FINAL DRAFT

Avian Conservation Implementation Plan
Great Smoky Mountains National Park

National Park Service
Southeast Region

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U.S. Fish and Wildlife Service
In cooperation with

GRSM Resource Management Staff, National Park Service
And Bird Conservation Partners
January 2005

TABLE OF CONTENTS

Introduction 3

Background 3

The North American Bird Conservation Initiative 4

The Southeastern Bird Conservation Initiative: National Park Service 5

Role of NPS in Avian Conservation 5

Park Description 7

Avian Resources of the Southern Blue Ridge 8

Avian Conservation in GRSM 11

Park Identified Needs for Avian Conservation 14

Coordination with Regional Conservation Initiatives 14
- North American Bird Conservation Initiative 14
- North American Waterfowl Management Plan 14
- Partners In Flight 16
- United States Shorebird Conservation Plan 16
- Waterbird Conservation for the Americas 16

Integration of NABCI Goals and Objectives into Park Planning and Operations: NABCI Implementation Recommendations 16
- Inventory 17
- Monitoring 18
- Habitat Restoration 20
- Threat Management 22
- Research 22
- Compliance 23
- Outreach 24
- Partners and Partnerships 25
- Funding Opportunities 26
- Contacts 28

Literature Cited 30

Appendixes
- High Priority Species in the Southern Blue Ridge Bird Conservation Region
- Southern Blue Ridge Habitat Conservation and Species Assemblages Priorities
- Tennessee Rare Vertebrate List
- North Carolina Watch List of High Priority Birds
- US Fish and Wildlife Service Species of Conservation Concern (2002) in the Appalachian Mountains (BCR 28)

Introduction

This Avian Conservation Implementation Plan (ACIP) is provided to the staff at Great Smoky Mountains National Park (GRSM) to help identify and prioritize bird conservation opportunities, and to provide information and guidance for the successful implementation of needed conservation activities. This plan may identify goals, strategies, partnerships, and perhaps specific projects allowing the park to participate in existing bird conservation planning and implementation efforts associated with the North American Bird Conservation Initiative (NABCI). Under the auspice of NABCI, appropriate bird and habitat conservation goals may be recommended as identified in the appropriate existing national or regional bird conservation efforts aligned with this initiative: Partners In Flight (PIF), North American Waterfowl Management Plan (NAWMP), US Shorebird Conservation Plan (USSCP), and Waterbird Conservation for the Americas (WCA). For example, parks in the Appalachians and the Cumberland Plateau, including GRSM, 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 GRSM will be discussed and integrated as appropriate.

Information and data presented in the ACIP have been obtained from several sources: 1) interviews with GRSM staff 2) GRSM bird conservation partners 3) the PIF Southern Blue Ridge Bird Conservation Plan, Version 1.0 (Hunter et al. 1999), 4) NPS databases, 5) peer reviewed bird conservation and management literature, and 6) personal communications with bird conservation specialists throughout North America, especially in the southeastern United States. This plan has been reviewed by GRSM resource management staff and managers, Appalachian Highland Network Inventory and Monitoring (AHN I&M) staff, and bird conservation partners and approved by GRSM management. Optimally, this plan will be incorporated into the park's Resource Management Plan (RMP; USDI NPS 1999) and updated annually to reflect completed projects, newly identified needs, and shifts in bird conservation priorities in the region.

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

Background

During the past thirty years, monitoring programs across North America have documented declines of certain bird species populations and their habitats, often severe (Sauer et al. 2000). The decline has caused great concern among scientists, biologists,

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

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

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

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

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

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

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

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

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

This ACIP fulfills one aspect of the plan outlined above and serves as a basis for future bird conservation actions in GRSM and with adjacent partners or landowners. Concurrently, the development of a Memorandum of Understanding (MOU) between the FWS and the NPS to implement Presidential Executive Order (EO) 13186 (US Government 2000), Responsibilities of Federal Agencies To Protect Migratory Birds, calls for integration of programs and recommendations of existing bird conservation efforts into park planning and operations. Complementing each other, the MOU and the Southeastern Bird Conservation Initiative will advance bird conservation in the Southeast Region of the NPS beyond current regional NPS efforts.

Role of NPS in Avian Conservation

The interagency agreement that facilitates this partnership supports both FWS and NPS management policies. Specifically for the NPS, the agreement supports and advances the Strategy for Collaboration, a visionary document developed and signed by the Southeast Natural Resource Leaders Advisory Group (SENRLAG 2000), a consortium of 13 land and resource management agencies in the Southeastern United States whose vision is to encourage and support cooperation in planning and managing the region's natural resources. Furthermore, the agreement is aligned with and implements a variety of NPS Management Polices (2001) including, but not limited to, External Threats and Opportunities, Environmental Leadership, Cooperative Planning, Land Protection, and especially Natural Resource Management that details policy and management guidelines which apply to bird conservation. Important policies in the

Natural Resource Management chapter include:

- Planning for Natural Resource Management
- Partnerships
- Restoration of Natural Systems
- Studies and Collection
- General Principles for Managing Biological Resources
- Plant and Animal Population Management Principles
- Management of Native Plants and Animals
- Management of Endangered Plants and Animals
- Management of Natural Landscapes
- Management of Exotic Species
- Pest Management
- Fire Management and
- Water Resource Management

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

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

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

Nationally, the status of birds in national parks is largely unknown, although many parks have adequate knowledge regarding bird occurrence in the parks (http://www.npwrc.usgs.gov/resource/othrdata/chekbird/chekbird.htm). Parks often play

a role in ongoing regional bird conservation efforts. Indeed many of these parks are often important to regional, national, or international bird conservation, and many have been designated as Important Bird Areas (IBA's) by the National Audubon Society. To date, there are approximately 64 NPS units that are designated IBA's, 35 of which are considered of global importance (http://abcbirds.org/iba/aboutiba.htm). In the Southeast Region, the NPS has 13 global IBA's.

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

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

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

Park Description

Established by Congress in 1934, Great Smoky Mountains National Park is internationally renowned as a center of biological diversity within North America. Complex ecological gradients combine to create a diverse mosaic of biotic communities in this 211,097 ha Park. The biological importance of GRSM led to its designation as an International Biosphere Reserve in 1976, and as a World Heritage Site in 1983. Elevations in the park range from 1,200 m to over 2,670 m. At lower elevations, tulip poplar dominates large areas that historically were cleared and farmed. In sheltered rich coves (typically with northerly aspects), yellow buckeye, sugar maple, white basswood, and tulip poplar

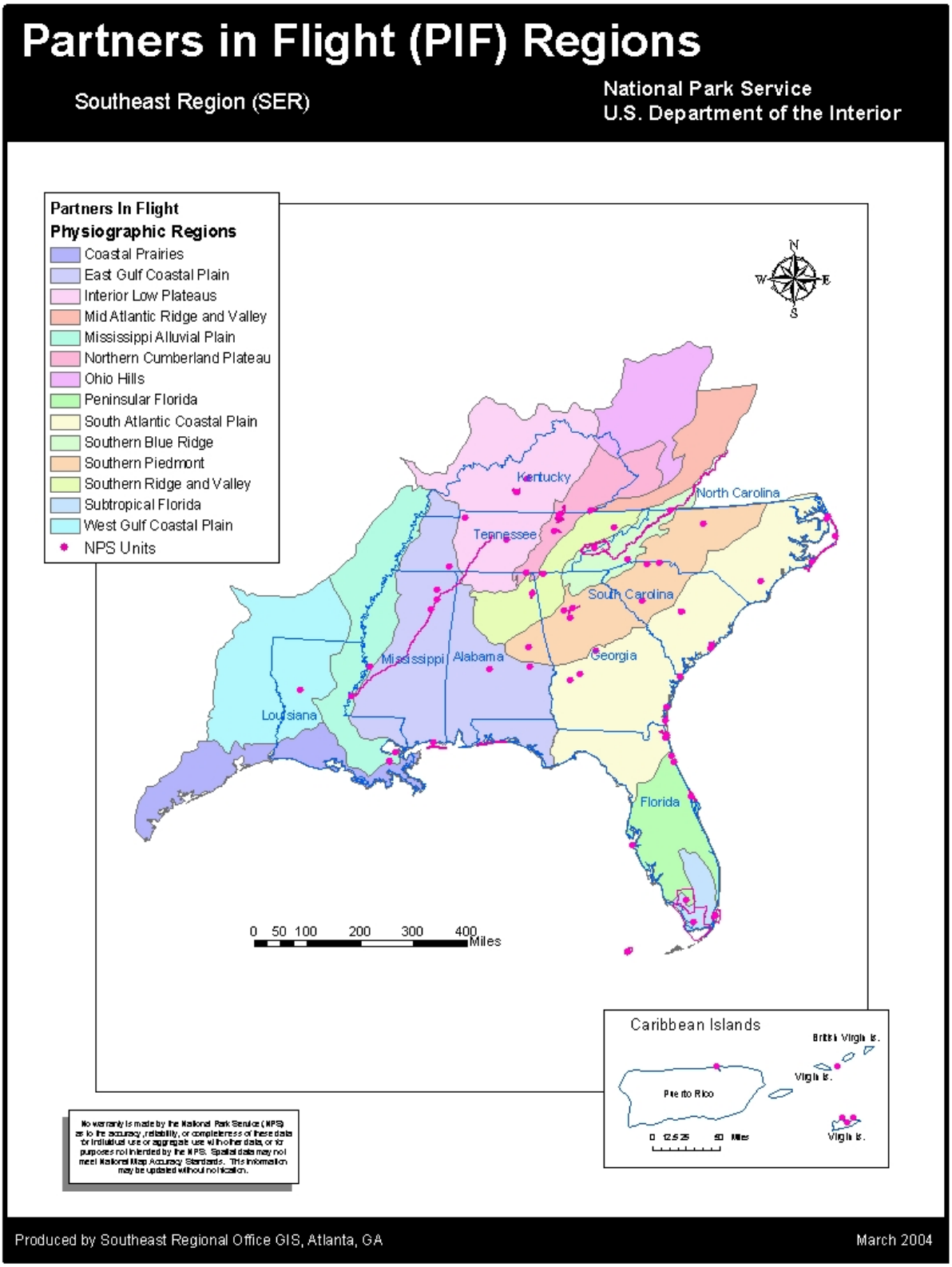
dominate the overstory. In coves with steeper v-shaped drainages, silver bell and hemlock dominate the canopy and *Rhododendron* often forms a thick, often impenetrable understory layer. Drier slopes (south and west facing) are dominated by chestnut oak with an understory of mountain laurel. Dry ridges typically have a large component of pine (pitch, Virginia, and Table Mountain) mixed with dry site oaks (chestnut, scarlet, and black). At higher elevations, the northern hardwood forest is prevalent, which is composed of sugar maple, yellow buckeye, yellow birch, and American beech. At the highest elevations in the Park, red spruce forests (over 1,900 m) and red spruce-Fraser fir forests (over 2,400 m) dominate. Scattered throughout the Park are small unique communities such as grassy balds, heath balds, beech gaps, and small wetlands (Nichols et al. 2000).

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 which 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 (Hunter et al. 1999).

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
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Partners In Flight
Physiographic Regions
Coastal Prairies
East Gulf Coastal Plain
Interior Low Plateaus
Mid Atlantic Ridge and Valley
Mississippi Alluvial Plain
Northern Cumberland Plateau
Ohio Hills
Peninsular Florida
South Atlantic Coastal Plain
Southern Blue Ridge
Southern Piedmont
Southern Ridge and Valley
Subtropical Florida
West Gulf Coastal Plain
NPS Units
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South Carolina
Mississippi
Alabama
Georgia
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0 50 100 200 300 400
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Caribbean Islands
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Puerto Rico
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No warranty is made by the National Park Service (NPS) as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the NPS. Spatial data may not meet National Map Accuracy Standards. This information may be updated without notification.
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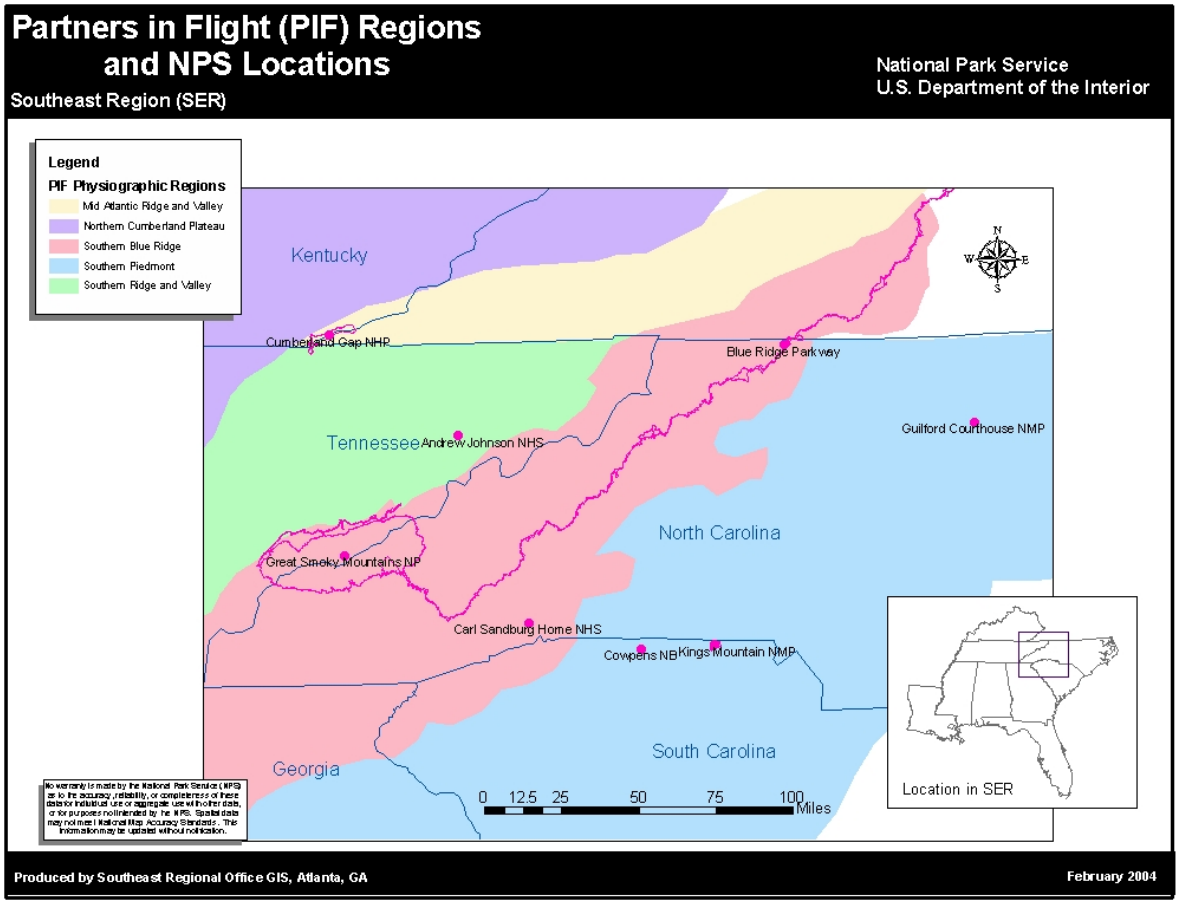
March 2004



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 (Hunter et al. 1999).

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 (Hunter et al. 1999).

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).

The GRSM is the most critical area in the Southern Blue Ridge for the long-term protection, conservation, and enhancement of high priority birds and habitats in the area referred to as the High Peak Forests (Spruce-Fir, Northern Hardwoods) of the Southern Blue Ridge region. Conservation efforts here will likely determine the future of many of the Southern Appalachian "endemics.

Avian Conservation in GRSM

Avian Biodiversity: GRSM has an avian inventory and a checklist of birds that is available for the public and on the World Wide Web (http://www.npwrc.usgs.gov/resource/othrdata/chekbird/r4/smokymt.htm). Over 240 species have been recorded in the park and half of these are known to breed in the park. Of the breeding birds, about half (52) are Neotropical migrants. Additionally, the Discover Life in America's (DLIA) All Taxa Biodiversity Inventory program has developed a web based Bird Inventory site (http://www.dlia.org/atbi/species/animals/vertebrates/birds/index.html) that describes several features of all birds that occur in the park, including general ecology, identification features, map distributions (breeding, wintering, and GRSM occurrences), conservation biology, and references.

Verified records of birds in GRSM 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 several species and habitats that are of a management and regional conservation concern.

Inventory: A thorough scientifically based inventory has been recognized as the basis to support park operations and the protection of its resources. GRSM has an excellent avian inventory that can be used to develop appropriate regional goals for bird conservation. Shriner (2001) analyzed over 7,000 point counts in 4,000 locations o determine the distribution of breeding birds in the park. This work sets a standard for baseline avian inventory and establishes a foundation for interagency cooperation with Cherokee and Pisgah National Forest to develop regional monitoring and research programs.

Additional inventory recommendations will be made with particular reference to high conservation priorities documented in the Southern Blue Ridge bird conservation plan (see below). The park has been undertaking species-specific inventory for Yellow-bellied Sapsucker, Golden-winged Warbler and Cerulean Warbler in conjunction with SBR goals.

Monitoring: Several avian monitoring projects have been implemented within GRSM. These include:

- Christmas Bird Counts (CBC): The Cades Cove count (TNCA) has been conducted since the winter of 1999/2000 with one count the winter of 1935/36, and the Great Smoky Mountains NP count (TN09/TNGS) has been conducted continuously since the winter of 1938/39, with a shift in the position of the count circle in 1975.
- three Breeding Bird Surveys (BBS) have been conducted (partially or completely) within the boundary of the park : Newfound Gap (#82903/TN-903), run only 1990-91, Cades Cove (#82904/TN-904), run only 1989-91, and Waterville (#63906/NC-906; mostly outside the park), run 1994 to present.
- re-sampling of established point counts, such as Purdue University work in 2002 studying temporal stability of bird communities over 30 years
- Monitoring Avian Productivity and Survivorship (MAPS) stations have been established at Purchase Knob (2002) and Tremont (2000) in an effort to monitor key species and educate students about the value of birds to the integrity of the park
- monitoring of Peregrine Falcon eyries by volunteers
- monitoring of Vesper Sparrow territories at Purchase Knob
- Hawk watching at Purchase Knob by volunteers several days per season

Research: Scientific research is permitted within the park. Ongoing research includes:

- an investigation to determine the relationships between acid deposition, calcium depletion, and avian productivity, primarily Black-capped Chickadee (NC State University)
- Black-capped Chickadees in the park being tested as an experimental source population for reintroduction of Black-capped Chickadee to Roan Mountain, Tennessee (East Tennessee State University)
- determination of the effects of hemlock decline on breeding birds (University of Tennessee)
- recording of nighttime migrant bird vocalizations is being conducted at high elevation Purchase Knob
- examination of passerine birds at MAPS stations and temporary banding stations throughout the park for ectoparasites, enteroparasites, and heamatozoans

- integration of inventory (Simons et al. [see Simons et al. 2000, Shriver 2001, and Shriver and Simons 2002]) and vegetation to produce distribution predictor maps for the most abundant breeding species in the park

Threatened and Endangered Species: No Federally listed threatened or endangered bird species occur in GRSM. The Federally endangered Red-cockaded Woodpecker has been extirpated from the region and GRSM. Extirpated from the region in the mid-1950's, the (now de-listed) American Peregrine Falcon presently nests within GRSM at two locations, both historical eyries. Additional Peregrine Falcon eyries may exist, but systematic surveys have not been conducted in all potentially suitable areas in the park.

Many bird species on the Tennessee and North Carolina State **Watch Lists** occur in GRSM, and their conservation should be coordinated with appropriate state personnel (see Contacts). Setting priorities for bird conservation in GRSM presents some unique challenges because the park lies within the States of Tennessee and North Carolina.

Watch-Listed in Tennessee species that occur in GRSM include: Northern Harrier, Bobolink, Pine Warbler, and Blue-winged Warbler. Additionally, many species, most notably Red Crossbill, Northern Saw-whet Owl, Brown Creeper, Common Raven, Black-capped Chickadee, Yellow-bellied Sapsucker, Cerulean Warbler, Golden-winged Warbler, Swainson's Warbler, and Peregrine Falcon, all listed as **Tracked in Tennessee** occur in the park (http://www.state.tn.us/environment/nh/vert.htm) (Appendix C).

Several of the **North Carolina Watch List** (Appendix D) species that occur in the park are considered of high to extremely high conservation concern in North Carolina (Johns, 2002). These species are Northern Saw-whet Owl, Yellow-bellied Sapsucker, Black-capped Chickadee, Red-breasted Nuthatch, Red Crossbill (Type II), Winter Wren, Golden-crowned Kinglet, Peregrine Falcon, Golden-winged Warbler, Ruffed Grouse, Northern bobwhite, Field Sparrow, Wood Thrush, Blackburnian Warbler, Worm-eating Warbler, Canada Warbler, Cerulean Warbler, Swainson's Warbler, Acadian Flycatcher, Louisiana Waterthrush, Black-throated Blue Warbler, Kentucky Warbler, and Hooded Warbler.

Outreach: The park has an outstanding outreach and educational program related to bird conservation. Prominent among these programs are:

- Current bird checklist available to public
- Participation in International Migratory Bird Day (IMBD) where bird walks and shade-grown coffee were offered and migration counts were conducted by park staff and volunteers
- Operation of MAPS stations at two locations, Purchase Knob and Tremont, with volunteer student interns and visited by educational groups
- Implementation of Parks as Classrooms program for bird research methodology

- ATBI species web pages for major breeding bird species
- Bird walks lead by park Resource Education rangers
- Wilderness Wildlife Week and Wildflower Pilgrimage programs, many of which collect data on owls and other species
- The educational program in Sugarlands Amphitheater
- Exhibiting birds mounts and descriptions in Sugarlands Visitor Center
- Providing information folders to public, and the publication and sale of "Birds of the Smokies" field guide by Dr. Fred Alsop and Great Smoky Mountains Association

Park Identified Needs for Avian Conservation

GRSM has identified two projects that would increase the avian knowledge of the park and allow for better resource management decisions. These are:

- establish forest point count monitoring program based on work of Simons et al and potentially expand to more remote inaccessible areas, including Eastern Hemlocks forests

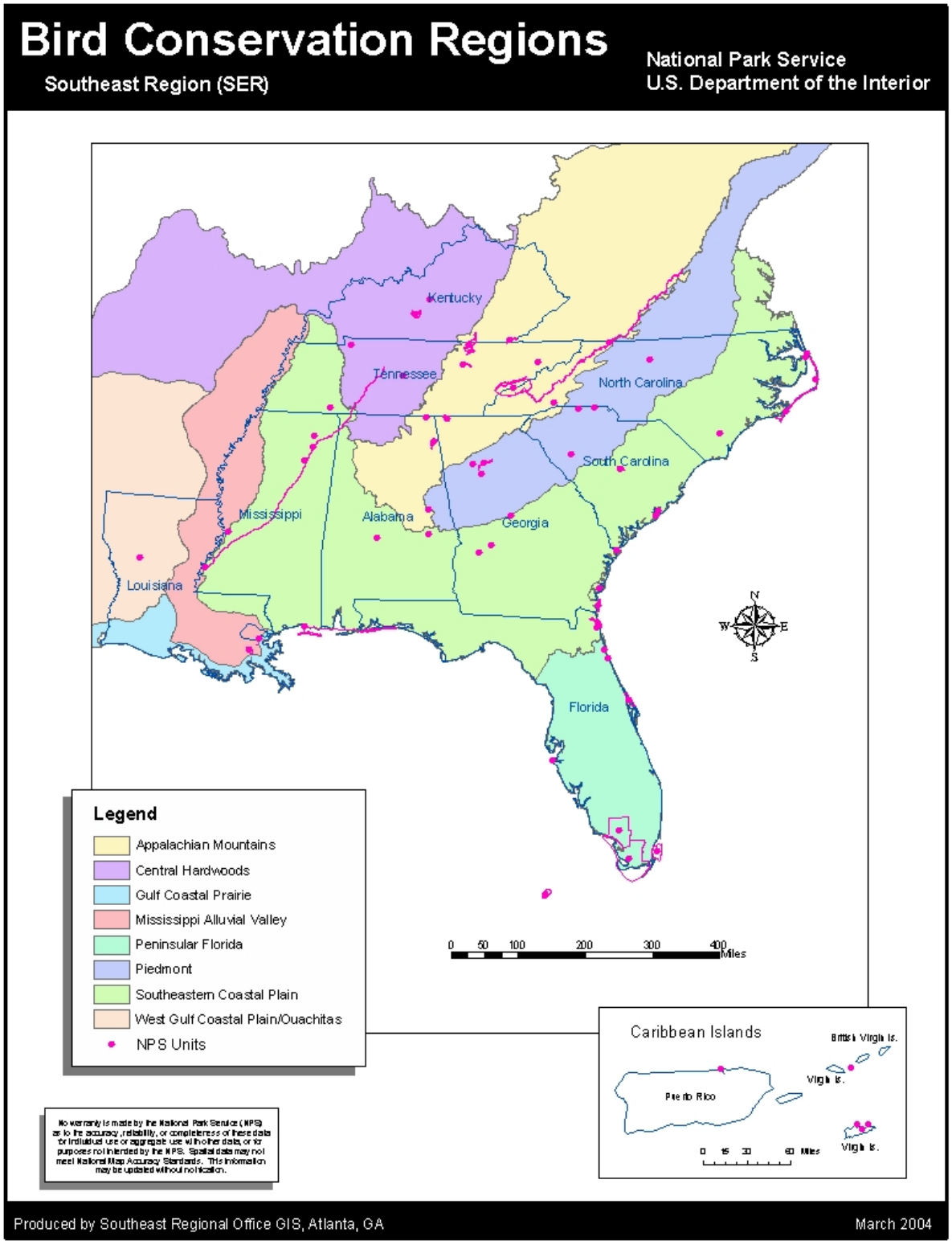
- conduct thorough surveys for nesting Northern Saw-whet Owls

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, GRSM is within the NABCI Appalachian BCR that extends from New York to Georgia (see BCR map below) and encompasses several PIF physiographic areas (the planning unit for PIF)(compare to PIF map).

Several NABCI BCR's have coordinators whose primary responsibility is to coordinate all bird conservation planning in the BCR, across all agencies and organizations. The Appalachian Mountains BCR Coordinator (K. Watson, see Contacts) can provide valuable assistance to GRSM with implementation of aspects of this ACIP. Active bird conservation planning is also underway in the adjacent Central Hardwoods BCR and communications with this coordinator (J. Fitzgerald, see contacts below) will be important to fully assess the park's role in regional and landscape scale bird conservation.

North American Waterfowl Management Plan (NAWMP): The NAWMP (http://northamerican.fws.gov/NAWMP/nawmphp.htm) 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). Although NAWCA has


Bird Conservation Regions
Southeast Region (SER)
National Park Service
U.S. Department of the Interior
Kentucky
Tennessee
North Carolina
South Carolina
Mississippi
Alabama
Georgia
Louisiana
Florida
N
W
E
S
Legend
Appalachian Mountains
Central Hardwoods
Gulf Coastal Prairie
Mississippi Alluvial Valley
Peninsular Florida
Piedmont
Southeastern Coastal Plain
West Gulf Coastal Plain/Ouachitas
NPS Units
0 50 100 200 300 400 Miles
Caribbean Islands
British Virgin Is.
Virgin Is.
Puerto Rico
Virgin Is.
0 15 30 60 Miles
Produced by Southeast Regional Office GIS, Atlanta, GA
March 2004

traditionally funded wetland and waterfowl conservation efforts, funding has been awarded to conservation partners where upland wetlands, bogs, and riparian areas have been identified for important bird and habitat conservation efforts.

Partners In Flight: Goals and strategies for the Southern Blue Ridge Physiographic Area can be found in the draft bird conservation plan (http://www.blm.gov/wildlife/plan/pl_23_10.pdf) that was 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. GRSM 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 States of Tennessee and North Carolina each have PIF coordinators (see contacts below) and can be instrumental in assisting GRSM to implement recommendations identified in this ACIP and projects important to bird conservation relative to Tennessee and 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 GRSM has little habitat of regional importance to shorebird conservation, recommendations for shorebird conservation are limited.

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 GRSM.

Integration of NABCI Goals and Objectives into Park Planning and Operations

NABCI Implementation Recommendations

To successfully achieve park established goals and actively participate in NABCI, the park could implement a variety of projects in different NPS programs. Most of these projects would require some level of participation by many existing park programs and could either be achieved through NPS funding, or more likely, through establishing or

improving partnerships with agencies and organizations that already have the necessary expertise to provide guidance, funding, and execution of these programs. Programmatic areas where bird conservation actions are likely to be focused are:

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

To the extent appropriate, each of these program areas will be discussed separately and within each, specific opportunities identified that, when implemented, will enable the park to meet its mandates (current and expected), as well as integrate NABCI into its planning and operations. With emphasis added; the park is not expected to implement any of these recommendations or be obligated to pursue any opportunity other than those the park is required to do by law or NPS program or policy. In other words, participation in this effort is currently voluntary. However, implementation of EO 13186 (US Government 2000), Responsibilities of Federal Agencies to Protect Migratory Birds, will require NPS to incorporate a wide range of bird conservation programs into planning and operations. The development of the MOU between the FWS and the NPS will establish a formal agreement to promote bird conservation within the agency by incorporating goals and strategies of existing bird conservation initiatives, plans, and goals into park planning and operations.

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

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

Inventory: The park has inventoried its bird fauna exceptionally well. Simon et al. have documented species distributions and created models for probability of abundance for breeding species in GRSM and nearby Cherokee and Pisgah National Forests. However, more information on the status of the high priority species, particularly those that were not abundant enough to be adequately addressed by Simon et al.'s work (or not appropriately inventoried by point counts), is needed to effectively structure park management for the continued preservation and enhancement of the park's avifauna.

Additional abundance and distribution data are needed:

- **for species in the High Peaks Forest (Spruce-fir and Northern Hardwoods); Northern Saw-whet Owl, Yellow-bellied Sapsucker, etc. (YBSA work is underway)**

- **along stream corridors for high priority riparian species such as Louisiana Waterthrush, Acadian Flycatcher, and Spotted Sandpiper**

- **for owls and raptors throughout the park, but especially in Cades Cove and Cataloochee Cove**

- **for Red-cockaded Woodpecker, Bachman's Sparrow and other pine specialists in extensive Virginia/Shortleaf pine forests of southwestern portion of park**

- **for grassland birds in Cades Cove and high elevation balds**

- **at established forest point counts stations in winter (using Simons et al.'s point locations)**

Additionally, GRSM is encouraged to:

- **continue partnering with Pisgah, Nantahala, and Cherokee National Forests, Eastern Band of the Cherokee Indian, and States of North Carolina and Tennessee to coordinate area inventory efforts**

- **assure that all future inventory methodology continues to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000)**

Monitoring: GRSM has an active bird monitoring program, resulting in the documentation of many high priority species in the park. Efforts should be made to continue existing monitoring programs and to ensure that these programs continue to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000). Close coordination with adjacent BCR coordinators and the Tennessee and North Carolina PIF coordinators is needed to identify and implement high priority projects on park lands and to ensure that park efforts continue to contribute to park and regional bird conservation.

The GRSM has an unprecedented database on diversity and abundance of forest breeding birds establishing the park as a critical control site for assessment of changes in Southern Appalachian bird communities. The park can make an enormous contribution to the conservation of Southern Appalachian birds by making a commitment to continuing these data collection efforts on a regular basis (Simons, pers. comm. 2003

- **continue to conduct existing monitoring programs (MAPS and IMBD Migration monitoring, Christmas Bird Counts, Breeding Bird Surveys, The**

Purchase meadow, Peregrine Falcon eyrie monitoring) and enter data into the appropriate database (NPSpecies, TWRA, or National Point Count Database (USGS 2001) (http://www.mp2-pwrc.usgs.gov/point/)*

- **resume Cades Cove and Newfound Gap BBS routes, perhaps in partnership with the Knoxville Chapter of the Tennessee Ornithological Society; work with CBC organizers to standardize the effort in the park (i.e. determine exact CBC coverage in GRSM)**

- **continue to assess bird community changes in Spruce-fir forests due to changes in vegetation in these forests***

- **establish a permanent monitoring stations (possibly based on Simons et al.'s research) to assess status of forest birds and conduct regular monitoring on a 3-5 year cycle in major vegetative types, with emphasis on:***
    - **declining forest types (Eastern Hemlock dominated areas, but also beech gaps, spruce-fir, etc. to establish baseline data to measure changes and potential impact to birds from forest declines)**
    - **early successional habitats created by large outbreaks of southern pine beetle**
    - **grassland restoration areas, park vistas and roadsides where suitable habitat exists**
    - **grassy balds**

- **establish protocol for monitoring bird use (and population densities and reproductive success, if feasible) in early-successional habitats created by management activities, outbreaks of southern pine beetle, and ice and wind storms.**

- **establish bird community assessments in areas subject to wildland and prescribed fire**

- **continue to partner with Pisgah, Nantahala, and Cherokee National Forests, Eastern Band of the Cherokee Indian, and the States of North Carolina and Tennessee to coordinate area monitoring efforts**

- **assure that all future monitoring methodology continues to conform to NPS and/or FWS recommended standards (Fancy and Sauer 2000; Hunter 2000)**

- encourage visitors and bird clubs that collect bird information in the park to share information with park staff and enter data into Cornell Laboratory of Ornithology's eBird database (CLO 2003; http://www.ebird.org/content/)

- consider establishing additional MAPS stations to monitor species in additional major habitat types as possible

- consider hiring additional staff to manage the parks avian conservation and enhancement programs

- establish and encourage a migration monitoring effort, primarily coordinated and conducted by volunteers (park staff should assist this effort by identifying primary migration monitoring areas)

Habitat Restoration: The greatest factor affecting bird conservation, especially for high priority birds in GRSM, is habitat condition, including alteration caused by a multitude of factors. Landscape conditions in the Southeastern US have changed dramatically since early European explorers began documenting the area, its habitats, and its inhabitants. Historic landscapes were influenced by Native American burning, wildfire, bison, beaver, and elk, as well as by insect outbreaks and weather events (Hunter et al. 2001, Williams 2002), thus resulting in a landscape mosaic that supported a rich and diverse bird fauna in the Southeast (Barden 1997; Brawn et al. 2001). The arrival of Europeans and the subsequent change in landscape has dramatically effected bird habitat and bird populations. Bird conservationists have long recognized that habitat restoration is critical to restoration of bird populations, stabilizing or reversing bird declines, and removing birds from both State and Federal Threatened and Endangered Species lists.

Recently, habitat restoration efforts have increased on NPS lands due to the increased restoration emphasis of the Management Policies (NPS 2001). Parks may use a wide range of management tools to restore wetland, grassland, woodland, and other habitats. Restoration tools include, but are not limited to, forest management practices (e.g. silviculture), prescribed fire, exotic species management, and public use and recreation management. In addition, parks can coordinate infrastructure development (e.g. roads and buildings) with restoration activities to mitigate potential adverse impacts.

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

Much of the park provides suitable area and vegetative cover for nesting landbirds, but some habitats could be improved for high priority species through active forest management (where appropriate) to restore structural complexity. Specific recommendations are to:

- **work toward optimization of forest habitat structure and composition, where appropriate, for enhancement of birds associated with unique Southern Appalachian forests types***
    - **restore and manage High Peaks forests (Spruce-fir and Northern Hardwoods) for Red Crossbill, Northern Saw-whet Owl, Black-capped Chickadee, Red-Breasted Nuthatch, Yellow-bellied Sapsucker, Brown Creeper, etc.**
    - **restore and manage Shortleaf, Virginia, Pitch, and Table Mountain Pine for pine specialists**
    - **restore and manage Northern Hardwood and Appalachian Oak forests and their disturbance regimes to ensure that some areas provide habitat for early successional species**
- **manage all forest types toward some composition of old growth (or late successional) conditions, implementing appropriate management techniques to develop upper canopy complexity and desired understory structure and diversity for high priority birds***
- **continue and accelerate restoration of grassland and shrub-scrub habitats in old fields and balds with use of prescribed fire or other appropriate management tools to optimize habitat for grassland/shrub-scrub species in Cades Cove, Cataloochee, Oconaluftee, Purchase Knob, and Gregory and Parson's balds***
- **evaluate the effectiveness of using prescribed fire and managed wildfire to restore and manage Appalachian Oak and Northern Hardwood forests***
- **restore as much wetland as possible, and in particular wetlands and streambanks in Cades Cove and other historic wetland areas, bogs, etc.***
- **protect Peregrine Falcon eyries and roost areas***
- **continue to protect existing snag trees, where not identified as a safety hazard, as important to cavity nesting birds**

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

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

Threat Management: The greatest factor affecting bird conservation, especially for high priority birds in GRSM is habitat condition, including alteration caused by a multitude of factors. Primary among these factors are the variety of introduced species that are degrading park habitats and negatively impacting native species.

Impact of introduced species on birds at GRSM is largely unquantified, yet several introduced and domestic mammals, insects, and pathogens are widespread in the park and are degrading park habitats. These introduced species affect birds through predation or habitat alteration and competition for nest structures or food, and possibly introduction of disease organisms (West Nile Virus).

Park managers are encouraged to:

- **continue to aggressively reduce the feral hog population***

- **use prescribed wildfire, where appropriate, for habitat restoration***

- **control introduced species when feasible to protect unique bird habitats, especially Eastern Hemlock forests, Fraser Fir, American Beech, etc.***

- **work through NPS policy to improve habitat and forest health where exotic pathogens and poor air quality affect forest health**

Introduced plants species are negatively impacting habitat at GRSM as well but the extent and impairment is unknown. It is important to establish and continue inventory, monitoring, and management for introduced plant species. The GRSM has an aggressive introduced plant management effort, yet new introductions and the invasive nature of some species will require continual effort.

Research: The GRSM is perhaps the most important natural area in the Southern Appalachians for the conservation of certain Southern Appalachian subspecies or populations of birds considered to be of high priority conservation need. This and the relatively undisturbed nature of the park and it's tremendous database of avian richness and abundance establish the park as an outstanding natural area to accomplish much needed research into Southern Appalachian bird conservation. Several of the most important research needs that the GRSM could participate in are to:

- **determine the effect of acid deposition on Black-capped Chickadee reproduction and reproduction of other species in high elevations***

- **determine dispersal and colonization capabilities of Northern Saw-whet Owl and Black-capped Chickadee throughout the park and Southern Appalachians***

- **assess feasibility of reintroduction of extirpated species, especially the Red-cockaded Woodpecker***

- **manage portions of The Purchase as a research demonstration area for enhancement of Golden-winged Warbler***

- **define scope and frequency of historical disturbance factors (fire, lightning, elk grazing, etc.) that may be applicable to habitat restoration plans***

- **assist in the resolution of taxonomic status for Southern Appalachian endemics that occur in park***

- **consider the development of a habitat condition/utilization model for Red Crossbill and abundance measures related to these conditions**

- **determine the effect that roadside mowing practices has on occurrence of and nest parasitism by Brown-headed Cowbird**

- **determine use of cleared vistas by successional species and potential for vistas as a conservation tool**

- **determine use of fruit and seed resources by migratory and wintering species**

Additionally, the GRSM is encouraged to:

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

- continue relationship 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 (US Government 2000), Responsibilities of Federal Agencies to Protect Migratory Birds, is necessary to assure that park activities incorporate bird conservation into park planning and operations. Further, to ensure that migratory birds are considered in all phases of park planning processes, especially during the National

Environmental Policy Act (NEPA) and the Director's Order #12 Compliance processes, the park should consider adding specific language in project evaluations that requires consideration and implications of park projects on migratory birds. The MOU being developed between the NPS and the FWS will likely contain specific language requiring a park to consider implications of park projects on migratory birds. Additional considerations are to encourage:

- **park staff to continue specific consideration of migratory birds during park planning processes and assessment of all projects***

- 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: With and average of 10 million visitors per year, the GRSM has an opportunity to reach more public than any national park. Thus, the park can potentially providing an excellent chance to educate and garner public support for park protection, and hence, bird conservation programs. The park's outstanding outreach/education and interpretive program is encouraged to:

- **continue participation in International Migratory Bird Day (IMBD) events with a local partners (http://birds.fws.gov/imbd.html)***

- **develop additional outreach and educational programs to enhance visibility of bird conservation issues, which may include organized bird walks, owl prowls, and/or participation in existing or planned bird surveys***

- **encourage accurate documentation and reporting of bird observations by visitors (see Cornell University's eBird monitoring program (Cornell Lab. Ornith. 2002 (http://www.ebird.org/about/index.jsp)***

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

- 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 pages

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

- subscribe to **TN-Bird Net** and **Carolinabirds**, each an active electronic forum for listing bird sightings and keeping abreast of state bird conservation issues

- explore cultural affiliation of landscape to inhabitants, both historical and contemporary. Cultures are strongly tied to the landscape they inhabit and birds often play a role in a cultural tie to the landscape. When these connections are discovered and preserved, a greater appreciation for the landscape and it's value to the culture can be achieved.

Partners and Partnerships: Partnerships for land conservation and protection will perhaps have the greatest positive influence on bird conservation above all other landscape scale planning. Specific recommendations are to:

- **continue to keep abreast of adjacent county and city programs that could impact park resources***

- **contact US Fish and Wildlife Service private lands biologists to discuss private landowner initiatives applicable to the area; several private landowner programs could be implemented that would serve to protect areas adjacent to GRSM and potentially improve water and habitat quality in the vicinity***

- **continue to develop partnership with Pisgah, Nantahala, and Cherokee National Forests, Tennessee Wildlife Resources Commission, North Carolina Wildlife Resource Commission, Eastern Band of the Cherokee Indian, and local partners to provide long-term environmental integrity**

- **collaborate with Cherokee National Forest staff to cooperatively inventory for Red-cockaded Woodpecker on park and forest land and to develop strategy to manage habitat for this species and it's potential reintroduction**

- **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**

- continue to partner with the local chapter of the TOS, Elisha Mitchell Audubon Society, and Carolina Field Birders to implement various aspects of this plan and other park bird conservation

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

- develop land use agreements with local landowners through state and FWS programs to protect important habitats and landscapes**.**

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. GRSM 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. Needed at GRSM is:

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

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

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

Funding through NAWCA is highly underutilized by the NPS and any park unit that has wetland, water, or bird conservation needs associated with wetland are encouraged to investigate using this funding source. Naturally, there are certain requirements to be eligible for all grants and park managers are encouraged to consult with the nearest Joint Venture, BCR, or PIF Coordinator to learn how this program might be applicable to implementation of this plan, and other park wetland issues. GRSM is not within a region which has an operational Joint Venture, but contact with the Atlantic Coast Joint Venture, Appalachian Mountains BCR, Central Hardwoods BCR, and Tennessee PIF

coordinators will provide opportunity to investigate use of this funding source and developing proposals.

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

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

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

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

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

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

Contacts

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

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APPENDIX A

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

Table 1. 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: Area Importance	Concern Scores: Population Trend	Percent of BBS Population
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: Area Importance	Concern Scores: Population Trend	Percent of BBS Population
Ib. (cont.)					
	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

Table 1 (continued).

Priority Entry Criteria	Species	Total PIF Priority Score	Concern Scores: Area Importance	Concern Scores: Population Trend	Percent of BBS Population
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	
	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 km^2, >10% in physiographic areas >200,000 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 outes). 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: Area Importance	Concern Scores: Population Trend	Overall Conservation Action
High Peaks Forest					
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
Disturbed Forest					
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: Area Importance	Concern Scores: Population Trend	Overall Conservation Action
Disturbed Forest (cont.)					
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	II
	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
Mature Forest					
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
Mature Forest (cont.)					
II.	Chimney Swift	21	4	4	III
	Black-throated Green Warbler	21	5	3	IV
	Scarlet Tanager	21	5	4	IV
	Ruby-throated Hummingbird	20	4	5	V
	Ovenbird	20	4	4	IV
	Eastern Phoebe	19	5	4	IV
	Carolina Wren	19	4	5	V
	Blue-gray Gnatcatcher	19	5	5	V

Table 2 (cont.).

Species Suite Entry Criteria	Species	Total PIF Priority Score	Concern Scores: Area Importance	Concern Scores: Population Trend	Overall Conservation Action
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. 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.

APPENDIX C

Tennessee Natural Heritage Program
Rare Vertebrates List
January 2001

Watch-Listed in Tennessee

Scientific Name	Common Name	Physiographic Province	Federal Status	State Status	State Rank	Global Rank	State Endemic?
BIRDS							
AMMODRAMUS LECONTEII	LE CONTE'S SPARROW				S1N	G4	
CALIDRIS ALPINA	DUNLIN				S3N	G5	
CAMPEPHILUS PRINCIPALIS	IVORY-BILLED WOODPECKER		LE		SX	GH	
CIRCUS CYANEUS	NORTHERN HARRIER			D	S4N	G5	
CISTOTHORUS PLATENSIS	SHORT-BILLED MARSH WREN				S3NSPB	G5	
DENDROICA PINUS	PINE WARBLER				S5	G5	
DOLICHONYX ORYZIVORUS	BOBOLINK				SHBS4N	G5	
ELANOIDES FORFICATUS	SWALLOW-TAILED KITE				SAN	G5	
LIMNODROMUS SCOLOPACEUS	LONG-BILLED DOWITCHER				S2N	G5	
MYCTERIA AMERICANA	WOOD STORK		(PS:LE)		S3N	G4	
PELECANUS ERYTHRORHYNCHOS	WHITE PELICAN				S3N	G3	
PICOIDES BOREALIS	RED-COCKADED WOODPECKER	CU CM BR WU CP	LE		SX	G3	
SCOLOPAX MINOR	AMERICAN WOODCOCK				S4B	G5	
VERMIVORA BACHMANII	BACHMAN'S WARBLER		LE		SX	GH	
VERMIVORA PINUS	BLUE-WINGED WARBLER				S4	G5	

Tracked in Tennessee

Scientific Name	Common Name	Physiographic Province	Federal Status	State Status	State Rank	Global Rank	State Endemic?
BIRDS							
ACCIPITER GENTILIS	GOSHAWK				SPBS2N	G5	
ACCIPITER STRIATUS	SHARP-SHINNED HAWK	CU CM WR BR RV ER CP	(PS)	D	S3B	G5	
ACTITIS MACULARIA	SPOTTED SANDPIPER	CB			S2B	G5	
AEGOLIUS ACADICUS	NORTHERN SAW-WHET OWL	RV BR	MC	T	S1	G5	

Scientific Name	Common Name	Physiographic Province	Federal Status	State Status	State Rank	Global Rank	State Endemic?
AIMOPHILA AESTIVALIS	BACHMAN'S SPARROW	WR CU WU ER RV CP CB WF	MC	E	S2	G3	
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW	ER WR	MC	D	S1B	G4	
ANAS DISCORS	BLUE-WINGED TEAL				S2B	G5	
ANHINGA ANHINGA	ANHINGA	MF WR WU		D	S1B	G5	
AQUILA CHRYSAETOS	GOLDEN EAGLE	WR CB CU BR		T	S1	G5	
ARDEA ALBA	GREAT EGRET	WR MF RV BR CP		D	S2BS3N	G5	
BOTAURUS LENTIGINOSUS	AMERICAN BITTERN	ER WR			S1	G4	
BUBULCUS IBIS	CATTLE EGRET				S2BS3N	G5	
BUTEO LINEATUS	RED-SHOULDERED HAWK	MF CP WR WU RV CU ER CB			S4B	G5	
CAPRIMULGUS CAROLINENSIS	CHUCK-WILL'S WIDOW				S3S4	G5	
CAPRIMULGUS VOCIFERUS	WHIP-POOR-WILL				S3S4	G5	
CERTHIA AMERICANA	BROWN CREEPER				S2BS4N	G5	
CHONDESTES GRAMMACUS	LARK SPARROW	CP WR WU CB MF		T	S1B	G5	
COCCYZUS ERYTHROPTHALMUS	BLACK-BILLED CUCKOO				S2B	G5	
CONTOPUS COOPERI	OLIVE-SIDED FLYCATCHER	BR		D	S1	G5	
CORVUS CORAX	COMMON RAVEN	BR RV		T	S2	G5	
CORVUS OSSIFRAGUS	FISH CROW	MF			S3	G5	
DENDROICA CERULEA	CERULEAN WARBLER	RV BR WR WU CM		D	S3B	G4	
DENDROICA FUSCA	BLACKBURNIAN WARBLER				S3BS4N	G5	
DENDROICA MAGNOLIA	MAGNOLIA WARBLER				S1BS4N	G5	
EGRETTA CAERULEA	LITTLE BLUE HERON	CP WR MF WU		D	S2BS3N	G5	
EGRETTA THULA	SNOWY EGRET			D	S2BS3N	G5	
EGRETTA TRICOLOR	LOUISIANA HERON				SPB	G5	
EMPIDONAX ALNORUM	ALDER FLYCATCHER	BR			S1	G5	
EMPIDONAX MINIMUS	LEAST FLYCATCHER				S3	G5	
EMPIDONAX TRAILLII	WILLOW FLYCATCHER		(PS)		S2S3	G5	
EREMOPHILA ALPESTRIS	HORNED LARK				S4	G5	
FALCO PEREGRINUS	PEREGRINE FALCON	BR CU RV CB MF		E	S1N	G4	
FULICA AMERICANA	AMERICAN COOT				S2B	G5	
GALLINULA CHLOROPUS	COMMON MOORHEN	RV MF	(PS)	D	S1B	G5	
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	WR MF CP ER RV CB WU CU	T	D	S3	G4	
ICTINIA MISSISSIPPIENSIS	MISSISSIPPI KITE	MF CP		D	S2S3	G5	
IXOBRYCHUS EXILIS	LEAST BITTERN	RV MF ER CP CU CB		D	S2B	G5	
LANIUS LUDOVICIANUS	LOGGERHEAD SHRIKE		MC	D	S3	G5	
LATERALLUS JAMAICENSIS	BLACK RAIL	RV			S1	G4	
LIMNOTHLYPIS SWAINSONII	SWAINSON'S WARBLER	CP BR WR MF RV CU CM WU	MC	D	S3	G4	
LOXIA CURVIROSTRA	RED CROSSBILL				S1BS2N	G5	
NYCTANASSA VIOLACEA	YELLOW-CROWNED NIGHT-HERON	RV CP MF CB			S3	G5	

Scientific Name	Common Name	Physiographic Province	Federal Status	State Status	State Rank	Global Rank	State Endemic?
NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON	CB RV MF CP			S2S3B	G5	
PASSERCULUS SANDWICHENSIS	SAVANNAH SPARROW	RV WR			S1BS4N	G5	
PASSERINA CIRIS	PAINTED BUNTING				S2	G5	
PODILYMBUS PODICEPS	PIED-BILLED GREBE	WR			S2	G5	
POECILE ATRICAPILLUS	BLACK-CAPPED CHICKADEE		MC	D	S2B	G5	
POOECETES GRAMINEUS	VESPER SPARROW	BR WR		D	S1BS4N	G5	
PORPHYRULA MARTINICA	PURPLE GALLINULE	ER MF			S1B	G5	
RALLUS ELEGANS	KING RAIL	ER RV WR		D	S2	G4G5	
RALLUS LIMICOLA	VIRGINIA RAIL	RV			S1BS3N	G5	
REGULUS SATRAPA	GOLDEN-CROWNED KINGLET	BR			S3BS4N	G5	
RIPARIA RIPARIA	BANK SWALLOW	MF RV CB			S3	G5	
SITTA CANADENSIS	RED-BREASTED NUTHATCH				S2BS4N	G5	
SITTA PUSILLA	BROWN-HEADED NUTHATCH				S2B	G5	
SPHYRAPICUS VARIUS	YELLOW-BELLIED SAPSUCKER	BR CP	MC	D	S1BS4N	G5	
STERNA ANTILLARUM ATHALASSOS	INTERIOR LEAST TERN	MF	LE	E	S2S3B	G4T2Q	
THRYOMANES BEWICKII	BEWICK'S WREN	WR CP BR CB CM CU WU ER MF	MC	E	S1	G5	
TROGLODYTES TROGLODYTES	WINTER WREN				S3BS4N	G5	
TYRANNUS FORFICATUS	SCISSOR-TAILED FLYCATCHER				S1BSAN	G5	
TYTO ALBA	COMMON BARN-OWL	CP MF RV CB BR WR ER		D	S3	G5	
VERMIVORA CHRYSOPTERA	GOLDEN-WINGED WARBLER		MC	D	S3B	G4	
VIREO BELLII	BELL'S VIREO	CP	(PS)		SPB	G5	

Physiographic Provinces

Physiographic province information provides a broad concept of a species' distribution in Tennessee and can be indicative of a particular geologic development or age in Tennessee.

BR Blue Ridge
CB Central Basin
CM Cumberland Mountains
CP Coastal Plain
CU Cumberland Plateau
ER Eastern Highland Rim
MF Mississippi Floodplain
RV Ridge and Valley
SV Sequatchie Valley
WR Western Highland Rim
WU Western Uplands

Federal Status

Federally listed animals are protected by the Endangered Species Act of 1973 (as amended), and the list is maintained by the U.S. Fish and Wildlife Service. In Tennessee, listing and recovery responsibilities are divided between two USFWS offices, in Cookeville, TN, and Asheville, NC. Please visit http://southeast.fws.gov/ for additional information about USFWS activities in Tennessee.

The USFWS simplified the assignment of various "candidate species" designations in 1997, and those changes are reflected here. Applicable federal statuses are defined as follows, based on nomenclature adopted by The Nature Conservancy and the Tennessee Wildlife Resources Agency:

LE	Listed Endangered	Taxon is threatened by extinction throughout all or a significant portion of its range
E/SA	Endangered by Similarity of Appearance	Taxon is treated as an endangered species because it may not be easily distinguished from a listed species
LT	Listed Threatened	Taxon is likely to become an endangered species in the foreseeable future
T/SA	Threatened by Similarity of Appearance	Taxon is treated as a threatened species because it may not be easily distinguished from a listed species
PE	Proposed Endangered	Taxon proposed for listing as endangered
PT	Proposed Threatened	Taxon proposed for listing as threatened
C	Candidate species***	Taxon for which the USFWS has sufficient information to support proposals to list the species as threatened or endangered, and for which the Service anticipates a listing proposal
MC	Management Concern	Unofficial federal status for potential future candidate species
(PS)	Partial Status (based on taxonomy)	Taxon which is listed in part of its range, but for which Tennessee subspecies are NOT included in the Federal designation
(PS:*status*)	Partial Status (based on political boundaries)	Taxon which is listed in part of its range, but for which Tennessee populations are NOT included in the Federal designation e.g. (PS:LE)

(*status,* XN)	Non-essential experimental population in portion of range	Taxon which has been introduced or re-introduced in an area from which it has been extirpated, and for which certain provisions of the Act may not apply

(Modified from Federal Register, 50 CFR Part 17.11 {31 December 1999})

*** Taxa listed as candidate species may be added to the list of Endangered and Threatened species, and as such, consideration should be given to them in environmental planning. Taxa listed as LE, LT, PE, and PT must be given consideration in environmental planning involving federal funds, lands, or permits, and should be given consideration in all non-federal activities. For further information, please contact the Tennessee Field Office of the USFWS, 446 Neal Street, Cookeville, TN 38501; (931) 528-6481.

State Status

In Tennessee, vertebrates, mollusks and crustaceans may be formally listed by the TWRA as Endangered, Threatened, or "Deemed in Need of Management" (T.C.A. 70-8-104, 70-8-105, 70-8-107). No insects or arachnids can be listed by the TWRA, but may be listed by the USFWS.

E	Endangered	Any species or subspecies of wildlife whose prospects of survival or recruitment within the state are in jeopardy or are likely to become so within the foreseeable future.
T	Threatened	Any species or subspecies of wildlife that is likely to become an endangered species within the foreseeable future.
D	"Deemed in Need of Management"	Any species or subspecies of nongame wildlife which the executive director of the TWRA believes should be investigated in order to develop information relating to populations, distribution, habitat needs, limiting factors, and other biological and ecological data to determine management measures necessary for their continued ability to sustain themselves successfully. This category is analogous to "Special Concern".
PE	Proposed Endangered	Proposed as Endangered by the TWRA for consideration by the Tennessee Wildlife Resources Commission
PT	Proposed Threatened	Proposed as Threatened by the TWRA for consideration by the Tennessee Wildlife Resources Commission
PD	Proposed "Deemed"	Proposed as Deemed in Need of Management by the TWRA for consideration by the Tennessee Wildlife Resources Commission

Note: Many species presented in this list may have neither a state nor federal designation, however are considered rare by the DNH and should be evaluated during the environmental review process.

Information is collected on these species in order to minimize the necessity of listing these taxa as Endangered or Threatened.

GRANK and SRANK

As a guide in setting conservation priorities, TNC developed a ranking system for estimating the abundance of plants and animals tracked by Heritage programs. The Global Rank (GRANK) is assigned by TNC Central Zoology staff based on the best range wide (global) abundance information for each taxon. A five-tier system (G1-G5) is used to describe rarity, from G1 (extremely rare) to G5 (widespread). The same system is applied by DNH to assign the State Rank (SRANK), which describes the species' abundance within our state borders.

SRANK and GRANK are based primarily upon the number of occurrences of the element (species) within the state and range wide, respectively. For obscure or under-studied species, ranks are based on the best available information, and consideration may be given to other factors influencing the rarity of each taxon.

SRANKs used in this list are defined below. GRANKs are similarly defined, except that ranking criteria apply range wide (e.g. an S1 species is "extremely rare" in the state, and a G1 species is "extremely rare" range wide).

S1	Extremely rare and critically imperiled in the state with five or fewer occurrences, or very few remaining individuals, or because of some special condition where the species is particularly vulnerable to extinction.
S2	Very rare and imperiled within the state, six to twenty occurrences, or few remaining individuals, or because of some factor(s) making it vulnerable to extinction.
S3	Rare and uncommon in the state, from 21-100 occurrences.
S4	Widespread, abundant, and apparently secure within the state, but with cause for long-term concern.
S5	Demonstrably widespread and secure in the state
SH	Of historical occurrence in Tennessee, e.g. formally part of the established biota, with the expectation that it may be rediscovered.
SU	Can not be ranked using available information.
SX	Believed to be extirpated from the state.
S#S#	Denotes a "range rank" because the rarity of the species is uncertain (e.g. S1S3).
S?	Unranked at this time
SE	Exotic species established in the state

SE#	Exotic numeric (e.g. European starling would be SE5)
SP	Potentially occurring in Tennessee, but not yet documented by DNH
_N	Occurs in Tennessee in a non-breeding status (several birds)
_B	Breeds in Tennessee
SA	Accidental or casual in the state (several birds)
SR	Reported from the state, but insufficient data to assign rank
SRF	Reported falsely from the state
HYB	Hybrid within its range in Tennessee
SSYN	Synonym for another species
_Q	Questionable taxonomy (GRANKS only)
_T#	Subspecific taxon rank (GRANKS only)
Numerous bird species are ranked for breeding and non-breeding status in Tennessee, e.g. RED-BREASTED NUTHATCH (S2BS4N), *is more common as a wintering or migratory species than as a breeding species.*	

Note: Those species having an SRANK of S1 to S3, state endemics, and species with limited distribution in Tennessee should be given special consideration in environmental planning. For further information contact DNH at (615) 532-9695.

State Endemic

If a species is endemic to Tennessee (occurs nowhere else), it may be categorized as follows:

Y, Yes	Endemic to Tennessee
P, Probable	Probably endemic to Tennessee
B, Breeding	Endemic to the state as a breeder only

APPENDIX D

North Carolina Watch List

NORTH CAROLINA PRIORITY BIRD SPECIES

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

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

Abbreviation codes key:

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

Southern Pine

SBR

H Species:
Red Crossbill (Type II)

PR Species:
Brown-headed Nuthatch

Shrub-Scrub

SBR

EH Species:
Golden-winged Warbler

H Species:
Ruffed Grouse
Northern Bobwhite
Field Sparrow

M Species:
Prairie Warbler
Gray Catbird
Chestnut-sided Warbler
Yellow-breasted Chat
Eastern Towhee

PR Species:
Blue-winged Warbler
Alder Flycatcher
Willow Flycatcher
American Woodcock
Savannah Sparrow
Vesper Sparrow
Common Yellowthroat
Brown Thrasher
White-eyed Vireo
Loggerhead Shrike
Barn Owl
Bewick's Wren

Hardwood-Conifer

SBR

H Species:
Wood Thrush
Blackburnian Warbler
Worm-eating Warbler
Canada Warbler

M Species:
Eastern Wood-Pewee
Yellow-throated Warbler
Hooded Warbler
Whip-poor-will

PR Species:
Red-headed Woodpecker
Northern Flicker
Summer Tanager
Cooper's Hawk
Sharp-shinned Hawk
Black Vulture

Hardwoods (both bottomland and upland systems)

SBR

EH Species:
Cerulean Warbler
Swainson's Warbler

H Species:
Ruffed Grouse
Acadian Flycatcher
Wood Thrush
Acadian Flycatcher
Louisiana Waterthrush
Black-throated Blue Warbler
Kentucky Warbler
Hooded Warbler

M Species:
Black-and-white Warbler
Chimney Swift
Blue-gray Gnatcatcher
Rusty Blackbird (winter)
Scarlet Tanager
Yellow-throated Vireo

PR Species:
Yellow-crowned Night-Heron
Northern Parula
Prothonotary Warbler
Black-billed Cuckoo

Ovenbird
Least Flycatcher

Spruce-Fir/Northern Hardwood

SBR

EH Species:
Northern Saw-whet Owl (S. Appalachian pops.)
Yellow-bellied Sapsucker (S. Appalachian pops.)
Black-capped Chickadee (S. Appalachian pops.)
Red Crossbill (Type I)

H Species:
Red-breasted Nuthatch (S. Appalachian pops.)
Brown Creeper (S. Appalachian pops.)
Winter Wren (S. Appalachian pops.)
Golden-crowned Kinglet (S. Appalachian pops.)

PR Species:
Olive-sided Flycatcher
Yellow-rumped Warbler
Magnolia Warbler
Hermit Thrush
Pine Siskin

Rock Outcrops

SBR

EH Species:
Peregrine Falcon (including migrants throughout NC)

PR Species:
Common Raven

Reservoirs and other man made lakes

SBR

H Species:
Bald Eagle

PR Species:
Osprey

Great Blue Heron
Tree Swallow

Prairies and Grasslands

SBR

H Species:
Northern Bobwhite

M Species:
Loggerhead Shrike
Eastern Kingbird
Eastern Meadowlark
Grasshopper Sparrow
Barn Owl

PR Species:
Northern Harrier
Horned Lark
Bobolink
Dickcissel
Savannah Sparrow
Vesper Sparrow

Emergent Wetlands

SBR (mountain bogs/seeps, woody vegetation variable)

PR Species:
Alder Flycatcher
Golden-winged Warbler
Virginia Rail (migrant)
Sora (migrant)

Colonial Nesting long-legged Waders

SBR

Great Blue Heron
Great Egret
Snowy Egret

Shorebirds: Mudflat-Muck-Farm-Impoundment

SBR

H Species:
Bald Eagle

PR Species:
Wood Duck
Blue-winged Teal
Ring-necked Duck

APPENDIX E

US Fish and Wildlife Service Species of Conservation Concern (2002) in the 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)