities	Barn Owl	W2,W3	-	S3B,S3N	G5

## LIST FORMAT

Species are grouped by major taxa. The vertebrates are arranged by class, beginning with the most advanced phylogenetically (mammals). Within a given taxa, species are listed alphabetically by scientific name. The following information is presented for each species on the list. "Status" is a word or phrase that indicates the degree of protection (if any), based on rarity, of a species; "rank" is a numerical scale of the rarity of a species, regardless of legal protection.

Scientific Name.

Common Name. For most groups, these names are not standardized.

North Carolina Status. Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, freshwater and terrestrial mollusks, and crustaceans have legal protection status in North Carolina (Wildlife Resources Commission). In addition to the above categories, the Natural Heritage Program maintains computer and map files on Significantly Rare species, as well as species considered Extirpated. Paper files only are maintained for a few of the above species; these species are indicated by the phrase "not tracking."

STATUS CODE	STATUS	DEFINITION
E	Endangered	"Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
T	Threatened	"Any native or once-native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
SC	Special Concern	"Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987).

<b>STATUS CODE</b>	<b>STATUS</b>	<b>DEFINITION</b>
P_	Proposed	Species has been proposed by a Scientific Council as a status (Endangered, Threatened, Special Concern, Watch List, or for De-listing) that is different from the current status, but the status has not yet been adopted by the General Assembly as law. In the lists of rare species in this book, these proposed statuses are listed in parentheses below the current status. Only those proposed statuses that are different from the current statuses are listed.
SR	Significantly Rare	Any species which has not been listed by the N.C. Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the N.C. Natural Heritage Program to need monitoring. (This is a N.C. Natural Heritage Program designation.) Significantly Rare species include "peripheral" species, whereby North Carolina lies at the periphery of the species' range (such as Hermit Thrush).
EX	Extirpated	A species which is no longer believed to occur in the state. (This is a N.C. Natural Heritage Program designation, though WRC also uses this status; the NHP list includes those on the WRC list.)
W	Watch List	Any other species believed to be of conservation concern in the state because of scarcity, declining populations, threats to populations, or inadequacy of information to assess its rarity (see page 59 for a more complete discussion). (This is a N.C. Natural Heritage Program designation.)
G	----	Species is a game animal, and therefore (by law) cannot be listed for State protection as E, T, or SC.

United States Status. This status is designated by the U.S. Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended through the 100th Congress. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 56, No. 225, November 21, 1991 (50 CFR Part 17).

<b>STATUS CODE</b>	<b>STATUS</b>	<b>DEFINITION</b>
E	Endangered	A taxon "which is in danger of extinction throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
T	Threatened	A taxon "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
FSC	(Federal) Species of Concern [also known as Species at Risk]	"... the Service is discontinuing the designation of Category 2 species as candidates in this notice. The Service remains concerned about these species, but further biological research and field study are needed to resolve the conservation status of these taxa. Many species of concern

STATUS CODE	STATUS	DEFINITION
		<p>will be found not to warrant listing, either because they are not threatened or endangered or because they do not qualify as species under the definition in the [Endangered Species] Act. Others may be found to be in greater danger of extinction than some present candidate taxa. The Service is working with the States and other private and public interests to assess their need for protection under the Act. Such species are the pool from which future candidates for listing will be drawn.” (<i>Federal Register</i>, February 28, 1996). The Service suggests that such taxa be considered as “Species of Concern” or “Species at Risk”, neither of which has official status. The N.C. Natural Heritage Program uses</p> <p>“(Federal) Species of Concern” in this document for those taxa formerly considered as Category 2.</p>
P_	Proposed	Species proposed in the <i>Federal Register</i> as a status different from its current Federal status.
T (S/A)	Threatened due to Similarity of Appearance	<p>“Section 4 (e) of the [Endangered Species] Act authorizes the treatment of a species (subspecies or population segment) as endangered or threatened even though it is not otherwise listed as endangered or threatened if -- (a) the species so closely resembles in appearance an endangered or threatened species that enforcement personnel would have substantial difficulty in differentiating between the listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to an endangered or threatened species; and (c) such treatment of an unlisted species will substantially facilitate the enforcement and further the policy of the Act.” (<i>Federal Register</i>, November 4, 1997). [The American Alligator is listed as T (S/A) due to Similarity of Appearance with other rare crocodilians, and the southern population of the Bog Turtle is listed as T (S/A) due to Similarity of Appearance with the northern population of the Bog Turtle (which is federally listed as Threatened and which does not occur in North Carolina).]</p>
XN	Nonessential Experimental Population	<p>“Section 10 (j) of the Endangered Species Act of 1973, as amended, provides for the designation of introduced populations of federally listed species as nonessential experimental. This designation allows for greater flexibility in the management of these populations by local, state, and Federal agencies. Specifically, the requirement for Federal agencies to avoid jeopardizing these populations by their actions is eliminated and allowances for taking the species are broadened.” (U.S. Fish and Wildlife Service, 1995).</p>
D	De-listed	<p>Species has been proposed by the U.S. Fish and Wildlife Service for de-listing from the List of Endangered and Threatened Wildlife. However, at the present time, the species is still on the List of Endangered</p>

<b>STATUS CODE</b>	<b>STATUS</b>	<b>DEFINITION</b>
		and Threatened Wildlife and is thus protected under the Endangered Species Act. Because such species still have legal Federal protection, the NHP will maintain existing records on the species, though new records might not necessarily be added. If the status becomes law prior to the next publication of the NHP Rare Animal List, the Program will remove the Federal designation from its database (and thus the species will no longer appear on printouts of Federally listed species). NHP may or may not continue to track the species, depending on its legal State status and other factors such as overall abundance and range in the state.

North Carolina Rank. North Carolina ranks are based on The Nature Conservancy's system of measuring rarity and threat status. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity at the state level. State ranks are assigned by biologists within each Natural Heritage Program.

<b>RANK</b>	<b>NUMBER OF EXTANT POPULATIONS</b>	<b>DESCRIPTION</b>
S1	1-5	Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from North Carolina.
S2	6-20	Imperiled in North Carolina because of rarity or because of some factor(s) making it very vulnerable to extirpation from North Carolina.
S3	21-100	Rare or uncommon in North Carolina.
S4	100-1000	Apparently secure in North Carolina, with many occurrences.
S5	1000+	Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
SA	1-?	Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species.
SH	0?	Of historical occurrence in North Carolina, perhaps not having been verified in the past 20 years, and suspected to be still extant.
SR	--	Reported from North Carolina, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
SX	0	Apparently extirpated from North Carolina.
SU	--	Possibly in peril in North Carolina but status uncertain; need more information.
S?	--	Unranked, or rank uncertain.

<u>_B</u>	1-?	Rank of the breeding population in the state. Used for migratory species only.
<u>_N</u>	1-?	Rank of the non-breeding population in the state. Used for migratory species only.
<u>_Z_</u>	1-?	Population is not of significant conservation concern. For example, the status "SZN" indicates that the population in the non-breeding seasons (generally in migration or in winter) is transitory, without any regular locales of occurrence whereby the species can be protected. Where a number is listed with the "B" or "N" modifier, there are definable locales of occurrence that can be identified for protection.

Global Rank. Global ranks are assigned by NatureServe (formerly the science branch of The Nature Conservancy) staff biologists and contract biologists, based on a consensus of scientific experts, the individual natural heritage programs, and the Natural Heritage Network. Global ranks apply to the status of a species throughout its range, and are based on data on the species' status rangewide. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity throughout its range. NOTE: Global ranks in brackets are those suggested by Scientific Councils in North Carolina, or by the N.C. Natural Heritage Program, and are not NatureServe's assigned ranks. These suggested ranks are listed below the TNC assigned ranks. In some cases, these suggested ranks were made to indicate that the Global Rank perhaps should be changed, with the taxa apparently more common in North Carolina than the Global Rank will allow (i.e., a rank of S3 G2 isn't technically allowed; thus, the global rank is suggested to be G3.)

<b>RANK</b>	<b>NUMBER OF EXTANT POPULATIONS</b>	<b>DESCRIPTION</b>
G1	1-5	Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction.
G2	6-20	Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3	21-100	Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single physiographic region) or because of other factors making it vulnerable to extinction throughout its range.
G4	100-1000	Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5	1000+	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH	0?	Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered.
GX	0	Believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

<b>RANK</b>	<b>NUMBER OF EXTANT POPULATIONS</b>	<b>DESCRIPTION</b>
GU	--	Possibly in peril range-wide, but status uncertain; more information is needed.
G?	--	Unranked, or rank uncertain.
G_Q	--	Questionable taxonomic assignment.
T_	--	The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1.

Physiographic Province/Region. The provinces/regions in which the animal is known to occur are indicated. This should not be regarded as the only province(s) or region(s) of the state in which the species could occur; our knowledge of the fauna of North Carolina, especially the invertebrates, is still very imperfect. The provinces are abbreviated as follows:

M	Mountains	All parts of North Carolina west of the foot of the Blue Ridge Escarpment.
P	Piedmont	All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, and Sauratown mountains.
S	Sandhills	The southwestern portion of the Coastal Plain province consisting mostly of deep aeolian sands of the Middendorf and Pinehurst formation (portions of Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Scotland, and Montgomery counties). The Sandhills are actually part of the Coastal Plain but are here distinguished because of their distinctive geomorphology and vegetation.
C	Coastal Plain	All parts of North Carolina east of the Fall Line, but excluding the Sandhills region and those portions associated with tidal water (ocean, sounds, barrier islands, and mainland brackish or salt marshes).
T	Tidewater	That part of the state associated with tidal water, such as the ocean and barrier islands, sounds, estuaries, and mainland brackish or salt marshes.

Habitat. The known, or the most typical, habitats are described briefly; as with provinces, these should not be regarded as the only possible habitats of the species in the state.

Counties of occurrence. Following the description of habitats is a listing, in parentheses, of the known counties of occurrence of the records in the Natural Heritage Program database. For most vertebrate species, this listing of counties is complete or reasonably complete. However, for many invertebrates, and a few vertebrates (generally those newly added to the Rare List), there is no listing of counties, as records have yet to be added to the database. Where county names appear in brackets, records from these counties have not yet been added to the database.) **Counties in which the element was last observed**

**more than 20 years ago are marked with an asterisk (\*).** The asterisk does not necessarily mean that the species no longer exists in that county; simply, it means that the date of the last observation available to the Natural Heritage Program from that county is 1983 or earlier. **Counties where no date of occurrence (e.g., data from an atlas/dot map) is available are marked with a plus (+).** Without additional information, the Program has no way of knowing whether such data should be considered as current or historic (marked with \*). Records from such references, atlases, and other lists that were published or made available to the Program from 1983 or earlier should be considered as historic, but the Program has not yet updated the database for these obscure date records.

#### **WATCH LIST CODES**

W1 = species known to be declining in the state; may need listing in upcoming years

W2 = species rare to uncommon, but probably not in trouble

W3 = species that is poorly known; perhaps needs listing in upcoming years

W4 = species reported from the state without adequate documentation

W5 = species with increasing amount of threats to its habitat, whether populations are known to be declining or not

T = Threatened (see Page 3). Though still on the State Protected List, biologists consider the species to no longer need tracking by the N.C. Natural Heritage Program.

SC = Special Concern (see Page 3). Though still on the State Prote

## APPENDIX D

### USFWS Species of Conservation Concern (2002) Appalachian Mountains (BCR 28)

*Peregrine Falcon*  
Upland Sandpiper  
Buff-breasted Sandpiper  
Black-billed Cuckoo  
Short-eared Owl  
Northern Saw-whet Owl (breeding populations only)  
Chuck-will's-widow  
Whip-poor-will  
Red-headed Woodpecker  
Yellow-bellied Sapsucker (breeding populations only)  
Olive-sided Flycatcher  
Acadian Flycatcher  
Black-capped Chickadee (southern Blue Ridge populations only)  
Bewick's Wren  
Sedge Wren  
Wood Thrush  
Golden-winged Warbler  
Prairie Warbler  
Cerulean Warbler  
Prothonotary Warbler  
Worm-eating Warbler  
Swainson's Warbler  
Louisiana Waterthrush  
Kentucky Warbler  
Bachman's Sparrow  
Henslow's Sparrow  
Red Crossbill (southern Appalachian populations only)