

# A Bird Conservation Plan for North Carolina

## **A Bird Conservation Strategy by NC Partners in Flight**

**With Contributions by:**

Mark Johns, NC Wildlife Resources Commission, NC Partners in Flight Biologist  
NC Partners in Flight Communications Committee  
NC Partners in Flight Steering Committee and State Working Group

### **NC Partners in Flight State Steering Committee**

Mark Johns, NC Wildlife Resources Commission (Partners in Flight Biologist)  
Dr. Marshall Brooks, NC Wesleyan College (Communications Chair)  
John Gerwin, NC Museum of Natural Sciences (Monitoring and Research Chair)  
Kevin O’Kane, Weyerhaeuser Company (Conservation and Management Chair)

## **Table of Contents**

Introduction.....	page 2
History.....	page 3
Accomplishments.....	page 5
Goals and Objectives.....	page 9
NC PIF Steering and Working Committees.....	page 11
NC PIF Birds and Habitats of Conservation Concern.....	page 14

## **Introduction**

By certain accounts, some landbird species are declining, especially those that breed in North America and migrate to and from the Neotropics, but also those that spend all of their lives in North America (Robbins et al. 1989, Terborgh 1989, Askins et al. 1990, Finch 1991, DeSante et al.1993, Rich et al. 2004). Evidence that points to the decline of landbird species comes from two principle sources: the Breeding Bird Survey (Sauer and Droege 1992, Peterjohn 1994) and studies of radar images of migration flights across the Gulf of Mexico (Gauthreaux 1992). However, recent research continues to support earlier findings (James et al. 1992) that points out regional differences in population trends derived from Breeding Bird Survey data complicate an assessment of the situation. Debate continues about the severity of landbird declines and which species need the most immediate conservation attention, but public interest in migratory birds continues to grow. There is spreading urgency to not only keep declining species from becoming threatened or endangered, but to keep common species common. Continued improvement of monitoring techniques and intensity is warranted (Terborgh 1992), and coordinated monitoring efforts are needed among regions.

Maintaining healthy bird populations has long been an important part of North American conservation efforts. Private conservation organizations like the National Audubon Society and public agencies such as the U.S. Fish and Wildlife Service both have their roots in bird conservation efforts. Today in North Carolina, many organizations and agencies include bird conservation as important to their missions. Conservation efforts have focused on colonial waterbirds (such as herons and egrets, terns, and pelicans), waterfowl and other gamebirds, and shorebirds. Only within the last few decades has concern shifted to migratory landbirds. The publication of “Silent Spring” (Carson 1962) by Rachel Carson helped the public understand the connection between the loss of natural resources and the quality of human life, and that understanding and concern has only intensified in the last decade.

As we move into the 21<sup>st</sup> century, migratory landbirds will serve as “the canaries in the coal mine” that will help rally conservationists to address important environmental conditions. Important issues to be addressed include: the continued fragmentation of bird habitats on the breeding and wintering areas; an increasing lack of structural diversity in many habitats; increasing threats to species as they migrate; problems with more and more environmental contaminants; and the proliferation of non-native plants and animals. The commitment of all nations in the Western Hemisphere will be required to address these problems. At stake are not just migratory birds, but biological diversity throughout the region. Neotropical migrants will serve as the link to bring everyone together across national borders. The North American Bird Conservation Initiative is a recent attempt to continue and broaden the important work done through the International Partners in Flight Program throughout the Americas. However, the key to furthering bird conservation on large scales is commitment from local initiatives like North Carolina Partners in Flight.

In addition, the **NC Wildlife Action Plan** (NCWRC 2005) was completed in 2005 by the NC Wildlife Resources Commission with the assistance of many partners and will further define important goals and conservation needs in North Carolina related to birds. This Plan drew heavily from state, regional and national PIF plans and species assessments to help incorporate strategies to best meet the needs of birds and their habitats in the future in our state, and will greatly help focus statewide bird conservation efforts.

## **History**

Partners in Flight – *Aves de Las Americas* – arose in 1990 from concern about declining migratory landbird populations. Several North Carolinians from various agencies and private conservation groups contributed to the creation of the International Partners in Flight Program as a national and regional presence. This multi-organization conservation effort has accomplished much to raise awareness about migratory birds. A major emphasis of the program is to increase communication among concerned partners to foster improved cooperation and collaboration to in the region and abroad. Although Partners in Flight was first organized along physiographic regions as working groups in much of the south, within the last few years most work and projects have initiated from regional working groups.

The North Carolina Partners in Flight (NC PIF) program was initiated in 1993, and in 1996 the North Carolina Wildlife Resources Commission hired a full-time coordinator for the program. A Partners in Flight group organized at the state level offers an opportunity for North Carolinians to become involved without having to travel to meetings in other states. Early Partners in Flight efforts in North Carolina were organized along physiographic regional working groups, but the focus since 1996 has mostly been at the State Working Group level throughout the southeast. The state-based group certainly also offers administrative advantages for coordination, especially for state and local government. To be involved in NC PIF, one needs only to become involved in working groups or other volunteer activities and projects or attend annual meetings.

In September of 1993, NC PIF was actually launched at an organizational meeting hosted by then Carolina Power and Light Company (now Progress Energy). The State of North Carolina, through the Department of Environment, Health and Natural Resources, took a leadership role in the 1990's in developing a landbird conservation strategy by publishing *A Management Plan for Neotropical Migratory Birds*. This plan came from a draft developed by a Steering Committee that would become the first State Bird Conservation Plan through the Partners in Flight Program in North Carolina.

Through the combined efforts of many people, this initial state plan was published in 1995. The Steering Committee (made up of the state coordinator and chairs of standing working committees) reviewed model management plans from Georgia (Johnson 1993) and Tennessee (Ford 1993), and borrowed heavily from both to create the North Carolina plan. This original North Carolina plan included much additional information in it from Georgia's Partners in Flight State Bird Plan (Hunter 1993). The original North Carolina plan identified specific statewide and local initiatives to aid in landscape planning, and provided a broad framework through which agencies, organizations and individuals can work together to further migratory bird conservation.

Created as a dose of preventive medicine, Partners in Flight works toward saving species and habitats before they become endangered. Its goal is to keep common birds common. The 1990's will be remembered as the decade in which Partners in Flight radically changed the face of bird conservation in the United States (Pashley et al. 2000). Under the founding leadership of the National Fish and Wildlife Foundation, Partners in Flight draws together more than 300 partners from federal, state and local agencies, private conservation organizations, foundations, academia, and the forest products companies and other industries that give their ideas, time and resources to create and maintain better bird conservation.

In 2004 with the release of the Partners in Flight North American Landbird Conservation Plan (NALCP), NC PIF has another tool to make better bird conservation decisions (Rich et al. 2004). The NALCP provides a continental synthesis of priorities and objectives that will guide landbird conservation actions at national and regional scales (Rich et al. 2004), and the initial version provides information on 448 native landbirds that breed in the United States and Canada. Participation by Mexican partners in future versions will add another 450 breeding species.

The NALCP outlines 28 bird species in need of immediate conservation action to protect small remaining populations and 44 more that are in need of management to reverse long-term declines. It also highlights the need for stewardship of the species and landscape characteristics of each portion of the continent, and identifies 158 species (including 66 species on the PIF Watch List) that are representative of large avifaunal biomes, and whose needs should be considered in conservation planning (Rich et al. 2004). The NALCP documents 100 landbird species in Canada and the United States that are on the

PIF Watch List, due to a combination of threats to their habitats, declining populations, small population sizes or limited distributions (Rich et al. 2004).

## **Accomplishments (Since 1995)**

Since the creation of the first State PIF Plan in 1995, thousands have been exposed to its goals, objectives and mission through hundreds of first-hand presentations and workshops related to bird conservation. Thousands of biologists, natural resource managers, foresters and educators have been trained in bird identification and monitoring techniques through hundreds of NC PIF sponsored workshops, and thousands of acres of public and private lands are now better managed by partners to meet the needs of many types of migratory birds. The NC PIF training program also expanded its workshops to include plant identification training for natural resource professionals to expand their ability to conduct accurate vegetation sampling during point counts and other bird monitoring projects.

PIF Regional Bird Conservation Plans have been produced for all three physiographic areas of North Carolina since 1997 (Southern Blue Ridge, South Atlantic Coastal Plain, Southern Piedmont) to provide management, research and conservation direction for land managers. In addition a NC Bird Species Assessment has been prepared that further defines the species within habitats throughout the state in need of conservation action.

These plans, augmented by the PIF North American Landbird Conservation Plan, will be extremely important in the 21<sup>st</sup> century to help implement bird conservation strategies through the North American Bird Conservation Initiative. Conservation priority scores have been developed for all landbird (and many other migratory) species, and research needs assessments have been produced. NC Partners in Flight helped to develop a Watch List for priority species and habitats to guide research, monitoring and management efforts in the state.

NC Partners in Flight, through the NC Wildlife Resources Commission, currently coordinates the Breeding Bird Survey (BBS) in North Carolina. This long-term, continental avian monitoring program (coordinated jointly by the USGS Patuxent Wildlife Research Center and Canadian Wildlife Service) has tracked the status of North American bird populations since 1966. BBS data provide an index of population abundance that can be used to estimate some population trends and relative abundances at various geographic scales. The U.S. Fish and Wildlife Service and Partners in Flight use BBS trends along with other indicators to help assess species management priorities.

BBS data were instrumental in focusing research and management on neotropical migrant species in the late 1980's, and on grassland species in the mid-1990's. More than 270 scientific publications, as well as countless research projects, have relied on BBS data. The state Breeding Bird Atlas project coordinated by the NC Museum of Natural Sciences and the NC Natural Heritage Program used BBS data to enrich their species databases.

A monitoring data repository for North Carolina is maintained by the NC Museum of Natural Sciences, and the amount of data suitable for this repository has increased due to NC PIF bird identification and monitoring protocol workshops. The Monitoring Avian Productivity and Survivorship (MAPS) program has conducted several training workshops in North Carolina, and new MAPS bird banding stations are opening each year. This mist-netting program is designed to help gather data on bird survival and productivity. SE Partners in Flight designed a program to gather data on neotropical migrants during spring and fall migration periods in 1996, and NC PIF coordinates this program (Migration Monitoring) in this state. PIF-sponsored citizen science projects also help North Carolinians gather data on everything from hummingbirds to breeding backyard birds. There is something available for everyone related to volunteer bird conservation opportunities in North Carolina on the NC PIF web site at: [www.faculty.ncwc.edu/mbrooks/pif/](http://www.faculty.ncwc.edu/mbrooks/pif/)

The NC PIF program in North Carolina provides first-hand technical assistance to various governmental agencies, conservation organizations, and private landowners on matters related to bird conservation. The program has provided extensive technical assistance to public and private land managers, as well as guidance to private citizens to improve backyards for birds and other wildlife. Countless agencies, organizations, academic institutions and private companies have had their natural resource plans or research projects reviewed by NC PIF. Many government agencies or private organizations have also requested information or assistance from NC PIF on developing printed materials or exhibits related to migratory birds.

The Partners in Flight program is an important source of current information about bird conservation. Extensive materials have been produced and are available (fact sheets, bird species profiles, etc.) at the NC Partners in Flight web site. Other information is published via partnerships to create better migratory bird awareness and keep partners informed and updated. The NC Partners in Flight newsletter is published several times each year on the web site. A *'Citizen's Guide to Migratory Birds'* has been produced for both adults and children to provide information on the importance of migratory birds. The International Migratory Bird Day (IMBD) outreach event has expanded greatly since 1996, and dozens of IMBD events and programs of all kinds and sizes (including some all-day celebrations) reach thousands throughout the state each year.

Increasing communication is, and will continue to be, a major PIF theme. North Carolina Partners in Flight has held annual meetings with meaningful themes at sites throughout the state since 1994, and the NC PIF Steering Committee and State Working Group meets at least twice each year to discuss matters related to migratory bird conservation throughout the region. North Carolina also hosted the Southeastern Partners in Flight Working Group meeting in 1997, and hopes to host again in 2009. PIF meetings give many groups and individuals with diverse viewpoints about bird conservation a chance to exchange ideas in a constructive, positive manner that serves as a catalyst for "making good things happen" for birds.

NC PIF has become a driving force for better communication and cooperation on bird conservation in the state and region, and this program needs to continue and expand as the North American Bird Conservation Initiative transforms bird conservation into 'all-bird conservation' for the next century. Partnerships drive all conservation efforts in this state and abroad. PIF has brought together partners from all arenas of private and public natural resource management. All federal and state government agencies that deal with natural resource management issues, and many local governments, are involved in the PIF program in North Carolina. Together with many conservation organizations, colleges and universities, private industries and concerned citizens, these government agencies work together to further bird conservation throughout the state in a variety of ways. Everyone can be involved, and everyone can make a difference.

Finally, the PIF program in North Carolina has been recognized at the International, National and State levels for furthering bird conservation. North Carolina Partners in Flight was recognized in late 1990's by International PIF for outstanding contributions to furthering both public awareness and International efforts. In addition, NC PIF was recognized by the North Carolina and National Wildlife Federation in 1999 for excellence in wildlife conservation through the Governor's award program, by The Wildlife Society for contributions to improve bird conservation in 2001, and by the American Forest & Paper Association in 2003 with a Wildlife Stewardship Award.

The future is bright for Partners in Flight in North Carolina, and its continued role in matters related to bird conservation through research, monitoring, land stewardship and management, technical guidance, and increasing communication among partners will continue to grow under the coordination of the North Carolina Wildlife Resources Commission.

## North Carolina Partners in Flight Strategic Planning Process

In order to better update and refine the North Carolina Partners in Flight State Bird Plan, a strategic planning process was undertaken in 1999. With the accomplishment of many important goals and objectives by working committees, some new goals and objectives were needed. The process included a survey of current and potential stakeholders in North Carolina bird conservation.

The strengths and weaknesses, as well as opportunities of the PIF program in North Carolina were also closely examined. Strategic issues relating to bird conservation were discussed, as well as the possible future alternatives.

During May of 2000, the process continued with creation of vision and mission statements to best reflect the current value and status of the program and expand and update the statements created for the first state bird plan in 1995. The vision of NC PIF now has additional emphasis on the importance of partnerships, while the mission statement has been refined and clarified to reflect the current focus of the program on coordination of efforts among many North Carolina partners. In the fall of 2000, the strategic planning process was completed with the development of goals and objectives

for the NC PIF program in the next century relating to important issues of bird conservation on all scales. Actions were begun as committee work plans, and an evaluation process was determined.

The NC PIF Communications Working Group organized strategic planning and Laura White of the Town of Cary and Amber Parker then of Wake County Parks, Recreation and Open Space facilitated efforts. Completed components of all phases of the strategic planning process were distributed to members of the NC PIF Steering Committee, as well as many members of the State Working Group for review. Many individuals have contributed to complete the planning process commenting on portions circulated for review, and many concerned partners participated in various strategic planning meetings during 1999 and 2000.

Important underlying concepts that were fundamental in the first state PIF bird plan will continue to be important. The North Carolina Partners in Flight Program will continue to promote landscape and ecosystem level approaches that further migratory bird conservation and research through the North American Bird Conservation Initiative. This NC plan was updated again in 2005 and it will continue to be a 'living document' as the scope of bird conservation changes.

The North Carolina Wildlife Resources Commission has demonstrated state leadership by practicing sound and varied migratory bird management and conservation on state game lands, and has a monitoring/research program for bird populations on state game lands that will continue to expand. The Wildlife Commission has also begun a new initiative (Cooperative Upland habitat Restoration and Enhancement: CURE) to provide technical assistance to landowners, and to work cooperatively with them in specific large-scale focal areas to improve conditions for all types of wildlife, including songbirds. Existing statewide surveys and other monitoring of landbirds has been expanded to include other types of migratory birds. Obviously, a major focus of the PIF program in this state is, and will always be, providing information to the public and professionals on matters related to bird conservation.

### Vision Statement

Through a network of partnerships, help provide for effective conservation of North Carolina's migratory birds and the diversity of habitats upon which they depend.

### Mission Statement

North Carolina Partners in Flight (NC PIF) is a cooperative effort involving government agencies, conservation organizations, private industry, the academic community and citizens to further bird conservation. The primary focus of the NC PIF program is to coordinate and promote increased communication, habitat conservation, research and monitoring efforts among partners.

## NC PIF Goals and Objectives

Goal 1. Conduct and facilitate cooperative special events and meetings relating to migratory bird conservation

Support, encourage and promote International Migratory Bird Day events throughout North Carolina

Organize, promote and conduct spring and fall annual meetings of North Carolina Partners in Flight with themes related to current bird conservation issues

Coordinate timely meetings of the North Carolina Partners in Flight Steering Committee and State Working Group

Assist with the organization and promotion of North Carolina Partners in Flight working committee meetings

Goal 2. Promote and facilitate communication, cooperation and collaboration to further migratory bird conservation in North Carolina

Create and edit newsletters focusing on the North Carolina Partners in Flight Program, its sponsors, partners and activities

Update the North Carolina Partners in Flight web site to provide information on the program and related bird conservation initiatives and actions

Work with various partners when opportunities arise to produce and promote materials that provide information about the importance of migratory landbirds and other birds

Develop, refine and reinforce partnerships that will benefit migratory bird conservation in North Carolina, the southeast and throughout the Americas

Goal 3. Promote, support and relay information relating to research, monitoring, habitat conservation, management about migratory birds in North Carolina

Promote and distribute informational materials via the web site, like the North Carolina Partners in Flight Citizen's Guide to Migratory Birds, in a variety of ways

Produce and distribute written materials via volunteers about Partners in Flight and bird conservation for the public and natural resource professionals

Provide technical assistance to both large and small-scale landowners on matters relating to birds, habitat conservation and management

Expand and diversify the Partners in Flight program in North Carolina when opportunities develop

**Goal 4. Promote and conduct training opportunities for natural resource professionals and others related to bird identification and ecology, habitat management and conservation**

Recruit and train natural resource professionals and qualified citizens to conduct monitoring of bird populations in North Carolina via the Breeding Bird Survey, Migration Monitoring, point counts and other monitoring methods

Conduct workshops for natural resource professionals related to bird identification, ecology, habitat management and monitoring techniques

Promote “citizen science” monitoring efforts in North Carolina among the public

Develop and reinforce partnerships to promote volunteer opportunities for the public and natural resource professionals that will benefit birds and their habitats

### Partners in Flight Organization

The Partners in Flight Program is highly organized, but open to all that have a desire to contribute to improving bird conservation in a variety of ways. There is a National Coordinator working through the U.S. Fish & Wildlife Service, some Bird Conservation Region (BCR) coordinators, regional working groups and several National PIF working committees. Each region has working group chairs or co-chairs, and most PIF business regionally is accomplished at this level. North Carolina continues to be involved the workings of the Southeastern PIF Working Group, which includes the South Atlantic Coastal Plain, Southern Piedmont and Southern Blue Ridge physiographic regions of the south. This regional working group concept allows several states to address bird conservation issues in a unified manner on some issues.

North Carolina Partners in Flight was first organized by North Carolinians in 1993, and became more focused in 1996 with the hiring of a full-time coordinator by the Division of Wildlife Management’s Wildlife Diversity Program of the NC Wildlife Resources Commission. Meetings, training and volunteer opportunities exist throughout the year for North Carolinians wanting to be part of the NC PIF program.

The NC PIF Steering Committee consists of the NC PIF Biologist, acting as committee chair, and the chairs of all standing working committees. The committee chairs address specific issues related to bird conservation in the state, and are charged with defining objectives and helping to form partnerships to meet them. Committee chairs should be willing to serve a minimum term of 3 years for continuity purposes, and may step down from their chair position at any time after that period. Committee Chairs should make every effort possible to attend all Steering Committee meetings, and strive to hold at least

annual committee meetings for individuals that have expressed interest in topics related to their committee or to address current topics of interest.

The Steering Committee will work with any party interested in achieving goals set forth in this plan, which will be modified as needed. The Steering Committee will meet at least twice each year to address NC PIF business, issues of concern related to bird conservation and redefine goals and objectives as needed. Steering Committee members should strive to communicate effectively with each other as often as possible on important bird conservation matters. Meaningful bird conservation requires efficient communication.

The State Working Group is composed of individuals very interested in bird conservation matters in the state, who are strongly encouraged to attend all Steering Committee meetings and become involved in specific NC PIF working committee meetings and activities that are of interest to them. Members of the State Working Group are often the most active in terms of monitoring, research, conservation and education efforts related to migratory birds, but any concerned North Carolina citizen can serve on a working committee that has the needed background and enthusiasm for the task.

### NC PIF Steering Committee

The complexity and scope of jobs necessary to address conservation of migratory birds in North Carolina requires the resources of many agencies, organizations, companies, academia and concerned individuals. Putting bird conservation “on the ground” will require local action from many groups and individuals. Strong and diverse partnerships will drive bird conservation in the future, including working with other states to accomplish physiographic, BCR or regional scale goals. The Steering Committee and several members of the State Working Group will be central in coordinating role such partnerships.

The Steering Committee, under the direction of the NC PIF Biologist, will cooperate with other state and regional working groups as opportunities arise to coordinate state activities with regional, national, and international activities, goals and objectives. The Steering Committee will provide a forum for bird conservation issues in North Carolina at meetings as needed throughout the year, and review NC PIF objectives and actions.

### Standing NC PIF Working Committees

#### Monitoring/Research Committee

This committee will strive to facilitate effective communication and cooperation among partners in North Carolina involved in monitoring efforts like the Breeding Bird Survey, point counts, Migration Monitoring, Christmas Bird Count, and other censuses. A need exists to continue to make this information even more accessible for biologists and researchers and North Carolina will strive to make such data as accessible as possible to further conservation planning and research. The current bird identification and natural

history training provided by NC PIF is making excellent progress toward better monitoring coverage in North Carolina. In addition, this committee is often highly involved with ongoing bird research, state and regional working groups, and helps keep the Steering Committee and Working Group updated.

#### *Monitoring/Research Committee Objectives*

- Promote and increase population monitoring of all migratory birds in North Carolina to help meet state and regional monitoring goals
- Continue the training of natural resource professionals and citizens in bird identification and monitoring techniques
- Work toward complete coverage of Breeding Bird Survey routes and increase and promote other monitoring survey methods
- Maintain a standard state point count or bird records data repository via the NC Museum of Natural Sciences, and cooperate with regional and national archiving systems as opportunities arise
- Cooperate in and promote bird related research in North Carolina to help meet state and regional goals and needs, and support and promote long-term monitoring/research at existing and new study areas in the state

#### Conservation/Management Committee

This committee will strive to facilitate collaborative efforts toward bird conservation among public and private, as well as industrial and non-industrial landowners, to be successful. Management or conservation recommendations and actions must often be customized to meet the needs of bird species of conservation concern in North Carolina and the region, but these recommendations and actions also must meet the needs of landowners. We should promote the use of voluntary conservation incentive programs by landowners that incorporate the needs of migratory birds. The NC Wildlife Resources Commission has committed to a private lands initiative (CURE) that will feature specific large-scale focal areas to be managed to meet the needs of some resident and migratory birds, and the committee should provide information about PIF goals and objectives as this private lands program progresses. This committee is also involved with the identification and potential acquisition of areas in North Carolina that are of high significance for migratory birds.

#### *Conservation/Management Committee Objectives*

- Monitor the continued revision or refinement of population and habitat goals and management recommendations set by physiographic, BCR or regional bird plans for high priority species and habitats

-Continue to develop and refine management practices and recommendations for birds in habitats of all regions of North Carolina as opportunities arise

-Cooperate with the development of conservation and management plans for large areas of habitat on public and private lands as opportunities arise

-Support and promote the updating and refinement of the Important Bird Areas Program of Audubon North Carolina

-Provide input upon request about key areas for acquisition and conservation that could benefit migratory birds

### Communications Committee

This committee shall provide current bird-related information to the public and natural resource professionals in a variety of media. The focus of informational materials should be about the NC PIF program and/or the ecology, conservation and management of migratory birds. This committee may also offer guidance to the Steering Committee and State Working Group on the value of marketing migratory birds and their habitats as important to local governments and communities in the form of birding trails and festivals. A key function of this committee is to increase communication and cooperation within the birding community and the public by developing and providing current scientifically based information on migratory birds and their problems via creative partnerships.

### *Communications Committee Objectives*

-Produce timely newsletters for the web site relating to NC PIF activities and migratory bird conservation efforts in general at the state, regional and national levels

-Support the development of materials that inform the public, natural resource managers, educators and students about the importance of migratory bird conservation

-Promote and assist with International Migratory Bird Day events throughout North Carolina as opportunities develop

-Help increase awareness and knowledge about migratory birds to the public and natural resource through various media sources

-Promote bird-related tourism through support of organized birding trails and festivals as opportunities develop

## PIF Birds in Need of Conservation Attention and Associated Habitats

Species (with priority scores) and habitats of conservation concern have been clearly prioritized for all regions by PIF and appropriate species included in regional bird conservation plans. A Watch List of bird species with various causes for concern is presented in the PIF North American Landbird Conservation Plan (Rich 2004 et al.). NC PIF developed the North Carolina Bird Species Assessment (Johns 2005) more specific to this state. Contact Mark Johns for information at: [johnsme@mindspring.com](mailto:johnsme@mindspring.com)

The peer-reviewed regional bird plans for North Carolina are dynamic and will continue to evolve and provide land managers with useful information for making management, monitoring and research decisions. They will also provide important guidance as the Bird Conservation Regions (BCR's) of the North American Bird Conservation Initiative (NABCI) begin to guide bird conservation planning. Much work went into the development of birds and habitats of conservation concern by the Steering Committee and State Working Group to address North Carolina specific needs and to coordinate regional efforts with the NC Bird Species Assessment.

In addition, the **NC Wildlife Action Plan** was completed in 2005 by the NC Wildlife Resources Commission with the assistance of scores of partners and will further define important goals and conservation needs for North Carolina related to birds. This Plan will help focus and guide bird conservation efforts for the next several years and will be systematically updated.

## Regions

*Note: For a more complete list of all bird species associated with North Carolina natural and man-made habitats (including waterbirds and waterfowl) see the NC Bird Species Assessment (Johns 2005). Following are some of the important habitats in each region of the state related to landbird species of conservation concern.*

### *South Atlantic Coastal Plain*

**Floodplain Forests** Floodplains of significant length and width provide habitat for many species of high conservation concern, and acquisition projects via partnerships as well as proper protection and/or management of these systems are vital. High ranking birds of concern include Swainson's Warbler and Cerulean Warbler (Roanoke River only). Species-specific monitoring, long-term monitoring and research (especially for productivity and habitat use) are needed for both of these species and should be a priority for this habitat type. Opportunities for improvement of habitat structure and quality exist for some of these areas via the Forest Landbird Legacy Program Partnership on some private lands.

Prothonotary Warbler, Kentucky Warbler, Hooded Warbler, Wood Thrush, Louisiana Waterthrush, Northern Parula and Acadian Flycatcher are all important species in floodplain systems in need of specific monitoring and productivity research. Management to improve understory conditions (e.g. cane thickets) could benefit Hooded and Kentucky Warblers, and a more diverse understory would also benefit Worm-eating Warblers. Several properly managed habitat blocks of greater than 5,000 acres are needed and connectivity between smaller patches should be encouraged.

These floodplains are also important to Wood Duck and American Woodcock, and Bald Eagles nest and forage along major riparian corridors. Rusty Blackbirds use these areas during winter and migration. Many neotropical migrants use riparian corridors during migration (especially during springtime) and monitoring/research to document the most important stopover areas for migrants is needed. Long-term monitoring and productivity/survivorship studies are needed for many of the birds in floodplain systems, since many of these species are neotropical migrants. Breeding Bird Survey routes do not usually adequately sample riparian corridors in the coastal plain of North Carolina.

Distribution and status information on several species in the coastal plain is lacking, needs attention, or needs long-term monitoring for such species as Mississippi Kite, Swallow-tailed Kite, Black and Yellow-crowned Night-Herons, Worm-eating Warbler, Louisiana Waterthrush, Swainson's Warbler, Cerulean Warbler, Kentucky Warbler, American Woodcock, Black-and-white Warbler, American Redstart, and Rusty Blackbird (winter only).

In addition, the PIF North American Landbird Conservation Plan suggests management attention is needed for Worm-eating Warbler, Kentucky Warbler, Prothonotary Warbler, Cerulean Warbler, Wood Thrush in the coastal plain and long-term planning is needed in the southeast for such species as Swainson's Warbler, Hooded Warbler, Louisiana Waterthrush, Yellow-throated Vireo, Acadian Flycatcher and Yellow-throated Warbler in floodplain forests of the coastal plain.

**Maritime Forests and Maritime shrub-scrub** These habitats are greatly threatened by various developmental and recreational activities and all are very important breeding and migration stopover sites for many migratory birds. Species of conservation concern that require immediate attention include the Eastern Painted Bunting which is declining throughout its range at a significant rate. NC researchers need to continue to participate in the multi-state Eastern Painted Bunting working group and related monitoring and research projects. Research related to long-term productivity, survival and habitat use is needed. Acquisition, protection and management are all needed for these habitats in North Carolina.

Prairie Warbler, Orchard Oriole, Yellow-breasted Chat, Gray Catbird, and Common Yellowthroat, White-eyed Vireo, Eastern Towhee and Brown Thrasher also use these habitats (especially shrub-scrub) at some time of the year and further work is recommend

to determine status, distribution, breeding productivity, and survival. Information on the importance of these areas to neotropical migrants as stopover sites is also needed.

**Non-floodplain Forested Wetlands** These habitats include (among others) Carolina bays, pocosins and hardwood and swamp forests and support a variety of species of high conservation concern including Swainson's Warbler, Worm-eating Warbler, Wood Thrush, Hooded Warbler, Prothonotary Warbler, and Wayne's Black-throated Green Warbler. Acquisition and proper management of these areas is vital, and restoration of proper hydrology and fire regimes is recommended when opportunities arise. Information is needed on the distribution and status of bird species of conservation concern using these areas (especially Wayne's Black-throated Green Warbler and Swainson's Warbler), and information is needed on bird productivity and habitat use patterns in these areas.

**Longleaf Pine Forests** These habitats have been greatly reduced in scope and impacted by human activities and reduced fire regimes. The historical expanse of these areas likely supported stable populations of many early seral species like the Prairie Warbler in open stands. In addition, temperate migrants like Bachman's Sparrow and Henslow's Sparrow (mainly winter), plus residents like Northern Bobwhite, Red-cockaded Woodpecker (federally endangered species) and Brown-headed Nuthatch need appropriate fire management to reach peak numbers. Prescribed fire needs to increase in these systems dramatically.

Information on productivity, survival and habitat use patterns of species like Brown-headed Nuthatch, Bachman's Sparrow, Northern Bobwhite, American Kestrel, Red-headed Woodpecker and nightjars (Whip-poor-will and Chuck-will's-widow) is needed. Restoration opportunities also exist via the Forest Landbird Legacy Program for some longleaf habitats on private lands.

**Grasslands, Pastureland and Old Fields** These habitats have greatly declined in quality and quantity for many birds due to an increase in habitat loss, introduction of non-native grasses, fire suppression and detrimental mowing regimes in pastures. Many birds with significant rates of decline in North America according to Breeding Bird Survey data are grassland species like Grasshopper Sparrow, Henslow's Sparrow, Eastern Meadowlark, and Loggerhead Shrike. Northern Bobwhite is also associated with grassland, pasture, and old fields throughout the coastal plain, especially on and near farmland and continues to experience population declines. Long-term monitoring of all grassland species is needed, and productivity and survivorship data is lacking. Little information exists on predation and parasitism in grassland bird communities.

The two largest breeding populations of Henslow's Sparrows in the southeast exist in coastal North Carolina at managed grassland sites (Voice of America), and these areas need monitoring and research attention via partnerships with academia and federal and state government. Current monitoring efforts at these sites should continue.

Management of larger blocks (50 acres or greater) of grassland habitat should increase, and strategies to connect these habitats and best manage them to benefit grassland species

are vital. Technical guidance for private landowners needs to increase through various federal programs and through the CURE program of the Wildlife Commission. Information on bird use during the winter and migration periods is lacking, as is information on bird population response to various management strategies.

**Industrial Forestland** Tremendous opportunities to benefit shrub-scrub and forest landbirds exist on industrial forestland in North Carolina's coastal plain via cooperative partnerships with companies like Weyerhaeuser and International Paper who owned over 1 million acres of land in the coastal plain prior to 2005. These lands are likely a stronghold for early successional bird species like Prairie Warbler, Common Yellowthroat, Gray Catbird, Indigo Bunting, Blue Grosbeak, Eastern Towhee, White-eyed Vireo and Yellow-breasted Chat.

An internal wildlife management plan has been developed with Weyerhaeuser by the NC PIF biologist, other biologists from the Wildlife Commission and NC State University to help guide management on over 500,000 acres of Weyerhaeuser land in the coastal plain, and a similar plan has been developed with International Paper by the NC PIF biologist, other biologists from the Wildlife Commission and The Nature Conservancy to help guide management on over 400,000 acres in the southeastern coastal plain. Both of these plans should have significant positive impacts on a variety of birds in several types of habitat. **Recently (2005-2006) International Paper sold significant land holdings in NC, and acquisition and management patterns will be important for many birds in the future.**

The NC PIF biologist assisted with the implementation of BBS routes on both Weyerhaeuser and International Paper land (2 routes each), and also works with biologists from both companies to conduct bird inventory work year-round. Still, many monitoring and research needs exist that can be addressed via partnerships. These include long-term monitoring in all stand age classes, gathering productivity and survivorship data, and information on habitat use patterns for species of conservation concern such as Brown-headed Nuthatch, Prairie Warbler, Yellow-breasted Chat, Field Sparrow, and nightjars as well as many forest birds.

### *Southern Piedmont*

**Upland and Mesic Forests** These forests have greatly declined in quality and quantity due to development, fragmentation, fire suppression, and decreased structural diversity. Smaller forest patches seem less likely to support healthy populations of some forest species like Wood Thrush, Scarlet Tanager, Black-and-white Warbler, Ovenbird and Eastern Wood-Pewee, although more research is needed. Efforts should be made to conserve and manage appropriate amounts of forest habitat (especially hardwood-pine mix) in areas where the largest Piedmont forest patches persist, and to encourage the use of prescribed burns where possible to increase understory diversity. Opportunities should be supported where they exist for local land trusts and governments to purchase areas that will develop over time into suitable habitat, especially with proper management.

Attempts should be made to buffer intact riparian areas with upland and mesic forest habitat. Long-term monitoring and productivity studies are needed.

**Riparian Forests** These areas have become scarce in the Piedmont of North Carolina because of reservoirs developed for flood control, power generation, recreation, and continued population growth and urban/suburban sprawl. Establishment and conservation of wide riparian buffers could benefit many neotropical migrants along rivers and streams such as Prothonotary Warbler, Yellow-throated Vireo, Acadian Flycatcher, Wood Thrush, Kentucky Warbler, Louisiana Waterthrush, Northern Parula and Hooded Warbler, as well as game birds like Wild Turkey, Wood Duck, and American Woodcock.

These habitats should be important targets for establishment of conservation easements and land acquisition via creative partnerships. Control of non-native plant species will be important if the habitat quality is to remain high. Buffers of at least 300 feet should be encouraged whenever possible along major stream and river corridors, especially in fragmented landscapes. Opportunities for improvement of habitat structure and quality should exist for some of these areas via the Forest Landbird Legacy Program on some private lands.

**Early Successional** These areas (shrub-scrub, grassland, pastures, old fields and regeneration areas) support many species of conservation concern in the Piedmont during some part of their life cycle such as Prairie Warbler, Field Sparrow, American Woodcock (foraging and display areas), Whip-poor-will (foraging), Field Sparrow, and Northern Bobwhite. The quality of many of these sites in the Piedmont is questionable at best and of short duration because of fragmentation, non-native invasive plants, and lack of proper management.

Life history information is needed on many early successional landbirds, especially those with declining population trends such as Prairie Warbler, Loggerhead Shrike, Barn Owl, Grasshopper Sparrow, American Woodcock, Northern Bobwhite, Yellow-breasted Chat, Common Yellowthroat, Eastern Towhee, Brown Thrasher, and Field Sparrow. In addition, long-term monitoring should increase and productivity research is needed on public and private lands. Information on use of these areas by birds during migration and winter is lacking.

NC PIF recommends the use of native trees and shrubs, native fruit-producing shrubs, native herbaceous plants, and native warm season grasses for planting to support breeding, migrating and wintering landbirds whenever possible, especially in rural and suburban habitats. Even small isolated woodlots in rural landscapes and forested residential areas surrounded by early successional habitats could support important numbers of migrants.

## *Southern Blue Ridge*

**Spruce fir Forests** These forests are extremely threatened communities due to damage from human activities and non-native insects during the 20<sup>th</sup> century. These communities provide breeding habitat for many migrant landbird species and other birds that are potentially endemic to these high peaks. Some current research has indicated the uniqueness of the birds present at these highest elevations in North Carolina, and suggests that the relative abundance of bird species is changing. Long-term bird monitoring is badly needed, as well as genetics research and productivity and habitat use studies.

Species of high conservation concern include Northern Saw-whet Owl, Black-capped Chickadee, Red Crossbill, Brown Creeper, Red-breasted Nuthatch, Winter Wren, Golden-crowned Kinglet, Blackburnian Warbler, Veery, and Canada Warbler. Status and distribution work is needed for these species, and also productivity and habitat use research. Information on migrant use of these areas as stopover sites is lacking. Restoration of spruce should be a conservation priority, as well as increased research and monitoring of these habitats. Restoration efforts for high elevation forests should be promoted when opportunities arise via creative partnerships.

There are also cliff or rock outcrop species (especially Peregrine Falcon, but also Common Raven) mainly at high elevations that need long-term monitoring in this region.

### **Cove Forests, Oak Forests, Mixed Hardwoods and Northern Hardwood Forests**

These habitats support many species of high conservation concern in the region. These areas also produce high value timber products and offer multiple recreational opportunities. Lack of disturbance (e.g. fire) has resulted in poor structural diversity in some hardwood stands. Status and distribution work is needed as well as long-term monitoring programs, including mist-netting stations. Productivity information is lacking.

Some bird species are dependent on a diverse and thick understory and shrub layer that is lacking in many stands. Examples include Black-throated Blue Warbler, Veery, Canada Warbler, Kentucky Warbler, Hooded Warbler, Swainson's Warbler and Worm-eating Warbler. Rose-breasted Grosbeak, Cerulean Warbler, and Eastern Wood-Pewee often use canopy gaps and research is needed to determine long-term bird population response to canopy gap management in forested landscapes like the Southern Blue Ridge. Yellow-bellied Sapsucker is a species of high conservation concern currently being addressed via a multi-state working group and this effort needs to be continued and supported.

Management needs to be promoted to encourage appropriate vegetative species and habitat conditions over time in some stands, especially via prescribed burns. Oak-dominated forests need disturbance via fire on a more consistent scale to promote gaps and the appropriate tree and shrub species composition in stands. Efforts should be made to secure large patches of potential cove forest and northern hardwood forest habitat via acquisition partnerships.

Other species of conservation concern using these habitats include Wood Thrush, Blackburnian Warbler, Black-and-white Warbler, Broad-winged Hawk, Ruffed Grouse and Acadian Flycatcher. Species specific monitoring and research is needed in these areas to augment typical point counts for many of these species, and banding stations need to be established to track productivity and survivorship of landbirds.

**Early Successional** These areas (shrub-scrub, grassland, pastures, balds, old fields and regeneration areas) support many species of conservation concern in the Southern Blue Ridge of North Carolina that depend on disturbed habitat for some part of their life cycle. The Golden-winged Warbler is a high priority species of conservation concern in high elevation early successional habitat. The PIF North American Landbird Conservation Plan lists it as a species in immediate need of conservation action in this region, and a Golden-winged Warbler working group has been formed.

Early successional habitat is also important to the Ruffed Grouse, Northern Bobwhite, Field Sparrow, Grasshopper Sparrow, Common Yellowthroat, Gray Catbird, and Chestnut-sided Warbler in this region. There is a need for information on the status and distribution of many uncommon breeding species using these habitats such as Blue-winged Warbler, Vesper Sparrow, Alder Flycatcher, and Savannah Sparrow. There is also a need for long-term monitoring at all times of the year on both public and private lands in this region.

Land managers in this region are constantly challenged to provide and maintain enough early successional habitats to support healthy populations of shrub-scrub species, while not reducing critical populations of forest species. This is especially a concern in some high elevation habitats. Although private lands might provide some early seral areas, changes in the uses and quality of private lands in this region and the spatial relationship of private to public lands must be considered in conservation planning and for management actions. Hopefully the recently established Appalachian Mountains BCR and its Coordinator can help move the region toward implementation of important monitoring, research and conservation needs in the region and state.

## Summary

This document presents an overview of the history of Partners in Flight in North Carolina, some its accomplishments since 1995, and directions for the future. Standing committees are expected to work to meet objectives set forth for them in the plan, under the direction and with the guidance of the NC PIF biologist. Partnerships based on honest communication, cooperation and collaboration will be the key to accomplishing the goals and objectives related to NC PIF working committees, and also for improving population trends for bird species of conservation concern and for collaborating to accomplish needed monitoring and research projects and incorporate appropriate management strategies in all regions of North Carolina.

North Carolina Partners in Flight hopes that this plan will help to clarify and define the position and value of the PIF program in this state related to bird conservation, gain recognition in North Carolina of the need to improve migratory bird conservation efforts among diverse partners, help implement needed monitoring, research and adaptive management projects, and contribute towards better communication, cooperation and collaboration that will further bird conservation on all scales throughout the state, region and the Americas.

## Literature Cited

Askins, R.A., J.F. Lynch, and Greenberg. 1990. Population declines in migratory birds in eastern North America. *Current Ornith.* 7: 1-57.

Carson, R. 1962. *Silent Spring*. Houghton Mifflin, Boston.

Desante, D.F., O.E. Williams, and K.M. Burton. 1993. The Monitoring of Avian Productivity and Survivorship (MAPS) Program: Overview and Process. In Finch, D.M. and P.W. Stangel (eds.) *Status and management of Neotropical Migratory Birds*. U.S.D.A., Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. General Technical Report, RM-229.

Finch, D.M. 1991. Population ecology, habitat requirements, and conservation of neotropical migratory birds. U.S.D.A. Forest Service. General Technical Report RM-205.

Ford, Bob. 1993. Neotropical migratory landbird conservation and management in Tennessee: a five-year plan. Tennessee Conservation League, Nashville, TN. 19p.

Gauthreaux, Jr., Sidney. 1992. The use of weather radar to monitor long-term patterns of trans-Gulf migration in spring. Pages 96-100 in *Ecology and Conservation of Neotropical Migrant Landbirds*, John Hagan III and David W. Johnston, eds. Smithsonian Institution Press, Wash., D.C.

Hunter, Chuck. 1993. Partners in Flight over Georgia-a model plan for neotropical migratory birds: implementation strategy and schedule. U.S. Fish and Wildlife Service, Southeastern Regional Office, Atlanta, Georgia. 31p.

James, Frances C., David A. Wiedenfeld, and Charles E. McCulloch. 1992. Trends in breeding populations of warblers: declines in the southern highlands and increases in the lowlands. 1992. Pages 43-56 in *Ecology and Conservation of Neotropical Migrant Landbirds*, John Hagan III and David W. Johnston, eds. Smithsonian Institution Press, Wash., D.C.

Johns, M.E. 2005. North Carolina Bird Species Assessment. North Carolina Partners in Flight.

Johnson, Terry. 1993. Model management plan for neotropical migratory birds. Georgia Dept. Natur. Resour., Nongame-Endangered Wildlife Program, Social Circle, Ga. 14p.

North Carolina Wildlife Resources Commission. 2005. *North Carolina Wildlife Action Plan*. Raleigh, NC.

Pashley, D.N., C.J. Beardmore, J. A. Fitzgerald, R.P. Ford, W.C. Hunter, M.S. Morrison, K.V. Rosenberg. 2000. *Partners in Flight: Conservation of the Land Birds of the United States*. American Bird Conservancy, The Plains, VA.

Peterjohn, Bruce G. 1994. The North American breeding bird survey. *Birding* 26: 386-398.

Rich, T.D., C.J. Beardmore, H. Berlanga, P.J. Blancher, M.S.W. Bradstreet, G.S. Buthcer, D.W. Demarest, E.H. Dunn, W.C. Hunter, E.E. Inigo-Elias, J.A. Kennedy, A.M. Martell, A.O. Panjabi, D.N. Pashley, K.V. Rosenberg, C.M. Rustay, J.S. Wendt, T.C. Will. 2004. *Partners in Flight North American Landbird Conservation Plan*. Cornell Lab of Ornithology. Ithaca, NY.

Robbins, C.S., J.R. Sauer, R.S. Greenberg, S. Droege. 1989. Population declines in North American birds that migrate to the Neotropics. *Proc. Natl. Acad. Sci.* 86: 7658-7662.

Sauer, John R., and Sam Droege. 1992. Geographic patterns in population trends of Neotropical migrants in North America. Pages 26-42 in *Ecology and Conservation of Neotropical Migrant Landbirds*, John Hagan III and David W. Johnston, eds. Smithsonian Institution Press, Wash., D.C.

Terborgh, J. 1989. *Where have all the birds gone?* Princeton University Press, Princeton, N.J., 207pp.

Terborgh, J. 1992. Perspectives on the conservation of Neotropical migrant landbird. Pages 7-12 in *Ecology and Conservation of Neotropical Migrant Landbirds*, John Hagan III and David W. Johnson, eds. Smithsonian Institution Press, Wash., D.C.

## Acknowledgments

North Carolina Partners in Flight is indebted to Chuck Hunter, Terry Johnson and Bob Ford for leadership in the development of state model plans that provided important assistance in the preparation of this plan. Thanks to all the members of the original Steering Committee, and especially Allen Boynton, that created the original and groundbreaking PIF state bird plan for North Carolina for 1995-2000, upon which this updated plan is based.

The NC PIF Communications Committee was instrumental in the strategic planning process and many thanks to Laura White and Amber Parker for facilitating the strategic planning process for NC Partners in Flight. Special thanks go to the members of the Steering Committee and State Working Group that reviewed portions of this plan, and to Doug Pratt of the NC Museum of Natural Sciences for his editing suggestions.

Gratitude needs to be expressed to Randall Wilson and Tom Henson for outstanding guidance, and support of the PIF program beginning in 1993. The NC Wildlife Resources Commission deserves extensive credit and recognition for administration and support of the NC PIF Program in this state since 1993. Without this support, the program would not exist in its present form.

Thanks also to Audubon North Carolina, Cardinal Foundation, Carolina Bird Club, Duke Energy, Howell Woods Environmental Learning Center, International Paper, Mecklenburg County Park and Recreation Dept., National Fish & Wildlife Foundation, NC Chapter of The Wildlife Society, NC Division of Forest Resources, NC Museum of Natural Sciences, NC Natural Heritage Program, NC State Parks, NC State University, NC Wesleyan College, NC Wildlife Federation, Progress Energy, Town of Cary, U.S. Fish & Wildlife Service, Wake County Parks, Recreation and Open Space, Weyerhaeuser Company, and many concerned citizens for generous donations or significant support of the NC Partners in Flight Program since 1993.