U.S. Fish & Wildlife Service

Strategic Plan for the Partners for Fish and Wildlife Program 2012 - 2016

Southeast Region / September 2011

The Partnership that Delivers Conservation on the Ground

Alabama

Arkansas

Florida

Georgia

Kentucky

Louisiana

Mississippi

North Carolina

Puerto Rico and the Virgin Islands

South Carolina

Tennessee

Division of Conservation Partnerships
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Message from the Regional Director

Regional Director Cynthia Dohner and Spirit

As Regional Director of the U.S. Fish and Wildlife Service's (Service) Southeast Region, I am pleased to present this five-year strategic plan (2012-2016) for the Region's Partners for Fish and Wildlife (Partners) Program. This Regional Plan is based on the Service's 2006 Vision Document (http://www.fws.gov/partners/strategicPlan.html) for the Partners Program that established the five Program goals to be addressed in Regional plans, and what has been learned from the development and implementation of our first five-year Region Strategic Plan (http://www.fws.gov/southeast/es/partners/strategicPlan.html) for 2007-2011. The five goals of our Partners Strategic Plan are:

1) Conserve Habitat

2) Broaden and Strengthen Partnerships

3) Improve Information Sharing and Communication

4) Enhance our Workforce, and

5) Increase Accountability

The Partners Program was established within the Service in 1987, and is recognized as the Service's primary conservation delivery mechanism across all Service programs for on-the-ground conservation delivery on private lands. Over the 25-year history of the Program in the Southeast Region habitat improvement conservation actions have been carried out on over 568,000 acres of private lands, involving approximately 4,000 landowners. Also, over 1,400 miles of riparian and over 40 miles of in-stream habitat projects have been completed. None of these projects would have been possible without the voluntary support of the private landowners and the contributions from the numerous other partners that helped us to carry out these projects.

In 2006, Congress and the President recognized the value of the Partners Program by enacting the Partners for Fish and Wildlife Act. This Act specifically authorized the Service to work cooperatively with our partners and to provide technical and financial assistance to private landowners and other partners to deliver conservation practices that benefit federal trust resources.

In collaboration with our partners, this update of our initial Strategic Plan (2007-2011) for the Southeast Region identifies and refines our previous priorities, geographic focus areas, action strategies, and accomplishment targets for the next five years (2012-20116). Although most of our Program's efforts will be directed to the designated focus areas identified in this Plan, the Program maintains the flexibility to identify and develop new focus areas as significant partnership opportunities arise.

The Service and the highly skilled, locally based staff of the Partners Program will take a leadership role in implementing this Plan. However, to achieve our goals it will require a shared and mutual commitment from all of our partners as we focus on priority needs and the efficient delivery of habitat conservation on private lands. I am looking forward to working with all of you throughout the implementation of this five-year strategic plan. Working together, we can promote and develop trust and lead new innovations and change for the benefit of our nation's fish and wildlife resources.

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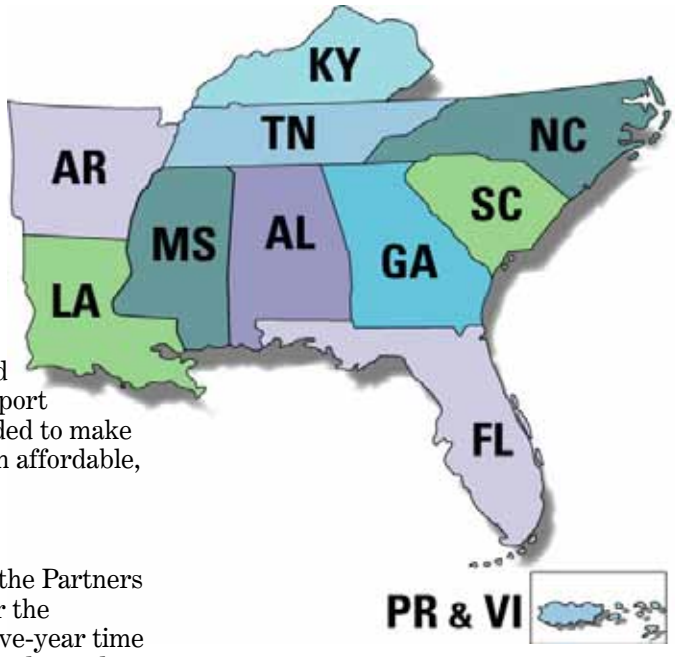
Introduction

"…every landowner is the custodian of two interests, not always identical, the public interest and his own. What we need is a positive inducement or reward for the landowner who respects both interests in his actual land practice."
Aldo Leopold, 1934

The Partners for Fish and Wildlife Act of 2006 provides Congressional authorization for the Partners for Fish and Wildlife (Partners) Program within the U.S. Fish and Wildlife Service (Service) (U.S. Congress 2006). Additional authorization for the Partners Program is found in the Fish and Wildlife Act of 1956, 16 U.S. C. 742a-j; and, the Fish and Wildlife Coordination Act, 16 U. S. C. Sections 661-666c.

The Partners Program, Southeast Region, uses its staff to develop and carry out a voluntary, cooperative "on-the-ground" conservation delivery approach in helping to achieve the mission of the Service, which is *"working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."* The primary focus of the Partners Program is developing, implementing, and carrying out conservation delivery partnerships that benefit Federal Trust Resources; i.e., important and imperiled habitat types (e.g. wetlands, longleaf pine, native grasslands, rivers and streams) and their associated species of concern: migratory birds; threatened, endangered and candidate species; inter-jurisdictional fish; and other species of conservation concern.

The Partners Program is based on the premise that fish and wildlife conservation is a responsibility shared by citizens and their government. Our approach is to engage willing private landowners and other partners through non-regulatory incentives that conserve and protect valuable fish and wildlife habitat. We do this by providing technical and financial assistance and leveraging the funding support and in-kind assistance needed to make on-the-ground conservation affordable, feasible and effective.



About this Document

This document represents the Partners Program Strategic Plan for the Southeast Region for the five-year time period **for fiscal years 2012 through 2016.** Our first Partners Program Strategic Plan (U.S. Fish and Wildlife Service 2007) for fiscal years 2006 through 2011 will expire on September 30, 2011. Both our original and updated Partners Strategic Plans can be viewed and downloaded at: http://www.fws.gov/es/partners/strategicPlan.html.

This document updates and revises the first Partners Strategic Plan for the next five-year implementation period. Regional strategic plans are linked to our National strategic planning process that includes the Program's Vision Document that established the five National Program goals (U.S. Fish and Wildlife Service 2006), and a National overview of the Partners Program (U.S. Fish and Wildlife Service 2009).

Our updated Strategic Plan addresses each of the same five Program goals established in the Vision Document. The five Strategic Plan goals are:

Conserve Habitat
Restore and protect priority habitats to increase and maintain federal trust species populations.

Broaden and Strengthen Partnerships
Accomplish our work through voluntary partnerships.

Improve Information Sharing and Communications
Collaborate and share information and concerns with our partners, future partners, decision-makers, and others to protect, restore, and enhance trust resources.

Enhance our Workforce
The staff of our Program is our most important resource. Maintaining and supporting this staff is the key to success in achieving on the ground results for federal trust species.

Increase Accountability
Measure, assess, and report on the effectiveness, efficiency and fiscal integrity of our habitat conservation programs and activities.

To achieve these goals efficiently and effectively, three overarching strategies will continue to be implemented. These are:

- **Cooperative Conservation:** Seeking and promoting voluntary cooperative efforts to achieve conservation goals.
- **Strategic Habitat Conservation:** Incorporating state-of-the-art technology, project planning and design concepts, and the best available biological information in developing priority geographic focus areas and conservation targets. Working with our partners to carry out strategic monitoring and research to help define and document the success of our habitat improvement efforts.

- **Adaptive Management**: Using information gained from monitoring, research, and other scientific literature sources to adapt or modify our approach; learning by doing.

For each of the five Program goals, our Regional Strategic Plan describes:

- our objectives for the Southeast Region,
- specific performance targets that are tied to each of the goals, and
- key strategic activities that will be pursued to meet our objectives.

Working with our partners, our first Regional Strategic Plan identified and described 50 geographic focus areas across the Southeast Region where we planned to carry out most of our conservation delivery efforts on private lands. However, due to the uncertainties and variability that we often encounter, we retained the flexibility to pursue new or unexpected opportunities that may have important conservation benefits even though they may be located outside of a designated focus area.

As we move forward to update and revise our Strategic Plan for the next five years (fiscal years 2012-2016), we have not added or deleted many of our original focus areas, since significant or meaningful habitat or species benefits cannot often be achieved or documented within a five-year time frame. In fact, we expect that in many cases it may take 40-60+ years or longer to achieve and document meaningful biological response, including ecosystem and species benefits. However, we have revisited our focus areas in collaboration with our partners, and have made some adjustments and clarifications to them.

We have placed some sideboards on what is included in this document. First, our National guidance was to develop our geographic focus areas in collaboration with our partners, based on our collective knowledge of priority ecosystems and species of concern, but to only include those areas that

Young threatened Louisiana black bear in native bottomland forest habitat.

we and our partners believed we had the capacity to carry out cooperative conservation delivery on private lands over the five-year time frame of the strategic plan. Further, we were to base our conservation accomplishment estimates and delivery capacity only on our base Partners Program budget allocation for the fiscal year preceding the start up of the five-year plan, with this amount extended over the five–year period of consideration. It is noted, that there are many priority habitats and species of concern within the Southeast region that have not been included in this five-year Strategic Plan because we and our partners lack the capacity to address them in a meaningful way.

This Strategic Plan was developed in collaboration with our many partners. Input was provided by our partners through a combination of local workshops, use of a survey questionnaire, and one-on-one discussions. A listing of partners that have contributed to the development of this Strategic Plan is included within each of the State/Caribbean presentations in Appendix A.

In addition, we have reviewed and used information from other strategic plans, including the State Wildlife Action Plans (2006), the North American Waterfowl Management Plan (1986), the Service's Migratory Bird Program Strategic Plan (2005, 2006), National Wildlife Refuge Comprehensive Conservation Plans (2011), Service Recovery Plans for protected species (2011), Range-wide Conservation Plan for Longleaf Pine (2009), the National Fish Habitat Action Plan (2006), and the Service's Strategic Plan for Responding to Accelerating Climate Change (2010), to name a few.

Much of the emphasis of this document has been placed on the development and implementation of Goal One (Conserve Habitat). Following a regional overview and summary of Goals One through Five, a more detailed description of how each State and the Caribbean will implement Goal One, including priority fish and wildlife resources, the selected geographic focus areas, action strategies, and a listing of our partners is presented in Appendix A. The Regional Overview about specific objectives and implementation strategies for Goals Two through Five will apply consistently to all Southeastern States and the Caribbean.

Overview of the Partners Program: Southeast Region

The Partners Program was established in 1987 with a core group of biologists and a small budget, directed primarily to engage voluntary private landowners and other partners in cooperative conservation delivery. Initially, our emphasis was directed toward wetland habitat improvement projects and the associated benefits for waterfowl and other migratory birds.

This successful, results-oriented program has garnered support from many partners through the years and has grown into a larger and more diversified habitat improvement conservation delivery program that has provided assistance to thousands of private landowners. Our current emphasis now focuses on several imperiled and priority ecosystems within the Southeast Region and the species of concern that reside in or use these habitats.

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Our mission is to efficiently achieve voluntary habitat conservation on private lands, through financial and technical assistance, for the benefit of Federal Trust Species.

The Partners Program in the Southeast Region has experienced modest increases to the Program budget allocation every year since 1995, with the Program budget increasing from approximately $2.6 million in FY 1995 to approximately $7.5 million in FY 2011.

In FY 2011, approximately 50 percent of the Partners Program funds were used to cover the salary and support of the 32 strategically located staff positions throughout the Region (Appendix B). These staff positions provide technical assistance to private landowners and other partners in helping to develop and implement habitat improvement projects. The remaining 50 percent of the Program budget was provided as direct funding support to priority on-the-ground habitat improvement projects.

With as much as two million acres of land being lost to urban sprawl each year, trees and farms are not the only things being lost. One-third of our fresh water fish species are at risk of extinction, 72 percent of our mussels are imperiled, and almost 400 aquatic species are in trouble. Every day invasive species are becoming more of a threat to our native species and ecosystems. Longleaf pine forest that once extended across most of the Southeast Region has declined by more than 97 percent. Migratory birds and waterfowl are being forced to find new routes as farmland and wetlands are converted to other land uses. Fish and aquatic life are continuing to decline due to pollution, invasive species or degraded water quality. Further, the future impacts of climate change, although uncertain, must be evaluated and considered as a potential serious

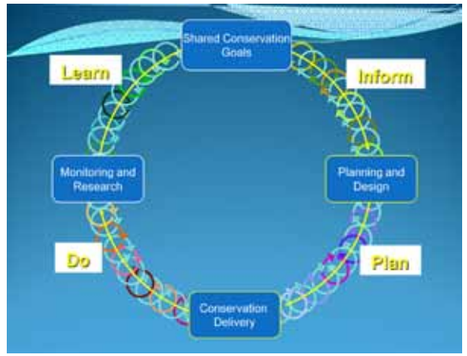
NRCS and Partners biologists explaining a Wetland Reserve Program restoration plan to a workshop group.

threat as we plan for the future. At least some of the plants and animal species we have known in our youth may no longer exist in the future unless we can work together to eliminate recognized threats and protect and expand their essential habitat needs.

Migratory birds, inter-jurisdictional fish, federally-listed endangered, threatened or other declining or imperiled species are public resources, which by their migratory nature or declining numbers have been identified as Federal trust species. The single most important factor leading to the endangerment of species is habitat destruction; thus, some of the major ecosystem types within the Southeast Region (e.g., wetlands, longleaf pine, native grasslands, aquatic systems) that provide the life needs for these Federal Trust Species are also often imperiled and continue to be at risk for further degradation or loss as a result of natural or human activities.

The Partners Program provides technical and financial assistance to private landowners and Tribes who are willing to work with us and other partners on a voluntary basis to help meet the habitat needs of our Federal Trust Species. The Partners Program can assist with projects in all habitat types that conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems or otherwise provide an important habitat requisite for a rare, declining or protected species.

It is estimated that approximately 89 percent of the Southeast Region's land is privately owned, and that the majority of our fish and wildlife resources occur on those lands. Based on 2000 census information, approximately 22 percent of the population of the United States resided within the Southeast Region (Bean et al. 2003, U.S. Census Bureau 2005, Natural Resources Council of Maine 2005). Data from the 2010 census reveals that the population across the Southeast Region has grown by an average of about 11 percent since the last census (U.S. Census Bureau 2011). With the large percentage of private lands in the Southeast Region, the conservation lands held by Federal and state agencies and other conservation groups in the Southeast Region cannot completely sustain the region's biodiversity or provide for fish and wildlife needs. Because the habitat needs of all Federal Trust Species cannot be met solely on public lands, public funds are also expended on private lands to accomplish habitat improvements through cooperative conservation programs such as the Partners Program.



It is important to note that the Partners Program **is not** a pass through grant program, and **does not** solicit proposals through a "Request for Proposal" (RFP) process. Partners Program conservation delivery staff (see Appendix B) work closely with our partners and are "substantially involved" in planning, developing, and implementing the habitat improvement projects funded through this Program.

The Partners Program locally-based field biologists work one-on-one with private landowners and other partners to plan, implement, and monitor their projects. Partners Program field staff help landowners find other sources of funding (including U.S. Department of Agriculture Farm Bill conservation programs) and help them through the project development and application process by providing helpful, accurate and timely assistance. This personal attention and follow-through is a significant strength of the Program that has led to national recognition and wide support.

Partners Program Policy and Strategic Approach

The Partners Program is guided by the Partners for Fish and Wildlife Act of 2006, and a National policy (Appendix C). Also the Service has committed to pursue landscape conservation through a Strategic Habitat Conservation (SHC) framework (U.S. Fish and Wildlife Service 2011a, 2008). In summary, this SHC framework is designed to promote the efficient conservation of wildlife populations and habitats they depend on through collaboration with our partners to reach shared conservation goals, application of sound conservation planning and design using the best technology available, on-the-ground conservation delivery, and monitoring and research designed to help us document and explain the biological success of our actions and provide us with the information needed to improve our actions through adaptive management. More simply stated we want to "put the right conservation in the right places."

Landscape Conservation Cooperatives

To help facilitate the implementation of strategic habitat conservation the Service is working with our partners to develop and promote a system of **Landscape Conservation Cooperatives (LCC's).** For the Southeast Region, we are working with our partners to establish and support LCCs in the following geographic areas: **South Atlantic, Peninsular Florida, Caribbean, Gulf Coastal Plain and Ozarks, Appalachian Mountains, and Gulf Coast** (Appendix D: Landscape Conservation Cooperatives Fact Sheet).

Core Functions of Landscape Conservation Cooperatives:

- Identifying common science and conservation goals and priorities.
- Developing science-based tools and solutions to meet shared conservation goals.
- Supporting biological planning, conservation design and adaptive management.
- Evaluating the effectiveness of scientific information and conservation actions.

LCCs are envisioned as multi-state and multi-agency partnerships that will provide state-of-the-art biological planning and conservation design support and will help inform conservation delivery, while helping to coordinate outcome-based monitoring and assumption-driven research (U.S. Fish and Wildlife Service 2010a). Our collective goal is that LCC partnerships will pool the capabilities of all the participating partners (State, Federal, non-governmental, etc.) to develop a shared vision and work toward consensus on priorities, and provide scientific support for conservation delivery and adaptive management.

Since the Partners Program, Southeast Region, began in 1987, it has supported the creation of diverse, broad-based partnerships that have achieved impressive local results:

- Habitat improvement projects have been completed on over 568,000 acres of private lands.
- Assistance has been provided to over 4,000 landowners.
- Over 272,000 acres of wetlands have been restored or enhanced, including 123,244 acres of bottomland forest.
- Over 236,000 acres of longleaf pine restoration plantings and management activities have been completed.
- Over 12,000 acres of native grasslands have been restored or enhanced.
- Over 100,000 acres have been treated for the elimination of exotics and invasive species
- Over 1,340 miles of riparian and 50 miles of in-stream habitat projects have been carried out.
- 60 fish passage barriers have been removed.
- Partners Program staff also assist the U.S. Department of Agriculture with the implementation of the Farm Bill conservation programs, and has provided an average of about 2,000 technical assistance responses every year (U.S. Fish and Wildlife Service 2011).

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"Without the assistance and attention provided to me by the Partners for Fish and Wildlife biologist, I would not have signed up for any of the existing conservation programs."
Harold May, private landowner, Mississippi

The Partners Program focuses mostly on conservation delivery on private lands. However, the Program is dependent upon quality planning and design, monitoring, research, and other technical information provided through other Service programs and from our cooperative efforts with our many partners. The Partners Program will actively engage with the LCCs to obtain the best science available to help us implement conservation delivery in high priory areas with significant benefits to Federal trust resources. Further, Partners biologists, based on their many years of field experience, can provide meaningful recommendations to the LCCs for priority biological information needs, monitoring and research demonstration sites, and private landowner contacts.

Although all Partners projects are monitored for compliance and activity-based measures, the Partners Program alone lacks sufficient capacity and resources to conduct extensive biological response monitoring to determine specific biological outcomes. Biological response monitoring tends to cross over into the realm of applied research, which must consider many environmental factors over long periods of time before any reliable scientific conclusions can be made. Trained Partners biologists understand the habitat needs and threats facing our priority Federal trust species, and make the assumption that if specific threats and limiting factors are removed, and the habitat needs of these species or groups of species with similar needs are meet, then the species of concern that use these habitats will benefit. To support this assumption, Partners biologists must coordinate and collaborate with our partners through the LCCs or other forums, and work with them to develop and implement carefully designed monitoring plans where the specific roles of each partner are identified and partners can collectively contribute to the completion of a final product that will help us to document our successes, identify new information needs, and apply adaptive management strategies. Further, we will continue to rely heavily on the published results from research studies carried out mostly by other programs, agencies, universities, and industry. (Lambeck 1997, Atkinson et al. 2004, Roberge et al. 2004, Sanderson 2006). With these issues noted, the current Partners Program regional policy for monitoring is provided in Appendix E.

Restoring wetlands in the Lower Mississippi Alluvial Valley.

Our Conservation Delivery Approach: Minimizing or Eliminating Specific Threats to Priority Ecosystems and Species

Generally, biologists agree that the major causes of declines of biotic populations are habitat loss, degradation and fragmentation (Ehrlich and Ehrlich 1981. The importance of habitat loss, degradation and fragmentation in the declines of species is well documented in the literature. For example, Schemske et al. (1994) revealed that habitat destruction was the primary cause of endangerment of 83 percent of the listed plant species.

An agricultural field taken over by invasive cogongrass

Also, habitat degradation has been a significant factor in the extinction of at least 73 percent of the freshwater fishes in North America (Miller et al. 1989); the decline of migratory birds (U.S. Fish and Wildlife Service 1994); and many other species of conservation concern that are noted in State Wildlife Action Plans.

Climate Change

Although impacts to fish and wildlife resources are not expected to be significant over the five-year time frame for this strategic plan, climate change is perceived by many to be an emerging and longer-term threat to ecosystems and wildlife at a local, regional and global scale. The Intergovernmental Panel on Climate Change (IPCC 2007) has reported that global average temperatures have risen by 1.5 degrees Fahrenheit (F), and can be expected to rise another 2-11 degrees F by 2100.

Potential Impacts of Climate Change

- Temperature and precipitation changes that lead to changes in water availability, quality and quantity,
- An increase in extreme weather events such as floods, heat waves, droughts, and severe storms,
- Sea level rise and resulting impacts,
- Migration of flora and fauna with changing climates; or, extinction for those species that lack the ability or opportunity to migrate,
- Seasonal changes that affect the migration patterns of birds and migrating species with potential for significant alternations in their food sources,
- Rising temperatures in streams, rivers and lakes will affect the spawning and rearing habitat for many aquatic species.

Although there is still much uncertainty about potential impacts and regional variations, the effects from such rising temperatures or other climatic changes may be dramatic.

Currently, there is a poor understanding of the future magnitude, time frames, and impacts associated with climate change, and we do not understand the extent and significance of future vulnerability and impacts to specific ecosystems and species that may be affected (Association of Fish and Wildlife Agencies 2009, U.S. Fish and Wildlife Service 2010, U.S. Fish and Wildlife Service 2011b).

The Service is currently working with our partners to design and complete a series of vulnerability assessments for priority species of concern and their habitats (National Wildlife Federation 2011). As new scientific information and tools become available, the Partners Program staff will apply this information into our decision-making and project selection process.

Although there are many uncertainties regarding climate change and future impacts to natural ecosystems and wildlife, in the near term the Partners Program will continue to pursue partnerships that leverage resources to deliver voluntary conservation projects on private lands that promote ecosystem integrity and biodiversity by restoring or enhancing habitat for recognized species of concern (Heller and Zavaleta 2008). Most of our partners agree that any efforts to address climate change **should not diminish** the immediate need to reduce or eliminate known threats that may be independent of climate change such as habitat loss and fragmentation, invasive species issues, contaminants issues, etc. (Association of Fish and Wildlife Agencies 2009).

Invasive and Exotic Species

The control or elimination of invasive or exotic species (see Glossary, Appendix G for definitions) within the Region is also a priority initiative within the Partners Program. Executive Order 13112 on invasive species, signed by President Clinton in 1999, requires all Federal agencies whose actions may involve invasive species to join in the war to control their spread.

Invasive species can be found in all habitat types across the region. An estimated 50,000 non-native species of plants and animals have been introduced into the United States. Invasive and non-native species like the northern snakehead fish, the Burmese python, and feral pigs have infested more than 100 million acres of the American landscape, with an additional three million acres lost each year to invasive weeds.

Restored native prairie flowers in North Carolina.

The spread of non-native (alien or exotic) species is estimated to cost Americans as much as $130 billion annually in lost crops, timber, commercial and recreational fishing, and other damages, not including the immeasurable damage caused by introduced organisms that may injure or kill people or cause native species to become extinct (Audubon 2003). Invasive species are generally recognized as one of the most critical threats to our Nation's declining bird populations, and are a serious threat to our Nation's most valuable habitats, including being ranked as the number-one threat to our 95+-million acre National Wildlife Refuge System (Audubon 2003). Approximately 35-46 percent of the species on the endangered species list are there partly or entirely because of the effects of invasive species (U.S. Fish and Wildlife Service 2000).

"No rounded program for wildlife is possible unless it is applied on private as well as public lands…"
Aldo Leopold, 1936

To date, the Partners Program has focused primarily on the control and elimination of the numerous invasive species in terrestrial habitats (e.g., Tallow or popcorn tree, privet, tall fescue grass, cogongrass, Old World climbing fern, Australian pine, melaleuca, Brazilian pepper, Gambian rat, Burmese python, Nutria, to name a few), whereas the Service's Fisheries Program has targeted invasive aquatic species such as zebra mussels and snakehead fish.

In the Southeast, the Partners Program has also worked to develop partnership efforts on a statewide scale (e.g., the Cogongrass Partnership and the Florida Invasive Species Partnership.)

From a regional perspective, and attempting to view our priority ecosystems across state boundaries (at a landscape scale), our overarching partnership strategy includes the following conservation actions:

A protected and restored streambank with instream structures, Kentucky

- expanding existing core habitat areas near refuges and other protected areas,
- reducing habitat fragmentation and establishing movement corridors for vulnerable species,
- controlling or eliminating invasive species,
- promoting biological diversity within focus areas,
- identifying specific threats (including climate change) and vulnerabilities to priority habitats and species of concern and implementing habitat improvement projects that reduce or eliminate such threats,
- working with all of our conservation partners to develop range-wide conservation plans and goals for all major ecosystem types,
- working with all of our conservation partners to develop and carry out meaningful biological response monitoring efforts for target or umbrella species to help us document success and promote adaptive management.

Conservation Delivery Project Selection Criteria

The Partners Program policy (U. S. Fish and Wildlife Service 2003 Appendix C) has established National priority ranking factors to help guide project selection. First, all habitat improvement projects must be voluntary between the landowner and the Service, and must occur on private lands. Private lands may include tribal lands, and any lands and waters owned by non-Federal or non-State entities.

National priorities are stepped down to the regions, state, and local levels as field staff collaborate with stakeholders to further refine habitat priorities and geographic focus areas, as described in Goal One of this Strategic Plan. The Partners Program also utilizes the recommendations found in other strategic plans in developing selection priorities and geographic focus areas. If other considerations are generally equal, then priority is directed to those projects that link private lands to important Federal lands (such as Refuges) or State Wildlife Management Areas, have cooperative agreements of longer duration, multiple partners, cost sharing, and the greatest cost effectiveness. An example of our ranking criteria is presented in Appendix F.

National Priority Ranking Factors are used to assign funding priority status to proposed projects that meet these conditions:

- Improve habitat for Federal Trust Species, including migratory birds; threatened and endangered species; inter-jurisdictional fish; marine mammals; and, other declining species;
- Complement activities on National Wildlife Refuge System lands, or contribute to the resolution of problems on refuges that are caused by off-refuge practices;
- Address species and habitat priorities that have been identified through Service collaboration with our partners, including state fish and wildlife agencies;
- Reduce habitat fragmentation or serve as buffers for other important Federal or state conservation lands;
- Result in self-sustaining systems that are not dependent on artificial structures.

Improving stream habitat and monitoring our success.

Ten Guiding Principles

In carrying out habitat improvement projects within the Southeast Region, we strive to follow these guiding principles:

1. To the extent possible or knowable, projects will attempt to restore the ecological integrity of habitat—i.e., restore the structure, function, composition, and natural processes of the ecosystem.
2. Project plans are envisioned within the relative context of a watershed or ecosystem and anticipated future changes: other activities throughout the watershed or ecosystem may impact the project.
3. To the extent possible, project plans will address the causes of habitat degradation: restoration efforts are likely to fail if the sources of degradation persist.
4. Clear, achievable and measurable goals are developed for each project. Is the project feasible?
5. To the extent possible, projects are designed to be self-sustainable: minimize the need for continuous maintenance of the site.
6. When appropriate, a passive restoration approach is used: before actively altering a site, determine if simply reducing or eliminating the sources of degradation will be enough to allow the site to recover naturally.
7. Native species appropriate to the site are always used: invasive, non-native species should never be used.
8. We strive to provide trained and knowledgeable staff: habitat restoration is a complex undertaking that requires the integration of a wide range of technical disciplines.
9. To the extent possible, a reference site is used: a reference site should be comparable in structure and function to the proposed project site, and may serve as a model for the project.
10. All projects are monitored before, during and after the project, and based on our monitoring we adapt our approach as needed (Modified from U.S. EPA 2000).

Overview of Regional Resource Priorities

Addressed in this Strategic Plan

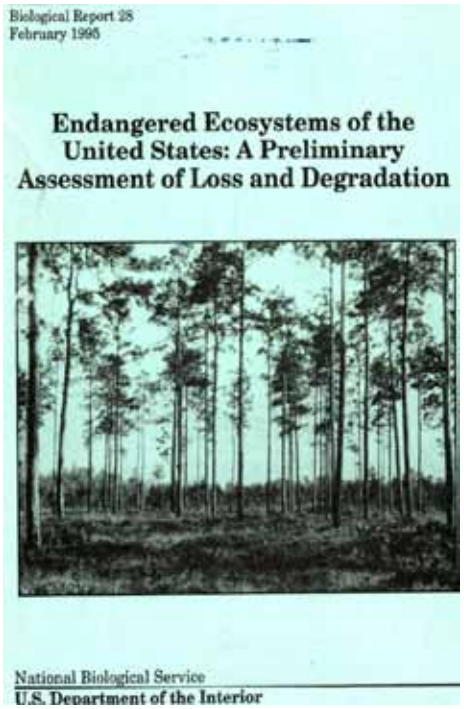
This Strategic Plan does not include all of the recognized resource priorities that have been identified by the Service or in State Wildlife Action Plans and other strategic plans applicable to the Southeast Region (U.S. Fish and Wildlife Service 2010b). In general, we have chosen to focus on those conservation resources that are known to be imperiled, and those that we believe we can achieve meaningful results over a reasonable time frame while working with our voluntary private landowners and other partners. From a regional perspective, this plan will focus on the following ecosystem types that have declined by at least 70 percent since European settlement (Noss et al. 1995); or, for aquatic (riverine) ecosystems, those that have been noted in the literature to be imperiled due to human activities and/or provide habitat for one or more protected, candidate, or species of concern. Additional priority resources may be identified and discussed in the State summaries included in this Plan.

Priority Landscape Ecosystems Addressed in this Strategic Plan

- Bottomland forests and related wetlands—Regionwide
- Longleaf pine—Regionwide
- Native prairie and grasslands-Regionwide
- Cave ecosystems-Regionwide
- Scrub-shrub habitat-central Florida
- Tropical ecosystems-Caribbean
- Selected priority aquatic ecosystems-Regionwide

Bottomland Forests and Related Wetlands (Regionwide)

Although the Southeast Region comprises only 16 percent of the land surface of the conterminous States, nearly 50 percent of the Nation's wetlands occur here. The diversity of wetland types found among the approximately 47 million acres of wetlands within the Southeast is great. In addition to freshwater wetland types, extensive salt marshes dominated by smooth cordgrass and black needlerush occur on both the Atlantic and Gulf Coasts. Mangrove swamps, unique to tropical and subtropical shores, fringe the coastlines of peninsular Florida, the Caribbean, and to a lesser extent Louisiana.



Reed f. Noss, Edward T. LaRoe III, and J. Michael Scott (1995)

Over the past 25 years the Partners Program has focused most of its partnership efforts toward the freshwater wetland types, especially the Palustrine Forested Wetlands, whereas the Service's Coastal Program (U.S. Fish and Wildlife Service 2007a) has focused primarily on the coastal and marsh wetland types.

Palustrine (freshwater) wetlands are by far the most abundant within the Region. Fresh water marshes are most common in Florida and coastal Louisiana. The Everglades of South Florida is the largest fresh water marsh in the United States. Unique to the Southeast Region are the evergreen shrub bogs, known locally as pocosins. Pocosins are prevalent in eastern North Carolina, comprising about 50 percent of the State's freshwater wetlands. Palustrine forested wetlands are greatest in extent of all regional freshwater wetland types and include bottomland forests, cypress and tupelo swamps and ponds, and bay swamps. Most of the

Historic distribution of forested wetlands in the Southeastern U.S.

remaining forested wetlands occur on broad floodplains along major rivers. Other less common Palustrine wetlands include hillside seeps, wet prairies and wet flatwoods (U.S. Fish and Wildlife Service 1992, Cowardin et al. 1979).

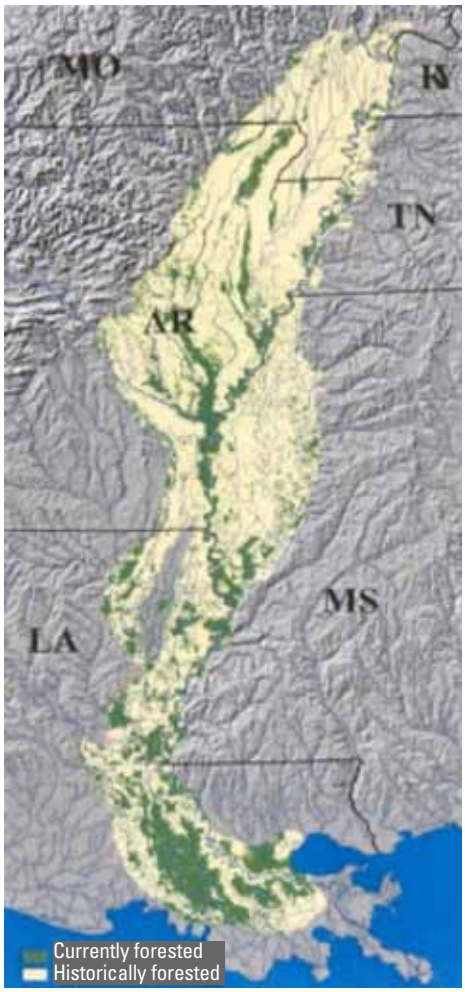
The average loss of wetlands throughout the Southeast Region from pre-settlement times is about 50 percent. However, the extent of wetland loss varies greatly by wetland type and amount, ranging from about 23 percent in Georgia to more than 80 percent in Kentucky. (U.S. Fish and Wildlife Service 1992, Dahl 1990.

The remaining wetlands of the Southeast Region provide essential habitat for numerous fish and wildlife species, many of which are imperiled and have exhibited declines that parallel the historic loss of wetlands (Nature Serve 20011, U.S. Fish and Wildlife Service 1992; also see State Wildlife Action Plans).

Palustrine Forested Wetlands (Bottomland Forest Types)

The bottomland forest ecosystem along the major rivers and streams of the Southeast is critical to the survival of many species of fish and wildlife. Several focal species associated with this ecosystem include the black bear (e.g., federally threatened Louisiana black bear); many migratory birds (e.g., Rusty blackbird, Cerulean warbler, prothonotary warbler, Swainson's warbler, American woodcock, and waterfowl such as the pintail and mallard duck). For comprehensive information about bottomland forest community types and the species of concern that reside in them, see each State Wildlife Action Plan; Nature Serve 2011; Clark and Benforado (1981).

Since pre-settlement times, the bottomland forest types and their natural flood plains within the Southeast Region have been significantly reduced, with over 92 percent of the National loss occurring here (Hefner and Brown 1985). Of particular concern are losses within the Lower Mississippi River Alluvial Valley (LMRAV), which once supported the largest expanse of forested wetlands in



the United States, estimated to be from 21 to 25 million acres. Now, somewhere between 5 million and 6.5 million acres remain, mostly on the wettest sites (Harris and Gosselink 1990, Creasman et al. 1992).

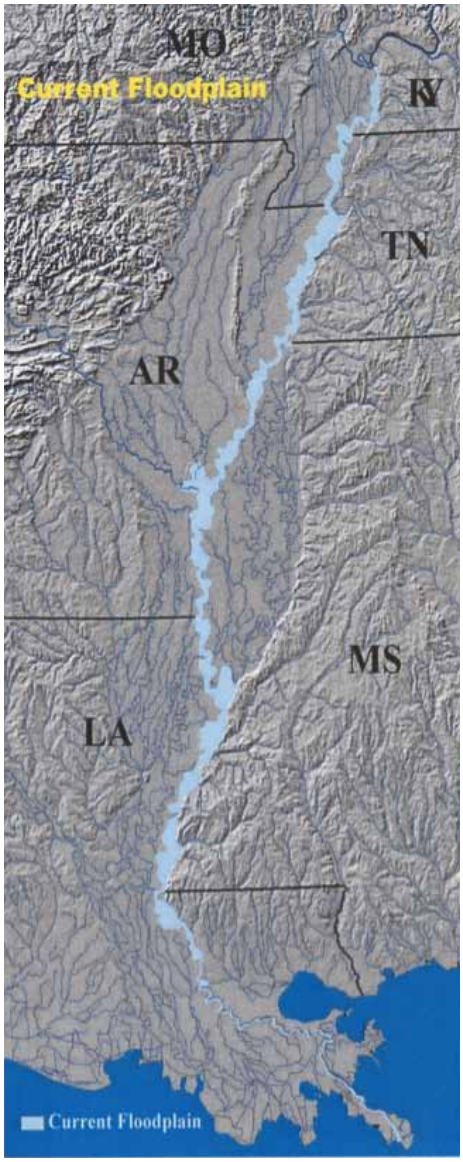
The LMRAV, comprised of the delta portions of Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana, extends for 954 river miles south of the confluence of the Ohio and Mississippi Rivers near Cairo, Illinois to the Gulf of Mexico. At its mouth, the Mississippi River nourishes approximately 4.5 million acres of coastal prairies and marshes that are an ecological extension of the forested alluvial valley. Together they form a wetland complex of unrivaled scope in the temperate zone of the western hemisphere.

Historically, the lower Mississippi River overflowed onto a 30-125 mile wide alluvial valley and, along with its tributaries, encompassed the largest floodplain fishery in North America. Because the river was continually creating and abandoning channels in its 15-30 mile wide meander belt, the area was interspersed with numerous permanent and seasonal wetlands. These wetlands flooded shallowly for extended periods almost annually, and there was a great diversity of aquatic habitat types. More than 150 species of fishes were present. Today, the frequency, extent, and duration of this periodic flooding of the Mississippi River and its tributaries have been significantly altered due to many flood-control and drainage projects carried out through Federal and State efforts (U.S. Department of the Interior, 1988).

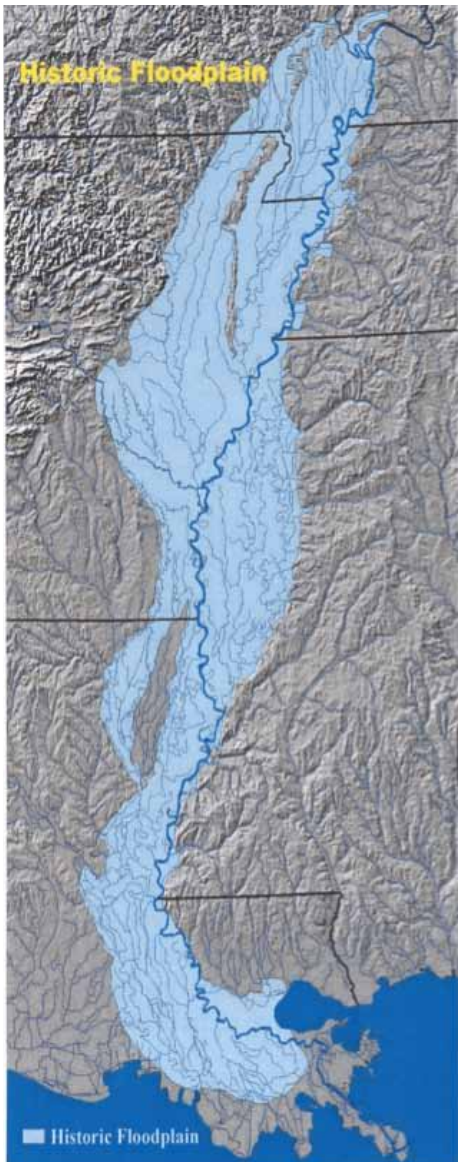
The most recent wetlands status and trends report (Dahl 2011) revealed that although America's wetlands declined slightly from 2004 to 2009, substantial losses of forested wetlands (net loss of 633,100 acres) occurred, with much of the loss occuring within the delta areas of the Southeast Region. Further, the majority of the forested wetland loss during this time period was linked to urban and rural development and silviculture activities.

Many of the remaining forested wetland areas have been protected within our National Wildlife Refuge System, in National Forests, in State Wildlife Management Areas, and on U.S. Department of Agriculture Wetland Reserve Program or other conservation easement sites (King et al. 2006). The Partners Program focuses on conservation delivery adjacent to or nearby such protected areas to help meet our strategy of expanding core conservation areas and linking movement corridors by reducing fragmentation.

Overall, the majority of the losses have resulted from the conversion of forested wetlands to agricultural crop lands. Although much of the forested wetlands have been cleared, drained and converted into prime agricultural lands, about 7.5 million acres have been termed "marginal" farm lands (Amacher et al. 1997, Haynes 2004).



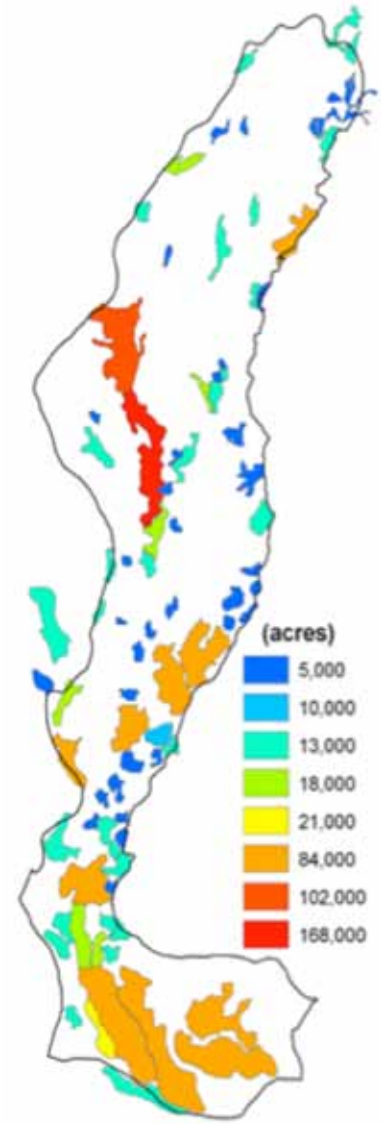
Marginal farm lands retain some of their wetland functions and values in that they still exhibit some or much of their hydrology, still retain hydric soils, and may only be farmed profitably when hydrologic conditions are favorable. Many marginal farm lands have been defined by the U.S. Department of Agriculture (1996) as "farmed wetlands" if by definition they were cleared or otherwise manipulated prior to December 23, 1985, and are flooded or ponded with water for 15 or more consecutive days during the growing season. Due to a variety of human activities over the last 100 years, the floodplain available for natural flood storage has been reduced by about 90 percent.



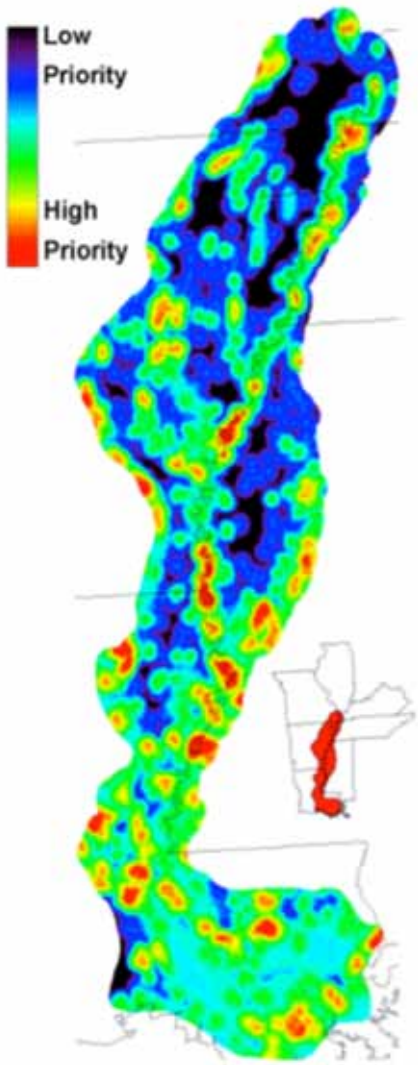
Within the Mississippi Alluvial Valley (MAV), the Lower Mississippi Valley Joint Venture Forest Resource Conservation Working Group (2007) has developed recommended forest landscape and management conditions to address the habitat needs of priority wildlife species in the MAV. In summary, it is recommended that forest restoration priorities be directed to those areas that would increase and expand existing forest core areas and the proportion of forest within local landscapes. Further, large (>5,000 acres or >10,000 acres) contiguous forest areas are desired. The report also provides specific forest management recommendations designed to benefit forest species and sustain biodiversity.

To the extent practical, Partners Program biologists seek to carry out conservation delivery within these or other designated restoration priority areas as identified in other strategic plans or scientific publications, although there are a variety of extenuating factors that may affect our selection process. For example, some of the designated "high priority" sites noted in our reforestation priority models may also be prime farm land, and the economic incentives that may be available through the Partners Program or other conservation programs may not be adequate compensation for a landowner to consider changing the land use. Also, since this is a voluntary program, landowners simply may not desire to give up any of their farmland for any type of habitat restoration initiative.

Also, it should be noted that assumptions tied to our reforestation models and data bases are linked closely to forest breeding birds and other forest species of concern such as the Louisiana black bear. Often, Partners Program biologists encounter landowners with degraded, cleared, and marginal cropland, including lands within the floodplains of rivers and streams that are willing to restore or enhance such lands for fish and wildlife and recreational purposes if reasonable technical and financial assistance are provided. Sometimes these areas are located outside of our reforestation priority models, but have other significant environmental values that justify a partnership to restore such sites. For example, a project that restores hydrology, selectively plants cypress trees and other species around the restored wetland areas, and reestablishes a riparian buffer along a stream will provide new or improved habitat for many species of waterfowl, shorebirds, birds of prey, reptiles and amphibians, and aquatic species, as well as improving water quality by reducing erosion and sedimentation, providing increased flood storage capacity, and increasing carbon sequestration.



Geographic locations (MAV) identified for potential forest restoration based on extant forest conditions (Twedt et al. 1999)



Forest restoration priority areas (MAV) intended to create larger forest core areas (Twedt et al. 2006)

Bogs

Bogs are wetlands that most people would call "swampy" spots or depressions that are saturated with water for most of the year and are typically soft and spongy. Bogs occur in various geographic areas throughout the Region (e.g., mountain bogs, Gulf coast bogs, pocosins or shrub bogs, and Carolina bays).

Bog habitat has been significantly lost and converted to other uses such as agriculture, urban and industrial development. For example, an estimated 5,000 acres of mountain bogs once occurred in North Carolina, and today only about 500 acres remain. Pocosins ("swamp on a hill") once occurred on approximately 3 million acres of the southeastern coastal plain, but by 1979 only 31 percent of this ecosystem remained. Carolina bays are restricted to the southeastern Coastal Plain and lower Piedmont, and occur primarily in the coastal areas of South Carolina and in southeastern North Carolina. Although it is difficult to accurately determine the current and historical distribution of Carolina bays because they are non-contiguous in their distribution and many have boundaries that are difficult to recognize due to human disturbance, losses of this habitat type have been extensive. Gulf Coast pitcher plant bogs once occurred on approximately 1.2 million acres in the lower coastal plain, but are now estimated to occur on less than 5,000 acres in natural or near natural condition. (U.S. Fish and Wildlife Service 2006a, 2004; Sharitz and Gibbons 1982; Ash et al. 1983).

A cypress tupelo swamp in Arkansas

Bogs provide important habitat for many species. For example, in North Carolina, mountain bogs provide habitat for over 90 species of plants and animals that are considered rare, threatened or endangered. In South Carolina, at least 36 plant species considered rare occur in Carolina bays, including the federally endangered Canby's dropwort and Harperella. Also, most populations of the Venus flytrap in South Carolina occur in Carolina bays. Other species of concern include unique plants such as the orchids and lilies and insect eating plants (e.g., pitcher plants), the bog turtle and bog lemming, a variety of amphibians and reptiles, and the black bear and red wolf (Nature Serve 2006, U.S. Fish and Wildlife Service 2006a, Sharitz and Gibbons 1982).

Mountain sweet pitcher plants, USFWS.

The use of prescribed fire is essential to maintaining the longleaf pine ecosystem.

Uplands

Over the past 25 years, the Partners Program has worked with many partners in developing and carrying out voluntary, private lands habitat improvement projects on a variety of important upland ecosystem types, including longleaf pine, native prairie and grasslands, caves, xeric scrub (Florida), and karst and tropical dry forests (Caribbean). Since 1994, the majority of our partnership efforts have been directed toward the longleaf pine ecosystem.

Longleaf Pine (Region Wide)

The longleaf pine ecosystem within the Southeast Region once covered as much as 92 million acres. Now, about 3.4 million acres remain in a fragmented distribution across the Carolinas, Florida, Georgia, Alabama, southern Mississippi and Louisiana, making this an endangered ecosystem (>85 percent decline in historic habitat type; Noss et al. 1995).

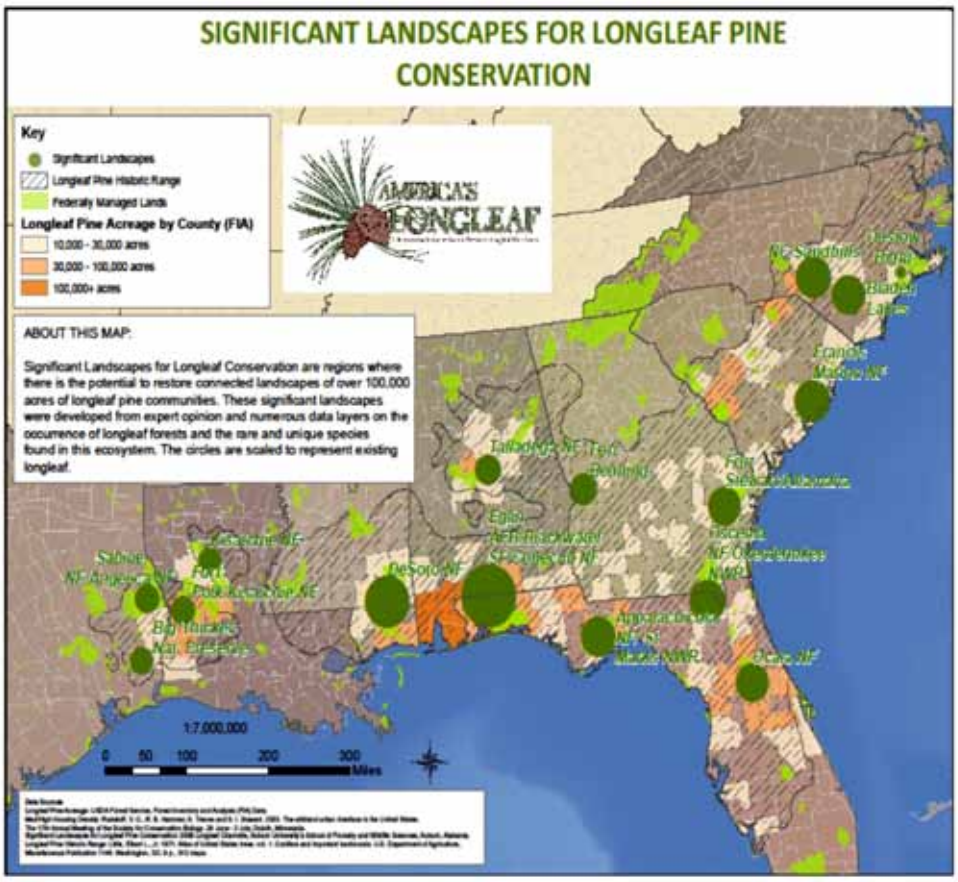
Much of this ecosystem has been converted to other types of pine plantations, pasture, agriculture uses and urban and industrial development. A ground cover of native species is essential to maintaining the longleaf pine ecosystem, and the use of periodic fire is also essential to promoting the survival of native ground cover and preventing the invasion of undesirable plant species (Browning et al. 2004, Franklin 2008).

Historic range of longleaf pine (Pinus palustris)

Within the various longleaf pine communities (e.g., sandhills, flatwoods and savanna, rolling hills, and mountain) 27 federally listed species and over 100 candidate species occur. About 40 percent of the 1,600+ plant species in the Atlantic and Gulf coastal plains are restricted to longleaf landscapes. Focal wildlife species include the red-cockaded woodpecker, indigo snake, gopher tortoise, pine snake, dusky gopher frog, Bachman's sparrow, Henslow's sparrow, and the bobwhite quail (Nature Serve 2011, Van Lear et al. 2005, Earley 2004, Moore 2001, Franklin 1997).

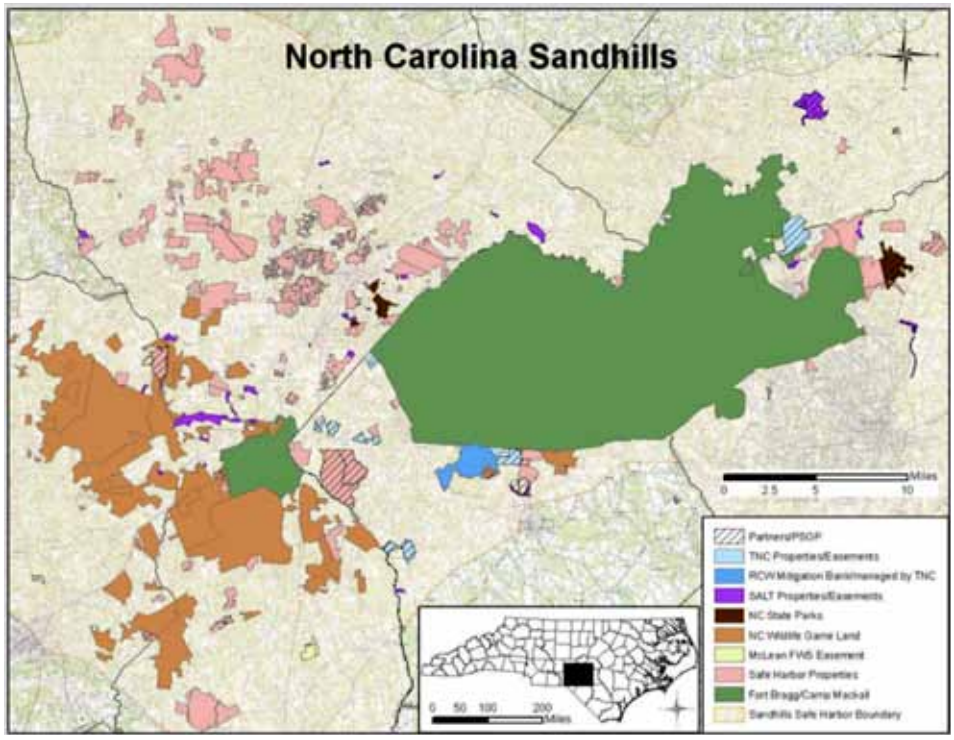
The Service has served as an active member of the Regional Working Group that prepared a range-wide conservation plan for longleaf pine (Range-wide Conservation Plan for Longleaf Pine 2009). The 15-year goal for this Plan is to increase longleaf pine acreage from 3.4 to 8.0 million acres, with most of this increase targeted within "Significant Geographic Areas" as identified in the Plan. The Partners Program conservation delivery biologists are working with all of the partners to help carry out the goals and objectives of the America's Longleaf initiative.

Partners Program staff working with other partners associated with the America's Longleaf initiative focus on locating and implementing habitat improvement (restore, enhance, manage, maintain) projects that expand existing habitat and strive to reduce fragmentation by connecting significant or important landscapes. Partners working together to implement the Range-wide Longleaf Plan are establishing conservation delivery networks and teams at the regional, state, and local levels to pool and leverage resources. A good example of this local conservation delivery approach is depicted from the North Carolina Sandhills focus area.



Pine Barrens tree frog, USFWS.

Pine snake, USFWS.



Partners within the North Carolina Sandhills together own, hold easements or manage over 57,000 acres of habitat vital for maintaining important longleaf pine habitat and their associated species.

Native Prairie and Grasslands (Region Wide):
Native prairies (dominated by native grasses and other herbaceous plants) were once widespread across the Southeast Region, but most have been destroyed by a variety of human activities.

Pre-European settlement extent of native prairies and grasslands in the Southeast U.S.

Endangered Ecosystems: Grasslands and Prairies (Noss et al.1995)

Critically endangered (98% decline)

- Tallgrass Prairie east of Mississippi River
- Black Belt and Jackson Prairies in Alabamam and Mississippi
- Florida Dry Prairie (Kissimmee Valley)
- Coastal Prairies in Southwest Louisiana

Kentucky prairie pipevine and swallowtail butterfly

For example, the Cajun prairie area of southwestern Louisiana and southeast Texas once occupied approximately 2.5 million acres, but now less than 1,000 acres remain. Within the historic Grand Prairie area of Arkansas only a few hundred acres of a tall grass prairie that once covered 320,000 acres remain. In the historic Piedmont prairie areas of North and South Carolina, European explorers reported many prairies ranging in size up to 25 miles across, but only scattered remnants remain today. Also, much of the historic native grassland in Tennessee and Kentucky and the Blackbelt prairie area of Mississippi and Alabama have mostly been lost or converted to non-native species, with only scattered remnants remaining.

Frequent fire set by Native Americans or from lighting, as well as grazing by bison and elk were important ecological factors in maintaining native prairies.

The remaining prairies within the Southeast Region provide important habitat for numerous wildlife species, including many rare and protected plants (e.g., federally listed Schweinitz's sunflower and smooth coneflower, Georgia aster), butterflies, migratory birds (e.g., Henslow's sparrow, savannah sparrow, loggerhead shrike, prairie warbler), and game species such as the severely declining bobwhite quail. Prairie habitat also once supported large herds of bison and groups of prairie chickens, which are no longer found on the remaining prairies of the Southeast Region (Nature Serve 2011, Noss et al. 1995, Arkansas Natural Heritage Commission and U. S. Fish and Wildlife Service 2004).

Native prairies, and opportunities to restore them, are so rare in the Southeast Region, that Partners biologists will pursue almost any private landowner opportunity that they encounter.

Caves (Region Wide)

Caves located on private lands occur in Alabama, Arkansas, Caribbean, Florida, Georgia, Kentucky, North Carolina and Tennessee. Because of the fragile nature of cave ecosystems and the fact that caves tend to be isolated from one another, there are a number of federally protected species (e.g., Gray bat, Arkansas cave crawfish, Alabama cave shrimp Kentucky and Tennessee cave fish) and other rare and imperiled species (e.g., salamanders, beetles and various species of bats) that reside in or use caves during their life cycle. Some of these species are endemics that have unique adaptations such as loss of pigment, non-functioning or sightless eyes, elongation of appendages, and enhancement of other senses in the absence of light.

Because of the large number of species of concern associated with cave ecosystems, the Partners Program provides assistance to private landowners that desire to protect their caves from trespassers and human activities that degrade the caves or disturb the species that use them (Nature Serve 2011, Elliott 1998).

Installing a cave gate

A completed cave gate structure

Scrub-Shrub Habitat (Florida)

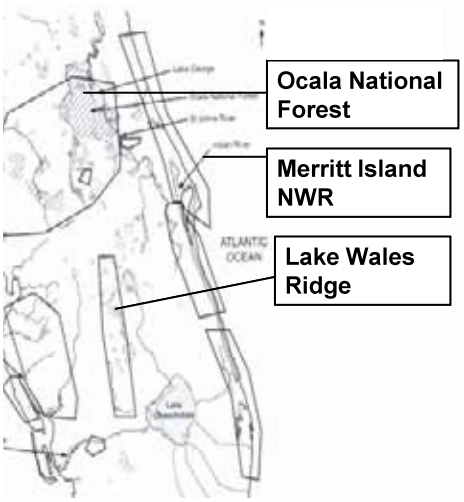
The dry, scrub habitat of Florida is found on ancient dune ridges left thousands of years ago by retreating seas.

Due to urbanization and other human development activities, this habitat type has been reduced by as much as 70 to 85 percent since pre-settlement times (Noss et al. 1995). Today, less than 600 square miles of scrub habitat remain. Much of the remaining parcels of scrub habitat are fragmented and in various states of degradation, due primarily to the suppression of fire.

The Partners Program has targeted this imperiled habitat primarily because it is home to a variety of unique species, including the federally threatened Florida scrub jay, which

is found nowhere else. Most of the remaining scrub habitat on private lands occurs on an ancient sand dune that runs down the middle of the State known as Lake Wales Ridge (Bird Life International 2006, U. S. Fish and Wildlife Service 1990).

Florida scrub patches large enough to support recovered Florida scrub-jay populations



Karst and Tropical Dry Forest (Caribbean)

In the Caribbean, karst and tropical dry forests are threatened by intensive pressure from agriculture and urban development. In Puerto Rico, more than one third of the island is covered by limestone (karst). This area harbors more than 1,300 species, including 30 threatened and endangered species. The northern karst belt has been identified as a viable release site for the endangered Puerto Rican parrot. The karst region also contains the most important aquifer on Puerto Rico.

Within the Caribbean, tropical dry forests are scattered and fragmented. However, the remaining forests are essential to the survival of many rare, threatened and endangered species (e.g., yellow-shouldered blackbird, Puerto Rican plain pigeon, Puerto Rican broad-winged hawk, Puerto Rican boa) as well as an array of neotropical migratory birds (e.g., Puerto Rican vireo) (U.S. Fish and Wildlife Service 2011).

Puerto Rican plain pigeon (Columba inornata) © Aves Puerto Rico FelPe

Caribbean upland forest

Riparian/Stream/Shoreline (Region Wide):

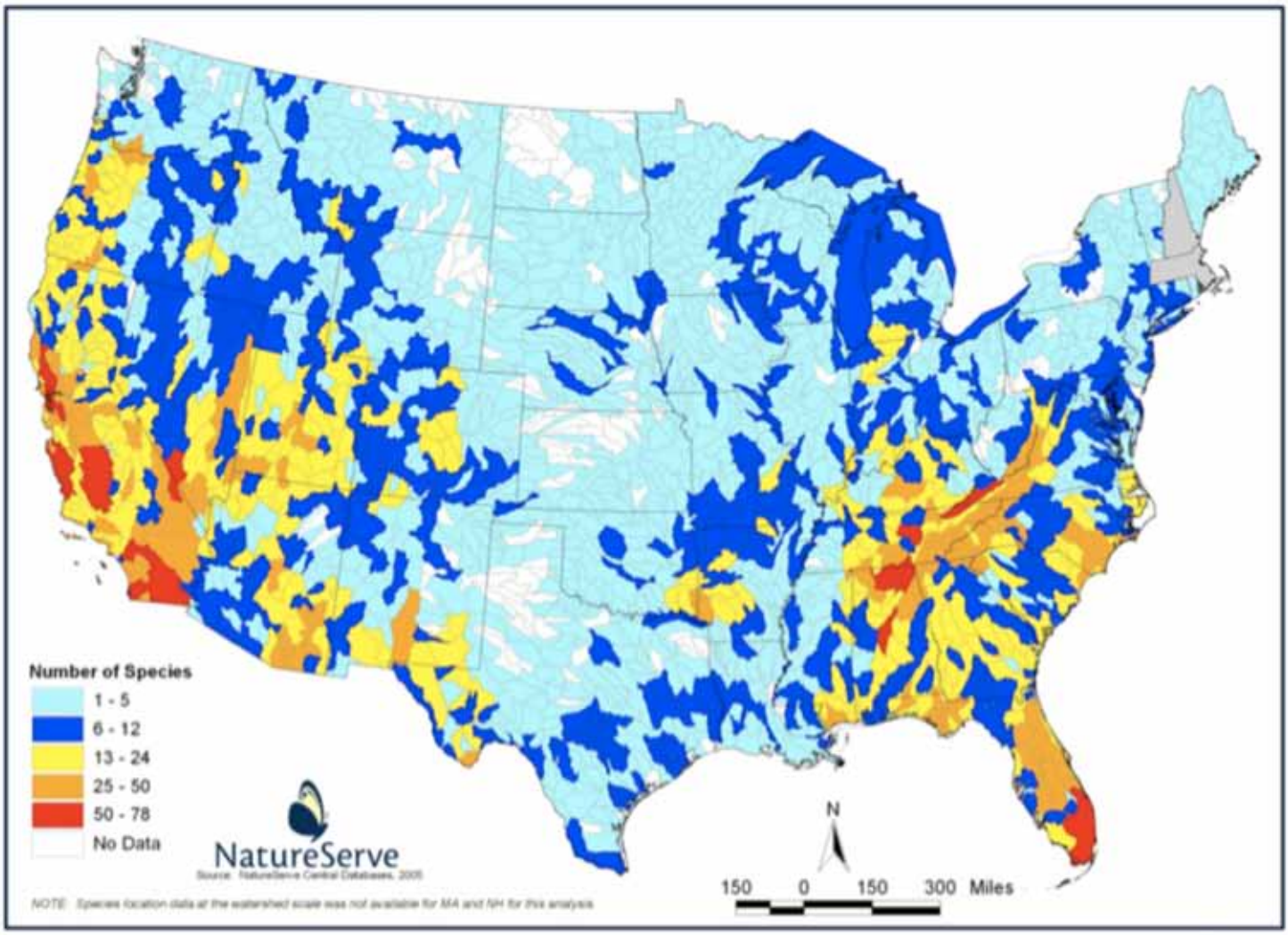
Riparian or streamside habitats occur in both wetlands and uplands. Many landowners have carried out farming practices and other activities up to the banks of streams, leaving streambank segments with an inadequate riparian protection zone, or none at all. Because of the importance of riparian areas for the protection and improvement of water quality and the related benefits to many protected and imperiled aquatic species, as well as the habitat benefits (e.g., movement corridors and cover) to many other wildlife species (Brinson et al., 1981), the Partners Program actively seeks out voluntary habitat improvement projects on private lands involving riparian zones, shorelines and in-stream habitats throughout the Region.

The Partners Program is limited by law and policy to assisting with voluntary habitat improvement projects on tribal and private lands, and the Program is precluded from assisting with projects on State or Federal lands. As such, in most of the States in the Southeast Region, streams and rivers designated as navigable waters are owned by the states and are not privately owned. The conservation practices carried out through the Partners Program involving aquatic ecosystems are typically limited to work in riparian zones or in streams not designated as State waters.

Since several of the Farm Bill conservation programs also address riparian and aquatic resource issues, and the technical and financial incentives available to private landowners through these Farm Bill conservation programs are significantly greater than the assistance available through the Partners Program, Partners biologists collaborate and work closely with staff of the Natural Resources Conservation Service and the Farm Service Agency to help ensure that the assistance provided through the Partners Program is value added and supportive of the Farm Bill conservation programs.

The aquatic, riverine habitats in the Southeast exhibit a diversity of freshwater species that is unsurpassed in North America, encompassing approximately 62 percent (505 of 815 species) of the freshwater fishes and 75 percent (222 of 297) of the freshwater mussels found on the continent. The Region has more than 70 major river basins and over 26,000 miles of coastal shoreline (Benz and Collins 1997).

Many of the perennial streams in the Southeast have been altered (e.g., channelized, dams) or degraded (e.g., erosion and sedimentation from agriculture or urban runoff, other pollution). At least 144 major dams and reservoirs, and an unknown number of other fish passage barriers, have been constructed on streams and rivers in the Southeast, altering water flows and habitat, disruption fish migration, and impacting water quality. In fact, an unaltered or degraded river or stream may be the Region's most endangered ecosystem. As a result, many of the remaining species are imperiled.



Number of ESA Listed, Proposed, Candidate, and G1-G2 Species by 8-Digit Watershed

List of aquatic resource activities that may qualify for Partners for Fish and Wildlife Program funding and technical assistance*

- Fencing of riparian buffer areas to exclude livestock from buffer area and stream.
- Provision of an alternate water source for livestock in association with restricting access to riparian buffer area and stream.
- Reestablishment of native vegetation in the riparian zone if needed.
- Restore native vegetation on islands.
- Elimination of invasive species in riparian zone if a high priority.
- Removal of barriers to fish passage; e.g., removal of undersized road culverts and replacement with appropriate bridge structures or other, removal of small dams, installation of fish passage devices such as a fish ladder.
- Streambank stabilization practices to minimize or eliminate erosion and sedimentation into the stream.
- Reestablishing stream connectivity to adjacent wetlands, oxbows, sloughs, depressions, etc. to restore fish spawning habitat and other benefits.
- Restoration of in-stream habitat; e.g., installation of in-stream habitat structures such as boulders, gravel beds, logs, etc.; artificial habitat structures; reestablishing or creating pools and selected channel deepening; control or elimination of invasive species; reestablishment of submerged aquatic vegetation
- Projects that remove trash and debris from riparian and in-stream.
- Any habitat improvement project that addresses the specific habitat needs of a protected or imperiled aquatic or riparian species.
- Selected education/outreach projects if determined to be a high priority relative to long-term strategies and goals.

* Not meant to be all inclusive; project activities are voluntary and must occur on private or tribal lands. State-owned and Federal lands are excluded.

Unrestricted access to stream riparian zones by livestock can severely degrade riparian habitat and water quality.

Before: a fish passage barrier dam on a Tennessee stream

Fencing livestock out of riparian zones, selective plantings, and provision of alternate water sources allows for natural recovery of riparian zones.

After: stream following removal of low dam on Tennessee stream

For example, 34 percent of North American fish species and 90 percent of native mussel species that are designated as endangered, threatened or of special concern are found in the Southeast (Benz and Collins 1997, Association of Fish and Wildlife Agencies 2006).

Only about 25 percent of the native mussel species are presumed to be stable. Master et al. (1998) identified 10 critical watersheds as "freshwater hot spots," and of these, five are located in the Southeast (i.e., Green River in Kentucky, Clinch River in Tennessee, Cahaba River in Alabama, Conasauga River in Georgia and Tennessee, and the Altamaha River in Georgia). (Benz et al. 1997; Buckner et al. 2002; Nature Serve 2011; Southeast Aquatic Resources Partnership 2003; Southeast Watershed Forum 2003, 2009; The Nature Conservancy 2002, U.S. Fish and Wildlife Service 1997).

Goal One: Conserve Habitat

The single most important factor leading to the endangerment of species is habitat destruction.

Introduction

The goal of conserving habitat is at the heart of this Strategic Plan. The Partners Program is not authorized to expend funds on Federal or State lands or for land acquisition, so our efforts focus on the development and delivery of voluntary habitat improvement projects on private lands. Habitat improvement includes restoration, enhancement, and establishment (see definitions in Glossary, Appendix G).

The primary objectives of this Goal were to work with our partners to identify and refine geographic focus areas within recognized priority ecosystems where most of our partnership efforts will be focused over the next five fiscal years (FY 2012-2016), and to establish reasonable five-year accomplishment targets within each designated focus area based on our FY 2010 base funding level.

Establishment of Geographic Focus Areas

The information provided in a variety of existing strategic plans revealed that there are many more priority habitat types and potential focus areas within the Southeast Region than can be addressed by the Partners Program over the five-year period for this strategic plan. This strategic plan will address only those regional priority habitats that are included within the geographic focus areas identified in this five-year strategic plan.

For our first strategic plan (FY 2007-2011), and for this strategic plan (FY 2012-2016), focus areas were developed in cooperation with our partners at the State level, based mostly on the following considerations:

- the percent of private lands within the focus area (a Partners Program focus area must have some private lands);
- the history or knowledge of voluntary private landowner interest in the Partners Program and habitat conservation (must have willing landowners to develop and carry out projects);
- the capacity of the Partners Program staff to work within the area;
- the number of threatened, endangered and candidate species;
- the number of other Federal Trust Species (e.g., migratory bird species that are known to be declining) or species of concern as identified in other strategic plans;
- the estimated significance of the proposed focus area relative to preventing the listing of a candidate species, or the recovery of a protected species (linked to other strategic plans and Service recovery plans for protected species); and,
- the perceived importance of the focus area from a landscape perspective (e.g., does the focus area expand or connect important habitat types and reduce fragmentation of habitat).

In addition to these criteria, State Coordinators were given the flexibility to work with their partners to add additional criteria as may be needed to meet any special situations within a particular State.

Most of our original focus areas have been maintained in this strategic plan, since the five-year time frame is not long enough to achieve or document meaningful biological response from an ecosystem restoration perspective. In many cases, it may take 40, 50, or more years to achieve many of the ecosystem functions known from historic baseline conditions within the various ecosystems, and to support the basic life needs of the priority species that depend upon these ecosystems for their survival.

We have made some minor changes to the boundaries of focus areas identified in our original plan. These specifics are addressed within the individual State plans and the Caribbean plan that follows.

Establishing Accomplishment Output Targets

Since our National requirements for reporting accomplishment outputs are categorized generally as Wetlands (acres), Upland (acres), Riparian/Stream/Shoreline (miles), and Structures removed or implemented (number), our accomplishment output totals for all identified focus areas are tabulated accordingly.

For our first strategic plan, establishment of reasonable accomplishment output targets for the categories above proved to be a very challenging task, and continues to be so for this strategic plan. There are a number of factors that may influence our five-year accomplishment output targets that are beyond our control, including the following uncertainties: 1) not knowing what our Program budget will be, 2) changes in staff and delivery capacity, 3) not knowing how many private landowners will be interested in working with us within a focus area, 4) not knowing the extent of in-kind and cash contributions from our partners, 5) unavailability of planting materials for various reasons, and 6) the effect of extreme weather events (hurricanes, tornados, flooding, drought) that would disrupt our habitat improvement work.

Because of these uncertainties, our field delivery staff generally set their accomplishment output estimates at a minimal amount, since they would much rather overachieve a target than not meet a target. As it turned out, the Partners Program has received modest budget increases each fiscal year since 2006, and we have been much more successful in leveraging our project funds with our partners than we originally estimated. Further, our field staff has been very successful in working with our private landowner

Southeast Region Strategic Plan Accomplishment Targets and Actuals, 2007-2010

Category	Target estimate	Actual accomplishment	Percent
Wetlands (acres)	7,040	31,200	+443.2
Upland (acres)	16,608	355,875	+2,142.8
Stream/shoreline (miles)	120.7	338.5	+280.4
Structures (number)	40	112	+280

partners to get them to enter into project agreements and complete projects as agreed. As a result, our cumulative accomplishment outputs for the Southeast Region, as depicted in the table above, significantly exceeded our original target estimates.

Since all of the uncertainties noted above are still a concern, and we are facing potentially significant budget declines as part of the National effort to reduce our Nation's budget deficit, we continue to be reluctant to increase our accomplishment output targets for the next five years. However, for this strategic plan, we have increased our regional accomplishment output target estimates somewhat (except for structures) as shown in the Table below. We have lowered our estimate for structures because we do not anticipate installing as many water-control structures over the next five years. Most structures to be removed are expected to include the removal of small dams and road culverts that impede fish passage. Specific information about accomplishment output target estimates for each geographic focus area can be found in the State and Caribbean information that follows.

It should be noted that while establishment of accomplishment output targets in terms of acres and miles provide us with a short-term motivational goal and some degree of accountability, such estimates are otherwise mostly meaningless with regard to biological response issues. What is important is putting the right acres and miles in the right place so that important habitats are improved in that specific threats are removed, therefore providing better life needs for the priority species that depend on such habitats for their existence.

The Partners Program alone lacks the capacity to carry out the long-term monitoring and research needed to effectively document the biological response of implementing our conservation practices. As such, we are looking to our newly established Landscape Conservation Cooperatives (Appendix D) to assist us with specific monitoring and research needs.

Estimated Regional Accomplishment Output Targets: FY 2011-FY2016

Category	Target estimate
Wetlands (acres)	10,000
Upland (acres)	25,000
Riparian/Stream (miles)	150
Structures (number)	20

Regional Objectives, Five-year Accomplishment Targets, and Implementation Strategies

Objective: Working with our partners, revisit the geographic focus areas designated in our first strategic plan (FY 2007-FY 2011), revise or update those geographic focus areas as needed, and develop new accomplishment output targets (FY 2012-2016) for each geographic focus area selected.

Five-Year Regional Targets:
Our estimated five-year Regional accomplishment targets for all 51 geographic focus areas specifically identified and discussed in Appendix A are listed at left. Over the next five years most of the PFW Program conservation delivery and technical assistance will be directed toward the focus areas presented in Appendix A.

All of the habitat improvement projects that we expect to complete during this time period will improve the habitat conditions for at-risk species, including federally endangered, threatened, and candidates, as well as species of concern as identified in other Service strategic plans and State Wildlife Action Plans.

Estimated Economic Contributions from Habitat Improvement Activities Working with our Partners (FY 2012 - 2016)*

- Wetlands (acres) @ $77 million
- Upland (acres) @ $9 million
- Riparian/Stream (miles) @ $145 million
- Structures removed (access miles restored) @ $20 million

Total economic contribution of $251 million dollars and 5,100 jobs

*Figures estimated following methodology from: Charbonneau and Caudill 2010.

Implementation Strategies:
Specific implementation strategies for each State and the Caribbean are presented in Appendix A. Overall, from a regional perspective our implementation strategy is simple. We will work with private landowners and other partners on a voluntary basis to provide technical and financial assistance in identifying, developing, and implementing on-the-ground conservation delivery within the designated focus areas identified in this strategic plan. We will address known limiting factors and threats to priority species and their habitats. Although most of our efforts will be directed within designated focus areas, we retain the flexibility to address other important habitat areas as new and important partnership opportunities on private lands arise.

In striving to carry out this and other objectives presented in this plan, we will utilize all available funding sources, including the various Farm Bill conservation programs, to leverage our limited Partners Program funding.

Goal Two: Broaden and Strengthen Partnerships

Accomplish Our Work through Voluntary Partnerships

"All acts of government… are of slight importance to conservation except as they affect the acts and thoughts of citizens."
Aldo Leopold, 1937

Connecting People with Nature partnership: Interpretive nature trail and boardwalk at the Georgia Wildlife Federation's Alcovy Nature Center

Introduction

The Partners Program vision is to efficiently achieve voluntary habitat improvement on private lands, through financial and technical assistance, for the benefit of Federal Trust Species. Accomplishment of this mission would not be possible without partnerships. Partnerships are successful when they provide mutual benefits to the voluntary participants that are striving to achieve common goals and objectives. Partnerships also result in increased resources by pooling all available resources for greater impact, better efficiency by reducing duplication of effort, better communication, innovative solutions through the sharing of various technical knowledge, and increased public support. The Partners Program is based on the premise that fish and wildlife conservation is a responsibility shared by citizens and government, and the foundation of the partnerships established is a shared interest in habitat conservation.

Since the establishment of the Partners Program in 1987, the Southeast Region has negotiated and entered into over 3,000 partnership agreements with a variety of partners, including private landowners, other Federal agencies, State and local government agencies, Tribes, non-government organizations, private corporations, foundations, and land trusts. The success of these partnerships has relied on building trust and credibility with our partners. The Partners Program conservation delivery biologists are experienced at helping potential partners come together to forge and implement collaborative solutions that meet local and regional needs for fish and wildlife conservation. They also strive to achieve trust and credibility with our partners by providing accurate and timely information and assistance, by leveraging all available resources, and by helping to implement cost-efficient and effective habitat improvement projects.

Over the years, we have recognized some common principles that are important to establishing and maintaining successful partnerships; these are:

- At a landscape or watershed scale no single entity is likely to have the personnel and resources needed to achieve the desired success.
- All partners share some overlapping mutual goals and objectives.
- All partners contribute (financial or in-kind services) to achieving the mutual goals established by the partnership.
- Partners utilize their expertise and existing strengths in working with other partners to decide who will take the lead in carrying out specific tasks to achieve goals and objectives.
- All partners share information and recognize the contributions of all partners.

Connecting People with Nature

A Service initiative that we are calling **"Connecting People with Nature"** has been designated as a National priority (U.S. Fish and Wildlife Service 2010b). The Partners Program is well positioned through its voluntary partnership initiatives to provide leadership and take an active role in implementing a variety of education and outreach projects with our many partners. In order to increase awareness, change attitudes, and alter actions relative to the conservation of fish and wildlife resources, sharing information about the Partners Program and other Service conservation delivery programs is very important. This same commitment from our partners further promotes and strengthens our partnerships.

Over the past 25 years, we have provided technical and financial assistance to help implement many education/outreach projects that have helped connect people with nature, including the construction of observation towers and interpretative trails with educational signs and other natural resources information. We have also worked with many local school systems to plan and implement smaller scale habitat improvement projects for educational and demonstration purposes, including special habitat types such as wetlands, longleaf pine, and native prairies.

Additionally, we have given numerous presentations and provided exhibits and other educational materials for local schools and for others at regional and national symposia and meetings. Over the next five years, Partners Program staff will continue to be actively involved in the delivery of this important Service initiative.

Regional Objectives, Five-Year Accomplishment Targets, and Implementation Strategies:

The following objectives, five-year accomplishment targets, and implementation strategies will help us reach our goal of broadening and strengthening partnerships. Five-year accomplishment targets were estimated based on previous five-year accomplishment averages obtained from the Habitat Information Tracking System (HabITS) data base.

Objective: Continue to work with all federal and state natural resource agencies, local entities, conservation organizations, corporations, educational institutions, and private individuals to implement natural resource conservation delivery programs that benefit federal and state trust resources.

Five-Year Targets:

- Number of new agreements: 50
- Percent of USDA Farm Bill State Technical Committee meetings attended: 100
- Number of Program staff days: 3,000

Implementation Strategies: Partners Program staff will meet periodically with our existing and potential partners (e.g., other Federal agencies, State fish and wildlife agencies, Tribes, non-government organizations) to discuss ideas for new and expanded partnerships.

All Partners Program staff must become familiar with the assistance opportunities offered through other agencies, organizations and institutions. Many cost-share programs exist to aid the private landowner in getting conservation practices on the ground.

Few landowners are familiar with all of the opportunities available to them. The USDA offers technical assistance and many cost-share programs through the conservation provisions of the Farm Bill including: Conservation Reserve Program, Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, Wetlands Reserve Program, Grassland Reserve Program, Healthy Forest Reserve Program and other programs.

The Partners Program staff should become familiar with the USDA Farm Bill conservation programs and other landowner assistance programs, as well as the local and state staff that administer them. Partners Program State Coordinators, or designated Partners staff, should represent the Service by attending all USDA State Technical Committee meetings that address the Farm Bill conservation program implementation issues. Participation in the State Technical Committee meetings is one of the best places to keep informed about USDA conservation programs, and to interact with other partners.

Higher level educational institutions also make good partners by providing technical expertise, research, literature, and they may be able to work with us and other partners to cooperatively fund education/outreach, monitoring, and demonstration projects. Partners Program staff should explore partnership opportunities with educational institutions.

Non-government organizations (NGOs) with similar conservation goals also have landowner assistance programs and personnel dedicated to achieving the same or similar objectives as the Partners Program. Partners Program staff should explore these partnership opportunities.

Objective: Outreach efforts to encourage public understanding, support, and participation for natural resource private lands programs through partnerships.

Five-Year Targets:

- Number of partnership examples to be highlighted on a Service Internet site available to the public, news articles, fact sheets, annual reports, joint publications, or other education/outreach mechanisms: 100
- Number of school partnership projects that address the Service's "Connecting People With Nature" priority initiative: 10
- Number of Program staff days: 1,000

Implementation Strategies: When partnerships are formed, their collective efforts to reach larger percentages of the general public have much greater chances of success. The Partners Program staff will utilize Service approved education/outreach tools and sources to share information about our partnerships. Partnership articles and success stories that recognize the contributions of our partners, and are made available to all of our partners, result in a greater positive response from interested landowners. Partners Program staff will collaborate with our partners to share information and education expertise to help educate the public about conservation partnerships.

Partners Program staff will take a leadership role in working with other Service programs, local partners and schools in implementing the Service's Connecting People with Nature Initiative.

Objective: To leverage resources of government agencies, private conservation organizations, corporations, local agencies, educational institutions, and private individuals who have the interest and/or the responsibility of working with private landowners to establish, restore, improve, and protect fish and wildlife habitat on private lands.

Five-Year Target:

- Partners Program funded habitat improvement projects that achieve a cumulative regional cost share of at least 50 percent: 100%

Birdwatchers find subject to view/Steve Hillebrand.

Note: cost share may include in-kind contributions (e.g., personnel, materials, services) from partners.

Implementation Strategies:
Partners Program staff will assess the capabilities of each potential partner, and negotiate voluntary partnership contributions in all Partners Program agreements. Financial contributions for all habitat improvement projects will be documented within the HabITS data base.

Goal Three: Improve Information Sharing and Communication

Collaborate and share information and concerns with our partners, potential future partners, decision-makers, and others to protect, restore and enhance fish and wildlife and their habitats.

Introduction

To successfully carry out the mission of the Partners Program (i.e., "to efficiently achieve voluntary habitat conservation on private lands...") effective communication and information sharing are essential. Every work day, staff must communicate and share information with our partners.

Evaluations of the reasons why potential partners have experienced problems usually point to poor communication or no communication at all. So, what are the attributes of successful or effective communication and information sharing? Experience has consistently shown that effective communication must flow in all directions; i.e., from the top down, from the bottom up, across program areas, and between partners. Also, perhaps the first and most important communication skill is effective listening to help ensure that communication is not only clear, but understood. Further, all parties need to be able to clearly explain what they are trying to do and why, and preferably before it is done. It is also essential that important information be shared with stakeholders, as we continue to build credibility and trust. Finally, it is important to note that communication is much more than the spoken word. Studies have shown that only about seven percent of our message comes from our actual words, whereas about 93 percent of our communication impact comes from our appearance, actions and voice quality.

Over the last 10 years changing communication technologies (e.g., internet, internet data tracking, wireless technology, facebook, twitter, geographic information systems, etc.) have greatly improved our information sharing capabilities within the Service. All Partners Program project and technical assistance information are entered into our internet based Habitat Information Tracking System (HabITS). Once data are entered into HabITS, the System provides many efficient reporting and information sharing capabilities, including customized queries and reports, featured projects and narratives, mapping capabilities, photographs and information documents, and links to other data sets.

Due to restrictions imposed by the Privacy Act of 1974 (Public Law 93-579), the sharing of data and information from the HabITS data base is controlled by Service policy and guidance that is needed to achieve compliance with this law. In general, the Privacy Act governs the collection, maintenance, use and dissemination of personally identifiable information about individuals that is maintained in systems of records by federal agencies. As such, some of the information in the HabITS data base has been designated as "public" information, while some of the data (e.g., personal and geospatial data) is restricted, but may be shared with some entities if an agreement with the Service that clarifies the limitations of data sharing is signed by the Service and the requesting entity (Appendix H).

In addition, the Service Regional Office maintains a Partners Program Internet site at http://www.fws.gov/southeast/partners, and most of our field stations also maintain Internet sites with Partners Program information specific to their State.

Regional Objectives, Five-Year Accomplishment Targets, and Implementation Strategies:

The following objective, five-year accomplishment targets and implementation strategies will help us accomplish this goal. Five-year accomplishment targets were estimated based on previous five-year accomplishment averages obtained from the HabITS data base.

Objective: Improve and expand our communication and information sharing capabilities.

Five-Year Targets:

- Percent of technical assistance and new habitat improvement project information entered into the HabITS data base each fiscal year by the requested due date, with project narratives, photographs, and all other requested data entered and achieving the internal quality control standards set by the Program: 100
- Number of Program staff days directed toward the achievement of this objective, including carrying out of the recommended implementation strategies: 7,000

Implementation Strategies Internal:

- Select appropriate training courses from NCTC catalog or other approved sources, and complete the training.
- Continue cross-program approved Partners Notices that provide policy clarification and guidance to field staff.
- Develop and carry out specific yearly Work Activity Guidance for the Partners Program.
- Actively engage and participate as appropriate in work groups and other forums to develop and implement Service priority initiatives (e.g., addressing threats from climate change, Landscape Conservation Cooperatives, Connecting People With Nature, other strategic plans)
- Participate in Program conference calls as notified.
- Participate in periodic cross-program information meetings at the regional and field level (e.g., Endangered Species, Refuges and Wildlife, Fisheries, Migratory Birds,

Fisheries, Federal Assistance) to discuss partnership opportunities and share information.

- Host on-the-ground field demonstrations for Service staff as opportunities arise.
- Continue to maintain and periodically update all Program fact sheets, brochures, and Internet sites, and disseminate such information to other Service operational programs.
- Send examples of successful partnership projects, partnership approaches, and other useful information to External Affairs for publication consideration in E-grits (Regional Office Internet Site for sharing Regional Information), Fish and Wildlife News (Service's National publication), or other sources (e.g., Endangered Species Bulletin).
- Continue to enter all Program technical assistance and project information into HabITS, and continue to highlight those projects and partnerships to be featured within the System.
- Continue to carry out the Regional Partners for Fish and Wildlife Program Workshop every two years in order to exchange conservation strategies and partnership information.
- Continue to develop and carry out internal training needs at the Regional level, based on recommendations from the field (e.g., Project Officer responsibilities and management of agreements).

External:

- Participate in selected conferences, workshops and professional events that address partnerships and conservation delivery on private lands.
- Periodically meet with our key partners (e.g. State fish and wildlife agencies, other federal agencies, and conservation organizations) to share information and discuss opportunities.
- Participate in special task forces brought together by partners to address particular issues pertaining to conservation on private lands.
- Participate in all scheduled State Farm Bill Technical Committee meetings.
- Work with our partners to develop and carry out field trips and on-the-ground demonstrations targeted to specific audiences.
- Develop, make available, and disseminate Program Fact Sheets and other summary information to our partners, stakeholders, and Congressional offices.
- State coordinators will contact Congressional offices within their states and provide Program information and an invitation to visit project sites within their jurisdictional area.
- Prepare and submit approved Program articles to be published in various education/outreach sources such as conference and workshop proceedings, news releases, newsletters, bulletins, etc.
- Maintain and periodically update all Internet information sources for the Program.
- Establish communication channels with agricultural extension staff at universities.
- Continue to work with local schools and other partners to promote our "Connecting People with Nature" initiative, and to develop and implement habitat improvement demonstrations as learning tools for students and the local community.
- Establish contacts with other agencies, universities and other partners to address monitoring and research needs and share information.
- Continue to invite key partners and stakeholders to our Regional Program Workshop held every two years.
- Continue to recognize the conservation efforts of our private landowners and other partners through annual awards and other recognition events.

Goal Four: Enhance Our Workforce

The staff of the Partners Program is our most important resource. Maintaining and enhancing the quality, efficiency and diversity of this staff is the key to success in achieving on the ground results for Federal Trust Species.

Introduction

Successful implementation of the Partners Program requires a diverse, highly skilled and motivated workforce. We are committed to having highly capable staff that is results-focused, acts with integrity, and seeks creative partnerships and solutions to technical fish and wildlife habitat issues on private lands.

For fiscal year 2011, the Partners Program in the Southeast Region consisted of 32 staff positions. Working with voluntary private landowners and other partners over the past five years, our staff has restored an average of about 59,000 acres (priority uplands and wetlands), and 60 miles of aquatic habitat each year. Typically, project funds are leveraged with our partners at a ratio of 1:4 (four partner's dollars to one Service dollar).

This lean but skillful conservation delivery team covering approximately 468,000 square miles within the Southeast Region includes one Regional Coordinator, 10 State Coordinators, one Commonwealth/ Territory Coordinator (Caribbean) and an additional 21 Private Lands Biologists (Appendix B, Regional Map & Table of Positions).

Our staff includes a diverse group of biologists who know their own work areas intimately and specialize in the federal trust species that occur within their geographic focus areas.

The Partners Program policy requires that staff within this Program be "substantially" involved with most of the projects that they work on. This requirement tends to make the Partners Program somewhat unique when compared to pass through grant programs where there is little interaction with the partners and with the technical aspects of project development and implementation. Further, the close involvement of our trained and talented staff tends to promote trust and credibility with our partners through our dedicated efforts to provide accurate and timely assistance at the local level. Although the work is demanding, the conservation results on the ground are very rewarding.

Our regional vision is to continue to improve and expand the knowledge and expertise of our experienced staff, while simultaneously cultivating the knowledge and expertise of our new and upcoming staff. We believe that we can achieve this vision through strategic training, hiring and employee recognition.

Regional Objectives, Five-Year Accomplishment Targets, and Implementation Strategies:

To help us accomplish this goal, we have identified the following objectives, five-year accomplishment targets, and implementation strategies. Five-year accomplishment targets were estimated based on previous five-year accomplishment averages obtained from the Habitat Information Tracking System (HabITS) data base.

Objective: Ensure that all Partners Program staff has access to and complete a variety of selected training courses involving habitat conservation tools and team building techniques that will help to achieve the five goals addressed in this strategic plan.

Five-Year Target:

- Number of training hours completed by all Program staff: 6,000

Implementation Strategies: Training is essential for both new members to our workforce as well as for experienced staff. All Program staff will develop an annual training plan (Individual Development Plan) that identifies a minimum of 40 hours of training each fiscal year. Course selection should be based on the expected course content that will address the skills needed to carry out our partnership work on private lands. Training may include formal classes, Internet training, conference and workshop attendance, and visits to other programs offered by the Service, State, or nongovernment organizations.

The Service's National Conservation Training Center (NCTC) provides a variety of helpful courses for Service staff each year that address the following training topics:

- Communication
- Fish and Wildlife
- Partnerships
- People
- Policy
- Science
- Technology
- Training from NCTC Partners

The complete catalog of training courses offered through NCTC, as well as other helpful information, can be viewed on the internet at:

http://training.fws.gov

Based on feedback that we have received from Partners Program staff that has completed various courses at NCTC or through other venues, the following course list (not intended to be all inclusive) is recommended:

Recommended NCTC Training Courses for New Partners Program Staff:

- Negotiation Strategies and Techniques
- Crucial Conversations Workshop
- Effective Presentations and Briefing Skills
- Increasing Your Personal Effectiveness
- Developing and Working with Friends Groups
- Conservation Partnerships in Practice
- Basic Habitat Restoration
- Aquatic Habitat Restoration and Enhancement
- ESA Synopsis/Update
- GIS Introduction for Conservation Professionals
- Principles of Habitat Assessment
- Cultural Resources Overview
- NEPA Concepts
- Assistance Agreements Administration

Recommended Courses for Experienced Partners Program Staff:

- Resolving Complex Environmental Issues
- Resolving Conflicts
- Essential Skills of Leadership
- GIS Use For Wildlife Habitat Management
- Scientific Principles and Techniques for Endangered Species Conservation
- Wetland Plant Identification
- Introduction to River Science and Management
- Stream Habitat Measurement Techniques
- River Morphology and Applications
- Endangered Species Recovery Implementation

We recognize that other training opportunities, including courses provided by our partnering agencies (e.g., Farm Bill conservation program training offered through the U. S. Department of Agriculture) and organizations, as well as professional workshops and conferences, are also important sources of helpful information that can be readily applied to helping us achieve the goals identified in this strategic plan. There are many other advantages to training alongside our partners such as building common approaches to habitat restoration and expanding partnership opportunities.

Feedback from the Partners Program field staff has noted that our Regional Partners Program Workshop, typically held every other fiscal year, has been extremely helpful in orienting new employees and reinvigorating experienced employees. The location of these workshops has been varied throughout the region to include different ecosystems and field trip opportunities for highlighting partnerships and project examples, including opportunities to meet the partners involved in the effort, and learn from their successes and failures.

The field trips also offer opportunities to expand biological knowledge of regional species and habitats. These workshops also include technical presentations from partners both inside and outside the Service who share their ideas and experiences. The networking and camaraderie that develop from these workshops instills a sense of purpose and focus, building the Southeast Region's team of Partners biologists into a strong, focused, and motivated group.

The Regional Partners Coordinator also arranges for or develops specific workshops for regional staff to address issues and needs that have been raised by the staff. Recent examples have included workshops on the HabITS (version 4) data base, and training on the use and implementation of grants and cooperative agreements.

Objective: Target the location of new positions to effectively address the priority habitats, species, and geographic focus areas identified in this strategic plan.

Five-Year Target:

- Percent of new and vacated Partners Program biologist positions that will be located in priority geographic focus areas as defined in this strategic plan: 100

Implementation Strategies: All new Partners Program biologist positions, and those vacant positions that are refilled (excluding the Regional Coordinator and State Coordinator positions), will be strategically located in the field to more effectively address private landowner assistance opportunities within the priority habitats and geographic focus areas identified in this strategic plan.

As positions are filled, care and consideration will be given to coordination and seeking input from other Service operational programs and other partners. We will strive to diversify our staff and select highly motivated, well educated, and independent individuals. When feasible, positions will be co-located in other Service Program offices or with other partners (e.g., State agency, Natural Resources Conservation Service office, The Nature Conservancy) so that they can

work together to accomplish mutual habitat improvement goals for Federal Trust Species and other species of concern. We intend to keep an open mind, looking for unique opportunities to collaborate with others so that our work force, our partnerships, and our accomplishments grow.

It is our intention to add at least one, and possibly two, new Partners biologist positions for every $500,000 of new Partners Program funding that may be added by Congress. Any new positions will be located within the designated geographic focus areas identified within this strategic plan, or future updated versions of the plan.

Objective: Maintain the institutional knowledge of the Partners Program and build on leadership.

Five-Year Targets:

- Percentage of new Partners Program biologists that receive one-on-one mentoring from experienced Partners Program staff: 100
- Number of Recognition Awards presented to Partners Program staff: 10

Implementation Strategies: Over the next five years, we expect some turnover of our highly trained Partners Program staff. Typically, our turnover has been one or two positions each fiscal year. Within the context of our workforce planning process, we expect that most of these positions will be advertised and staffed as long as our program budget remains stable. To help ensure that we maintain our institutional knowledge and Program expertise, and to help foster a more efficient and effective workforce, all new hires within the Partners Program will work alongside the Regional Coordinator and/or experienced State Coordinators and Partners biologists on details of up to one month (minimum of two weeks), assisting with a variety of tasks associated with delivery of the Program (e.g., coordination of Partners policy and issues across all Service program areas, collaboration with other State and federal agencies and partners, development and implementation of habitat improvement plans, and monitoring and other field work, development and management of cooperative agreements).

Following the policy and guidelines of established Service awards and recognition programs, selected Partners Program staff will be recognized each year for their successes in front of their peers. We envision the following awards categories:

- Regional Partners Biologist of the Year Award
- One or more Special Achievement Awards

These awards will be presented at approved Service functions, including the Annual Regional Director's Awards, and the Partners Program Regional Workshop.

To further support our workforce, the Regional Directorate will continue to actively support the Partners Program staff by maintaining a Regional Coordinator, and a State Coordinator in every State and Commonwealth within the Southeast Region. The Regional and State Coordinators will provide assistance and support to the Partners biologists and will help to coordinate the Partners Program across all other Service Programs, and with other agencies and partners. The duties and responsibilities of the Regional and State Coordinators are provided in Appendix C (Partners Program National Policy document).

Goal Five: Increase Accountability

Measure, assess, and report on the effectiveness, efficiency, and fiscal integrity of our habitat conservation program and activities.

"Continuous census is the yardstick of success or failure in conservation. Measuring the response of populations to changes-deliberate or accidental-in their environment is the big purpose."
Aldo Leopold, 1933

Introduction:
Accountability is an important responsibility for all government programs, and requires defensible methods of planning, setting objectives, and implementation strategies that deliver results based on realistic expectations. Historically, the Partners Program has reported acres and miles (activity-based accomplishment outputs) for wetlands, upland, riparian buffers and streams, and structures such as fish passage barriers removed. The Partners Program also reports other criteria such as the type of partnership activity, more specific information about habitat type, number and type of partners, cost information, monitoring information, references, and links to species of concern.

All Program technical assistance and project accomplishments are recorded by our project staff in our Habitat Information Tracking System (HabITS). This database provides a permanent record of our Program activities. Agreements, projects, and accomplishments are depicted by polygons, and can be linked to other geospacial information sets. Project narratives, target species, costs and other project information are maintained and can be summarized into a variety of reports at the field office, regional and national levels.

The Service has implemented a Strategic Habitat Conservation (SHC) approach to our conservation delivery work (USFWS and USGS 2006). Strategic habitat conservation is a framework that incorporates five essential steps:

1) Planning

2) Design

3) Delivery

4) Monitoring and

5) Research

The Partners Program will continue to work closely with all of our partners to improve and document our effectiveness using the principles and methods embodied in SHC. This includes, but is not limited to

1) reviewing and evaluating the Program using an adaptive management approach;

2) supporting and working with partners to increase the collective and overall capacity to address the five steps of SHC; and,

3) working with Landscape Conservation Cooperatives to provide practical input into the identification of technical questions that need to be studied, and to help ensure that the best tools and scientific information are being used in our decision-making process (U.S. Fish and Wildlife Service 2011a, Williams et al. 2007).

Although the Partners Program focuses on conservation delivery on private lands, our staff recognizes the importance of biological response information and the need for strategic monitoring and research in carrying out any meaningful adaptive management process. To improve our accountability, our overarching long-term goal is to be able to document our success by showing that the implementation of habitat improvement projects on private lands achieves sustainable and increasing populations of Federal Trust Species (i.e., biological response outcomes) by removing threats and providing habitats that meet the life needs of these species. However, the Partners Program alone lacks the capacity to address many of our monitoring and research needs, and it is essential that we work closely with our partners to develop and implement sound monitoring and research tasks. It is our intent to actively engage with the newly established Landscape Conservation Cooperatives to help define our monitoring and research needs, and work together with all our partners to help develop, direct, and carry out additional monitoring and research efforts to address our many fish and wildlife information needs.

Our current monitoring guidance for the Partners Program is provided in Appendix E. For each of our designated geographic focus areas, our staff will develop a monitoring plan and upload it into the HabITS database, including references to monitoring and research studies that support our assumptions regarding project benefits to target species.

Regional Allocation Methodology for Project Funds

Project funds are allocated to Service field stations as follows:

1) Stations having a PFW biologist receive a base project funding allocation based on their performance over the past five years. These funds are directed to priority habitat improvement projects as determined by regional and local fish and wildlife resource priorities and locally developed project ranking criteria.

2) Approximately 33 percent of project funds are set aside by the Regional Office to fund landscape-scale projects that are developed by our PFW biologists in collaboration with our conservation partners. These landscape-scale proposals are reviewed and ranked by a regional cross-program team, and project funds are then allocated to the appropriate field stations to carry out the highest ranked projects.

3) The remaining project funds (~ 15 percent) are allocated to field stations to carry out regionally mandated partnerships such as cooperative agreements with state fish and wildlife agencies and other key non-government partners that work closely with us in conservation delivery.

Regional Objectives, Five-Year Accomplishment Targets, and Implementation Strategies:

Five-year accomplishment targets were estimated based on previous five-year accomplishment averages obtained from the HabITS data base.

Objective: Ensure that all Partners Program activities and funding are consistent with Program policy, the requirements of the Partners for Fish and Wildlife Act of 2006, and other laws as applicable.

Five-Year Targets:
- Percent of Partners Program accomplishment entries in the HabITS data base that are quality control checked for compliance with Program policy and applicable laws: 100
- Percent of Partners Program positions reviewed and evaluated: 30

Implementation Strategy:
All Program staff will strive to ensure that all Program funds and technical assistance activities are directed to activities and projects consistent with Program policy and legal requirements. Staff will carry out quality control checks following National protocols of all data entries into the HabITS database.

All positions funded through the Partners Program are expected to devote at least 95 percent of their time to implementing Program activities; exceptions must be approved by the Assistant Regional Director, Ecological Services. The cost of habitat improvement activities are expected to be comparable to the costs of similar activities within the work area.

The Partners Program in the Southeast Region uses a cross-program Regional Review Team to conduct periodic oversight reviews of all Program positions. These oversight reviews help to ensure that Program activities are consistent with Program policy, and provide a forum for staff recognition, sharing helpful information and resolving issues and problems that may be encountered. A Review Team report is prepared subsequent to each review and provided to the Project Leader, Partners staff, and other appropriate staff.

Objective: Continue to carry out the Program monitoring policy and guidelines (Appendix E). Continue to review and update the monitoring protocol as may be needed, based on feed back information and adaptive management.

Five-Year Targets:
- Percent of focus areas with approved monitoring plans: 100
- Number of staff days directed to implementing monitoring plans: 700

Implementation Strategy: All Program staff will comply with the Program monitoring policy and guidelines (Appendix E). All recommendations for modifying the policy shall be provided to the Regional Coordinator. A monitoring plan will be developed and uploaded into the HabITS data base for all designated geographic focus areas.

Objective: To help ensure and track Program accountability, enter all project and technical assistance information into the Habitat Information Tracking System (HabITS) data base according to technical guidance and quality standards. Develop and submit recommendations to the National data base manager for improving the data base as they are identified.

Five-Year Target:
- Percent of technical assistance and new habitat improvement project information entered into the HabITS data base each fiscal year by the requested due date, with project narratives, photographs, and all other requested data entered and achieving the internal quality control standards set by the Program: 100

Implementation Strategy: Habitat improvement accomplishments and specific technical assistance activities associated with the Partners Program will be entered and reported by the Regional Office and each appropriate field office through HabITS. All projects will be entered into the HabITS data base during the required timeframe to ensure that all project accomplishments are recorded and captured for required reporting purposes. The Regional Coordinator will coordinate with the National Working Group and the Washington Office regarding recommendations for improving the data base.

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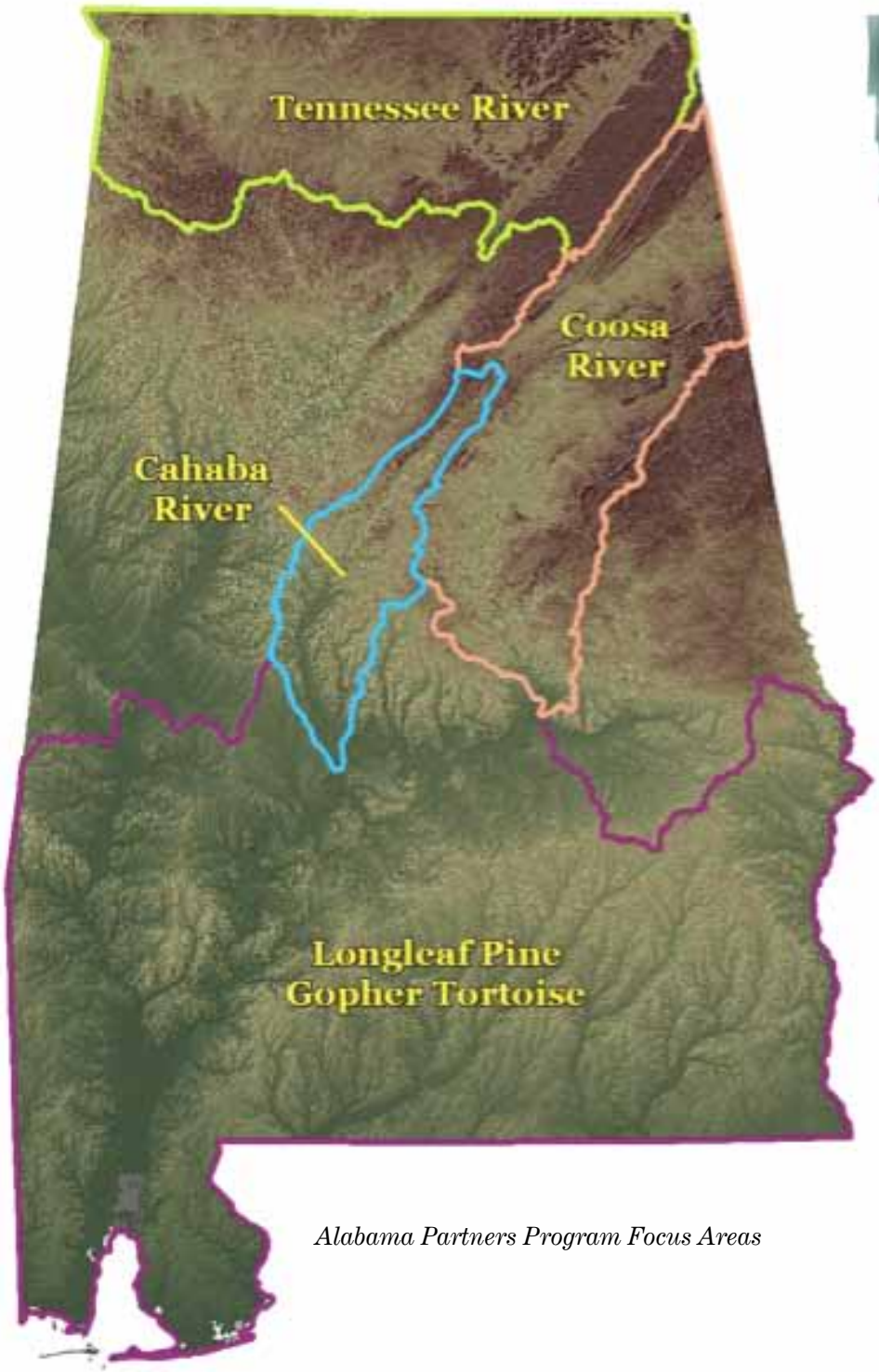
Appendix A: Alabama



Alabama Partners Program Focus Areas

Introduction and Overview

Alabama is one of the most ecologically diverse states in the Nation. The geography, ranging from the Appalachian Mountains in northeast Alabama to the Lower Coastal Plain in the southern part of the State, encompasses a host of ecological communities including coastal marshes, maritime forests, pitcher plant bogs, coastal pine savannahs, bottomland hardwoods, upland hardwoods, karst springs and sinkholes leading to underground caverns, and unique gravel/cobble and bedrock streams. The majority of the State is drained by the sixth largest river system in the United States; i.e., the Mobile River Basin. The Tennessee River flows through the Cumberland Plateau and Highland Rim regions of the northern portion of the State and the Chattahoochee, Chipola, Choctawhatchee, Yellow, Blackwater, Conecuh, and Perdido Rivers drain the southern portion of the state to the Gulf of Mexico.

Ecological diversity in Alabama is due to significant differences in geology, soils, elevations, abundant water resources, and rainfall. These physiographic and climatic differences created very diverse and unique habitats which gave rise to tremendous floral and faunal diversity. Alabama ranks fifth in the Nation in plant and animal diversity and first in the Nation in freshwater species diversity (Alabama Natural Heritage Program 2003, Stein 2002). This diversity coupled with the intervention of human influences such as the creation of reservoirs on free flowing rivers, conversion of longleaf pine habitats to other pine types, urban development, and agricultural practices has lead to the Federal listing of 141 species as threatened, endangered, or candidate species; the third highest State total in the Nation (only Hawaii and California have more listed species). Numerous other species have been identified in the State Wildlife Action Plan by the Alabama Division of Wildlife and Freshwater Fisheries (2005) as needing active conservation and management.

Alabama holds the unfortunate distinction of being the site of one of the largest extinction events in modern history. A series of impoundments on the Coosa River, installed in the early to mid-20th century, created deep, quiet reservoirs where a free-flowing,

biologically-rich river once passed. The tremendous diversity of aquatic mollusks and fishes that was once found in the free-flowing Coosa River system became inundated, fragmented, and displaced when seven hydropower dams were constructed. This is just one example of the costs of competing uses for our natural resources.

The Partners for Fish and Wildlife (PFW) Program in Alabama strives to provide timely, targeted, and professional technical and financial assistance to private landowners willing to create or improve habitat for Federal Trust Species. Habitat improvement projects are designed to benefit declining or imperiled species and their habitats. Most habitat improvement projects will address one or more recovery tasks listed in species recovery plans.

Monitoring

One objective of the PFW Program is to establish and implement a monitoring approach that will enable us to document the success of our habitat improvement efforts relative to biological response, and to provide us with useful information for adaptive management. Our monitoring approach within the PFW Program is presented in Appendix E. The PFW Program alone lacks the capacity to carry out monitoring to the extent that we desire. However, we will work closely with all of our partners to develop and implement specific monitoring plans where all partners can contribute as best they can. Opportunities to increase monitoring capacity through partners, including the Appalachian Landscape Conservation Cooperative and the Gulf Coastal Plain and Ozarks Landscape Conservation Cooperative, will be explored as science and monitoring capacity is increased.

Alabama PFW Focus Areas

Four geographic focus areas were established in Alabama to concentrate PFW funding and resources on habitats and species with the greatest conservation need. These focus areas were also chosen because of ongoing efforts in these areas to restore habitat for federally listed species, as well as species identified in the Alabama Comprehensive Strategy (State Wildlife Action Plans). The four focus areas are the Tennessee River, Coosa River, Cahaba River, and Longleaf Pine – Gopher Tortoise Focus Areas.

The Alabama Ecological Services Field Office (AFO), in cooperation with several partners, has adopted a new working model for conservation of Federal Trust resources. The model, referred to as the Strategic Habitat Unit (SHU) concept, is designed to focus limited resources in the most important watersheds for conservation. Using Critical Habitat (CH) segments for a series of federally listed mussels, the AFO has delineated 26 SHU's in the Mobile River Basin, and is in the process of finalizing approximately 14 additional SHU's covering the Tennessee River drainage in North Alabama, and the coastal drainages of South Alabama. Because of the high numbers of listed and imperiled species in Alabama, the AFO needed a methodology that would allow resources to be focused for the greatest conservation benefit. The SHU concept provides a concise target for conservation efforts that will benefit a majority of the imperiled species across the State. Additionally, a majority of the SHU's are contained within one of the four PFW Focus Areas bringing a cross-program emphasis to restoration of imperiled species habitat restoration and listed species recovery.

In cooperation with our partners we have embarked on a habitat assessment mission to identify, catalogue, and prioritize for restoration, impacts to the aquatic habitats within each of the SHU's. This habitat assessment effort will assist in identifying and prioritizing PFW habitat improvement projects.

Cahaba River Focus Area

The Cahaba River is the longest free-flowing river in Alabama at 190 miles, and drains a watershed of 1,825 square miles. The Cahaba originates upstream of Birmingham in the Valley and Ridge physiographic province, crossing the fall line and ending at its confluence with the Alabama River in the Coastal Plain.

The Cahaba River system is recognized by biologists as one of the most diverse river systems, for its size, in North America (Pierson et al. 1989). Mayden and Kuhajda (1989) also state that the Cahaba River is the most ichthyologically diverse river for its size in North America. The Cahaba is known to harbor 131 species of fish (Pierson et al. 1989), and once harbored 48 mussel species. Current species counts for mussels and snails in the Cahaba system are 37 and 31 species, respectively (Paul Johnson, Alabama Aquatic Biodiversity Center, 2011, unpublished data). Recent re-discovery of species formerly considered extirpated or extinct have only heightened the Cahaba's reputation as a leader in biodiversity.

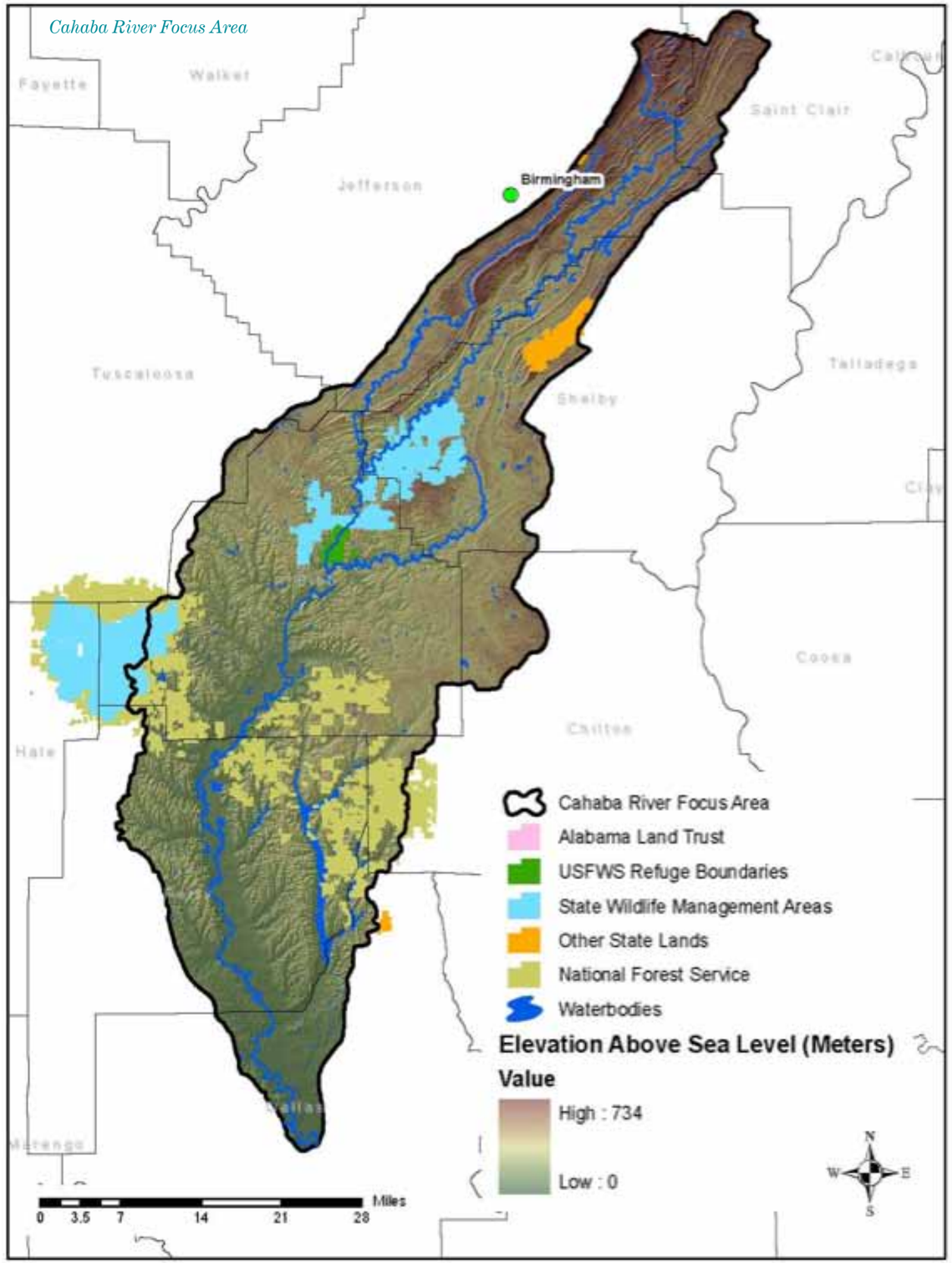
Priority Habitats
Cahaba River aquatic ecosystem, Longleaf pine

Five-Year Accomplishment Target
(FY 2012 – FY 2016)

- Riparian/Instream: 1.0 mile
- Upland: (Longleaf pine): 100 acres

*Focus Species**

- Goldline Darter (T)
- Coal Darter (SOC)
- Fine-lined Pocketbook (T)
- Triangular Kidneyshell (E)
- Round Rocksnail (T)
- Cylindrical Lioplax (E)



Abandoned parts from old rail cars, formerly the base for a construction road crossing across Shades Creek, blocking and redirecting stream flow and creating a fish passage obstacle, USFWS.

Tennessee River Focus Area

In Alabama, the Tennessee River drainage encompasses approximately 6,826 square miles in 15 northern counties. It is largely confined to the Southwest Appalachians and Interior Plateau. The Tennessee River is one of the most biologically diverse river basins in North America with 163 species of fish, 90 species of freshwater mussels, and 66 species of aquatic snails known to occur in the Alabama portion of the Tennessee River.

Priority Habitat

Tennessee River aquatic ecosystem, cave systems

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Riparian/Instream: 0.5 mile
- Structures (removed): 2

*Focus Species**

- Gray Bat (E)
- Snail Darter (T)
- Blotchside Logperch (SOC)
- Palezone Shiner (E)
- Slackwater Darter (T)
- Pale Lilliput (E)
- Rabbitsfoot (C)
- Snuffbox (C)
- Slabside Pearlymussel (E)
- Pink Mucket (E)
- Shiny Pigtoe (E)
- Slender Campeloma (E)

Threats

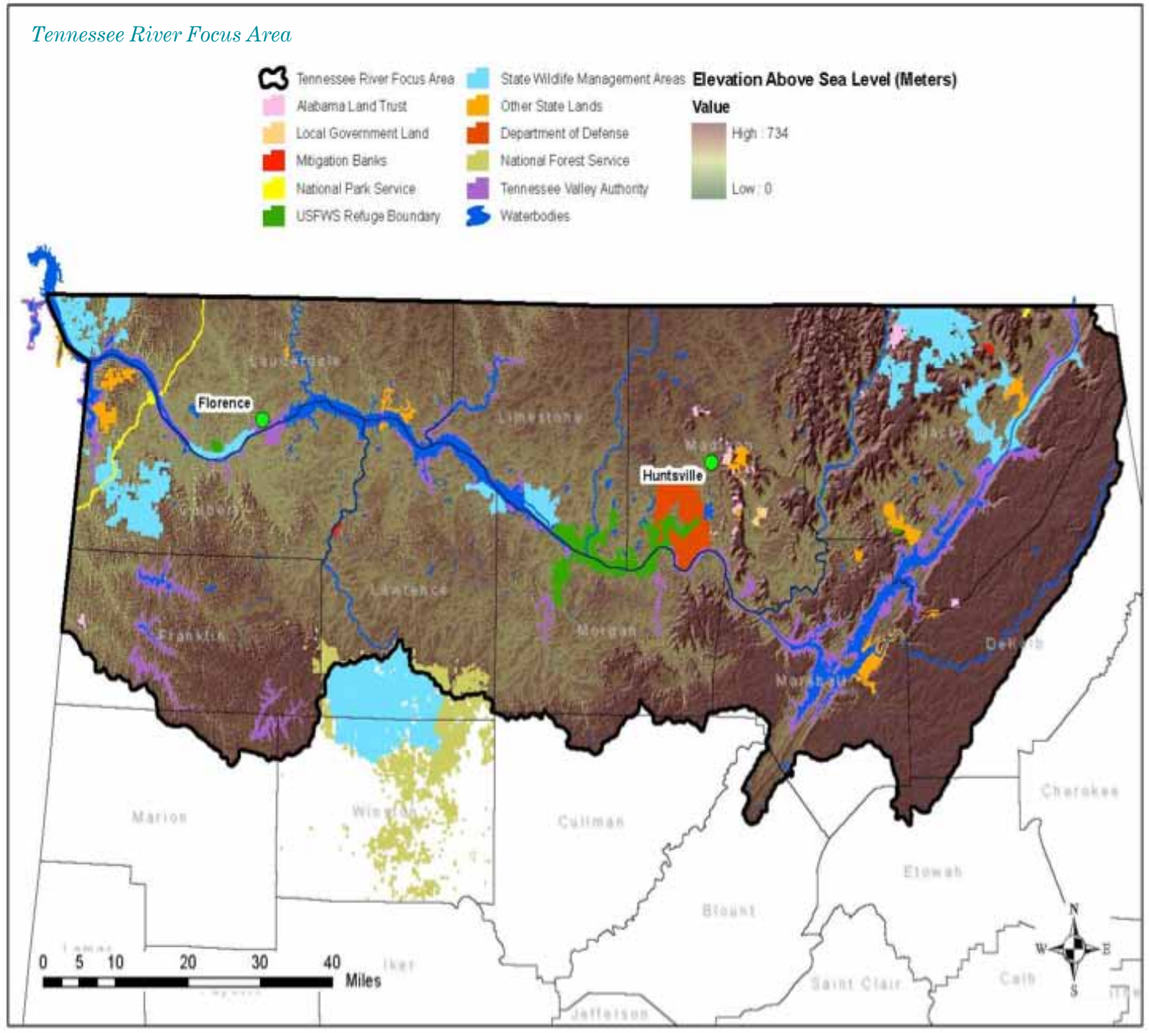
- Impoundments on the Tennessee River, Elk River, and in the Bear Creek watershed are responsible for the loss of most riverine habitat, and modification of the natural flow regimes.
- The problems affecting the species and their habitat include water quality degradation, particularly sedimentation and nutrient enrichment related to urbanization in the upper watershed, as well as poor silvicultural and agricultural practices.

Action Strategies

- The restoration emphasis in the Cahaba River Focus Area will be on aquatic resource protection and restoration; however, understanding that conservation practices in the uplands also benefit the water resources. We will also work with landowners who want to manage their land for the native longleaf pine ecosystem.
- The upper Cahaba River basin has been designated as a SHU, and will be closely examined for water quality impairments and habitat deficiencies through the SHU habitat assessment.
- By working with partners and landowners we will identify opportunities for habitat improvement, and then utilize the PFW Program and other available funding to repair stream banks, fence livestock out of streams, provide alternative water sources, and revegetate riparian areas with native trees, shrubs and grasses.
- Landowners will be encouraged to utilize U.S. Department of Agriculture (USDA) programs such as Conservation Reserve Program, Environmental Quality Incentive Program, Wetland Reserve Program, and Wildlife Habitat Incentive Program where appropriate to reduce sedimentation in the watershed and improve habitat for Federal Trust Species.

Round Rocksnails, a Threatened species, will benefit from removal of rail cars in Shades Creek, USFWS.

Tennessee River Focus Area



- Water quality degradation resulting from sedimentation and nutrient enrichment from agriculture, silviculture, and urbanization of the watershed is also a problem affecting aquatic species habitat.

Action Strategies

- The Tennessee River Basin in Alabama has several SHU's including the Paint Rock River, Elk River, and Bear Creek watersheds. These watersheds will be thoroughly examined for impacts and impairment during the SHU habitat assessment. Restoration opportunities will be identified, prioritized, and implemented as PFW Program and other funding becomes available.
- Working with our partners and private landowners we will repair stream banks, fence livestock out of the steams, provide alternative water sources, revegetate riparian areas with native trees, shrubs and grasses and plant native grasses in fields to reduce sediment and nutrients entering the Tennessee River and tributaries.
- Improperly installed low-water crossings that act as fish passage barriers have recently been identified throughout the system and are being assessed for removal.
- Landowners will be encouraged to utilize USDA programs such as Conservation Reserve Program, Environmental Quality Incentive Program, Wetland Reserve Program, and Wildlife Habitat Incentive Program where appropriate to reduce sedimentation in the watershed and provide habitat for Federal Trust species.
- The Tennessee River watershed in Alabama also holds the distinction of having an abundance of karst and cave ecosystems supporting dozens of rare and endemic species such as the Gray Bat, Alabama Cave Crayfish, Alabama Cave Shrimp, and Alabama Cave Fish. Protection of these underground ecosystems and the groundwater that forms them will continue to be a priority for the PFW Program in Alabama.

Low water ford on Hurricane Creek, a tributary to the Paint Rock River in the Tennessee River Basin. This ford was targeted for removal through an assessment of all road crossings in the watershed with the potential to act as a fish passage barrier, USFWS.

Coosa River Focus Area

The Coosa River System is the largest and most biologically diverse system in the Mobile River Basin in terms of fish, mussels and snails. The Coosa is largely impounded with a total drainage area of 5,353 square miles in Alabama. There are six dams on the mainstem of the Coosa, including Weiss, Neely Henry, Logan Martin, Lay, Mitchell, and Jordan. The watershed is approximately 70 percent forested, 19 percent agriculture and pasture, and 5 percent urban.

Priority Habitat

Coosa River aquatic ecosystem, Longleaf pine

Five-Year Accomplishment Target (FY 2012 – FY 2016)

- Riparian/Instream: 1.0 mile

*Focus Species**

- Trispot Darter (SOC)
- Blue Shiner (T)
- Coldwater Darter (SOC)
- Southern Clubshell (E)
- Tulotoma (E)
- Painted Rocksnail (E)

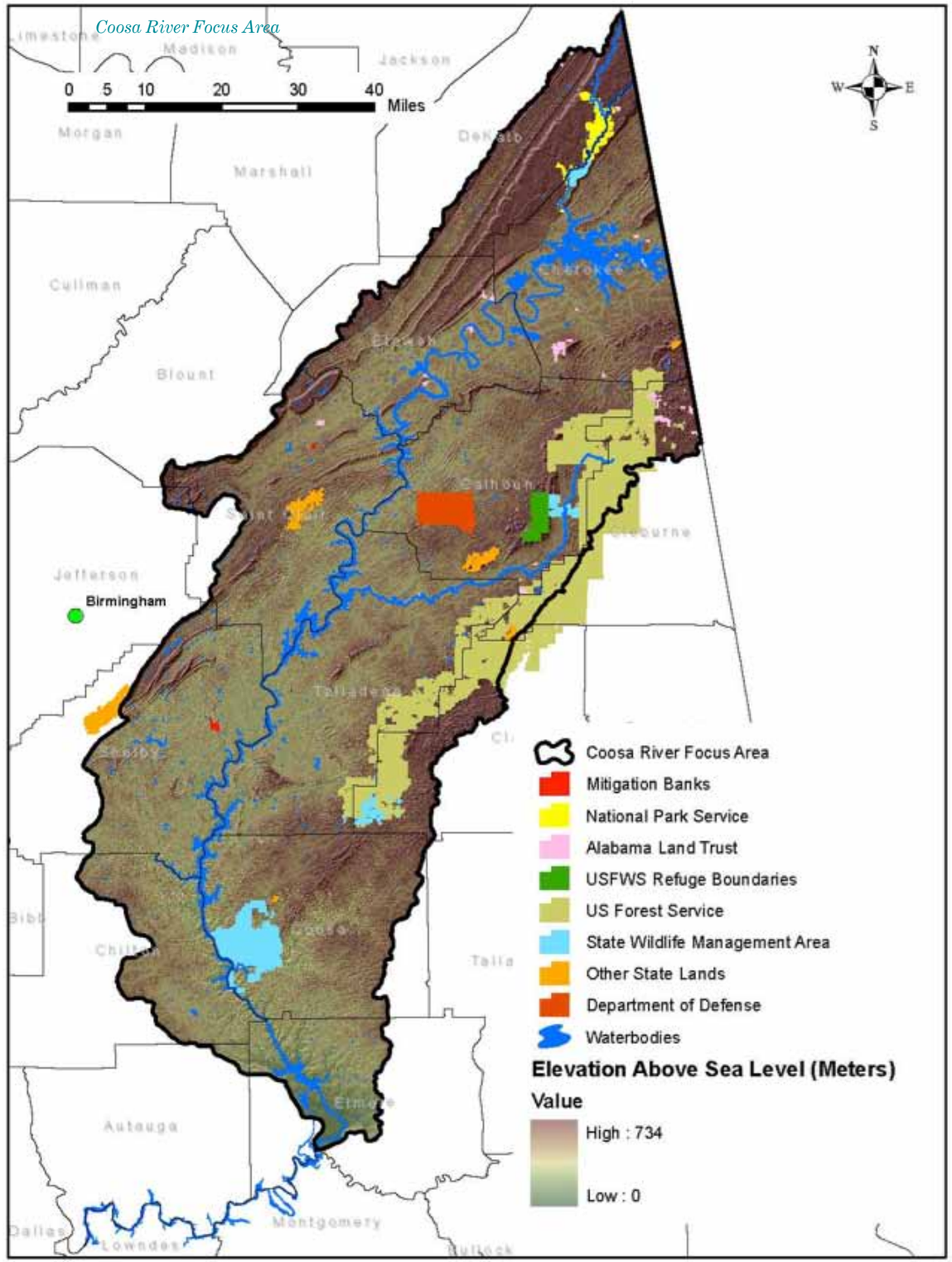
Threats

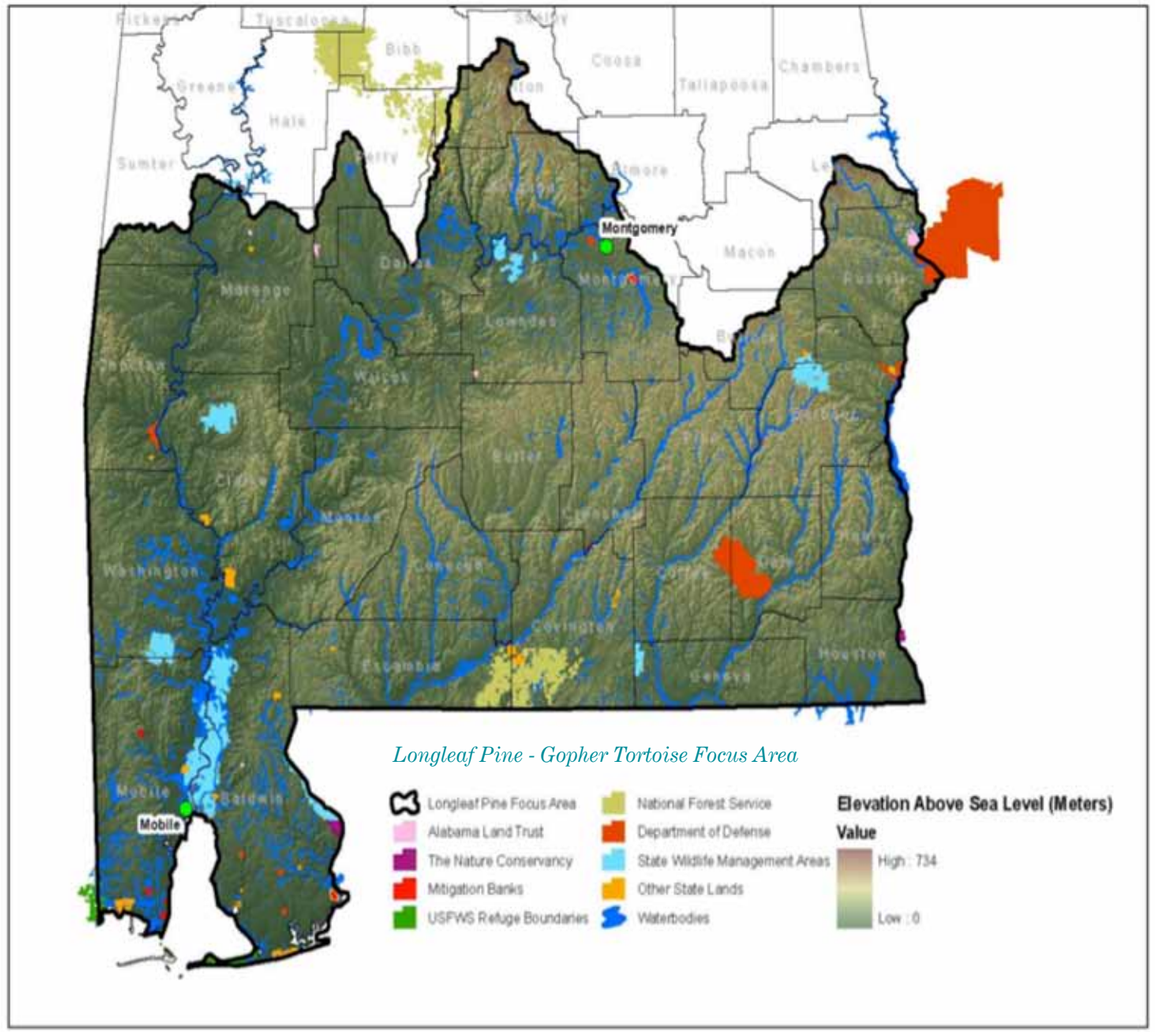
- The main problems affecting imperiled species and their habitat in the Coosa River watersheds are fragmentation of riverine habitat resulting from impoundments; and, water quality degradation (sedimentation and nutrient enrichment) resulting from agriculture, silviculture, and urbanization.

Action Strategies

- The restoration emphasis in the Coosa River Focus Area will be on aquatic resource protection and restoration, understanding that conservation practices in the uplands also benefit the water resources. We will also work with landowners who want to manage their land for the native longleaf pine ecosystem.
- Due to the high degree of imperilment, nine SHU's have been delineated within the Coosa River Basin. Working with our partners and local landowners, we will identify, prioritize, and implement restoration opportunities.
- The PFW Program is working with the Alabama Soil and Water Conservation Committee, Geological Survey of Alabama, Clean Water Partnership, and private landowners to improve water quality in the Coosa. The primary implementation strategy for the in the Coosa is installation of riparian buffers and repair and stabilization of stream banks with soft armoring techniques such as root wads, log vanes and native grasses, shrubs, and trees.
- PFW Program biologists will also work with private forest landowners and county governments to reduce sedimentation resulting from forest roads and dirt roads in the watershed.
- PFW Program staff will encourage the USDA to utilize their programs like the Environmental Quality Incentive Program and Conservation Reserve Program to reduce sedimentation resulting from cropland, pasture and forest land that may be affecting listed candidate, threatened or endangered species.

Male and female trispot darters. Rediscovered in the Coosa River drainage of Alabama in 2008, undetected for over 50 years, presumed extirpated, credit USFWS.





Longleaf Pine - Gopher Tortoise Focus Area

This focus area includes the range of the gopher tortoise and encompasses the longleaf pine-scrub oak-wiregrass-bluestem community, the pine flatwoods community, pine savanna community, and embedded pitcher plant bog community. The gopher tortoise is a keystone species in this focus area because management of the longleaf/grass-forb community that provides suitable habitat for the gopher tortoise also provides habitat for many other listed threatened or endangered species and non-listed species of concern. Recovery of this habitat is important to the entire suite of Federal trust resources listed above.

Priority Habitat
Longleaf pine

Five-Year Accomplishment Target
(FY 2012 – FY 2016)
- Upland (Longleaf pine): 5,000 acres

E=Endangered, T=Threatened, C=Candidate, SOC=Species of Concern

*Focus Species**
- Gopher Tortoise (T)
- Red-cockaded Woodpecker (E)
- Bachman's Sparrow (SOC)
- Henslow's Sparrow (SOC)
- Southeastern Kestrel (SOC)
- Northern Bobwhite (SOC)
- Eastern Indigo Snake (T)
- Black Pine Snake (C)
- American Chaffseed (E)
- Canebrake Pitcher Plant (E)

Female Red-cockaded Woodpecker – a focal species in the Longleaf Pine – Gopher Tortoise Focus Area, USFWS.

Threats
- The once vast longleaf pine ecosystem in the southeast has been reduced to a mere fraction of what once covered over 90 million acres. Remaining longleaf habitat is often degraded due to the lack of prescribed fire, fragmentation, and invasive exotic species.

Action Strategies
- Service efforts will be geared toward restoring a functioning longleaf ecosystem suitable for occupation by the gopher tortoise, the keystone species. Stands of longleaf pine managed for the gopher tortoise will also provide suitable habitat for other species of imperiled wildlife that occupy this habitat type.
- The implementation strategy for this focus area is a multi-year, multifaceted project involving numerous partners including the Alabama Wildlife and Freshwater Fisheries Division, Longleaf Alliance, The Nature Conservancy, Natural Resources Conservation Service, National Wild Turkey Federation, Alabama Wildlife Federation, Alabama Forestry Commission, and numerous private landowners. The initiative is composed of:

  1) landowner and agency agreements for habitat restoration-establishment, 2) demonstration projects for control of exotic vegetation, 3) understory restoration in longleaf and 4) outreach programs.

  Habitat restoration efforts will be coordinated with other Service activities including Habitat Conservation Plans, Safe Harbor, State Wildlife Grants, and Landowner Incentive Programs. Coordinating Service funded programs with USDA's Wildlife Habitat Incentive Program, Conservation Reserve Program and the Environmental Quality Incentive Program will also be a component of the overall strategy.
- We will continue to use the modeling and science expertise of the U.S. Geological Survey and the East Gulf Coastal Plain Joint Venture in selecting sites for restoration in the once extensive longleaf pine ecosystem.
- Working with The Nature Conservancy of Alabama we have developed a successful working model for applying prescribed fire to ecologically sensitive, private lands. By bringing in additional partners, we hope to increase capacity and effectiveness of prescribed fire across Alabama and the southeast over the next five years. Looking for additional opportunities to support prescribed burning initiatives will continue to be a priority of the PFW Program in Alabama.
- Several of the coastal drainages within the Longleaf Pine – Gopher Tortoise Focus Area are also being designated as SHU's. Working with our partners we will perform a habitat assessment in these important coastal drainages, prioritize and implement restoration opportunities emphasizing water quality and instream habitat improvements.

Mature longleaf pine woodland – an example of early successional habitat in a fire climax ecosystem, credit USFWS.

Prescribed fire in the Longleaf Pine – Gopher Tortoise Focus Area, USFWS.

Key Partners in Alabama

The following is a list of stakeholders involved in the PFW Program in Alabama. The PFW Program in Alabama coordinated our strategic planning efforts with numerous stakeholders early in development of our plan. Numerous partners are involved in delivery and funding of projects on private land. Input was solicited from our partners and their input has been incorporated. The Service has worked with each of the partners listed below.

- Private Landowners (many)
- Alabama Wildlife and Freshwater Fisheries Division — Department of Conservation and Natural Resources
- State Lands Division - Alabama Department of Conservation and Natural Resources
- Alabama Aquatic Biodiversity Center
- The Nature Conservancy of Alabama
- USDA- Natural Resources Conservation Service
- USDA – Farm Services Agency
- USDA – Forest Service
- DOD – Department of the Army
- Alabama Soil and Water Conservation Committee
- Alabama Forestry Commission
- The Longleaf Alliance
- Auburn University
- University of Alabama
- Baldwin County Soil and Water Conservation District
- Madison County Soil and Water Conservation District
- Limestone County Soil and Water Conservation District
- Birmingham Water Works Board
- Freshwater Landtrust
- Alabama Clean Water Partnership
- Geological Survey of Alabama
- National Wild Turkey Federation
- Alabama Wildlife Federation
- Black Warrior Clean Water Partnership
- Coosa Clean Water Partnership
- Cahaba Clean Water Partnership
- Alabama Power Company
- Mobile Area Water and Sewer Board
- Alabama Rivers Alliance
- Hancock Forest Resources Group
- Westervelt
- Huffman High School
- International Paper Company
- City of Citronelle
- Daphne Middle School
- Mobile County Wildlife and Conservation Association
- Mobile Bay National Estuary Program
- Newton Middle School
- Weeks Bay Estuarine Research Reserve
- Weeks Bay Foundation
- Cahaba River Society
- Alabama Department of Environmental Management
- U.S. Army Corps of Engineers
- Lauderdale Soil and Water Conservation District
- Tennessee Valley Authority
- Alabama Natural Heritage Program
- Alabama Water Watch
- Youth Conservation Corps
- Americorps
- Northwest Alabama RC&D
- Wiregrass RC&D
- Choctawhatchee Watershed Authority
- Alabama Forest Resources Center
- Volkerts and Associates, Inc
- Alabama State Docks
- Baldwin County School District
- Mobile County Forestry Planning Committee
- Baldwin County Forestry Planning Committee
- Baldwin County Commission
- Winston County Commission
- Gulf Coast Resource Conservation and Development

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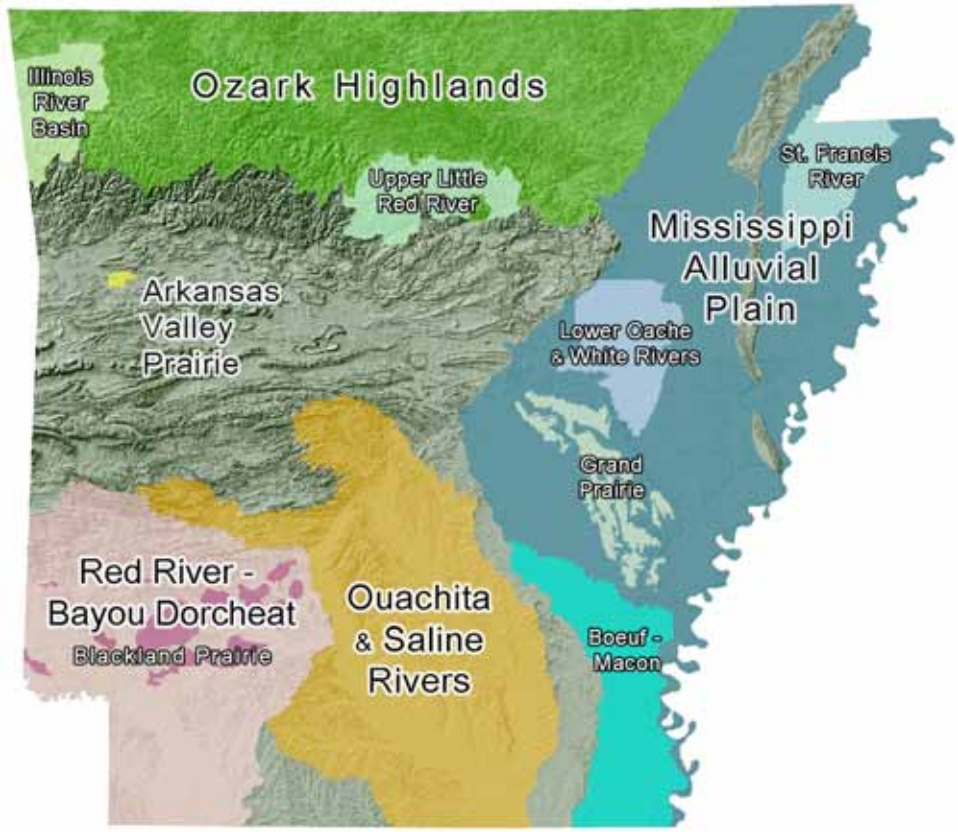
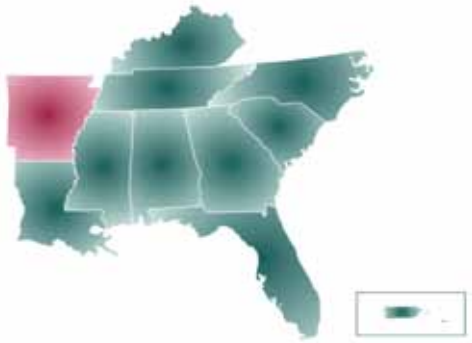
Appendix A: Arkansas



Arkansas Partners Program Focus Areas



Introduction and Overview

Arkansas is a diverse state of dramatic contrasts, ranging from mountains, upland forests, and karst to alluvial plains, bottomland hardwood forests, swamps, prairies, and extensive river systems. In addition, two of the principal North American Waterfowl Migratory Flyways traverse the state. The Mississippi Flyway covers the entire state, but funnels the majority of waterfowl along major rivers concentrating in the Mississippi River Alluvial Valley. The Mississippi Flyway overlaps with the Central Flyway at the state's westernmost edge.

Arkansas is broadly divided topographically into two major regions with the interior highlands occurring in the northwest and lowlands in the south and east. The state is further divided into six physiographic regions and over 32 ecoregions, (Arkansas Geological Survey 2011, Woods *et al.* 2004).

Regional physiography, geology, soil, climate, and land use strongly influence Arkansas' ecological diversity. In addition, natural forces such as fire and flooding dictate potential vegetative communities. Open pine and hardwood woodlands and tallgrass prairies are examples of fire dependent communities that are found in uplands, while bottomland hardwoods, cypress-tupelo swamps, and seasonal herbaceous wetlands are examples of either flooding river bottom or precipitation runoff driven wetlands.

There are 33 species in Arkansas that are listed as endangered (25) or threatened (8) under the Endangered Species Act (ESA). Of the 33 threatened and endangered (T&E) species listed, 28 are animals and five are plants. Recovery plans are in place for 23 of these listed species. Four additional species are proposed endangered: two freshwater mussels, one fish, and one amphibian; and six species are candidates for listing.

Arkansas Mississippi Alluvial Valley Conservation Delivery Network

In June 2010, the Lower Mississippi Valley Joint Venture (LMVJV) Management Board initiated the development of the first Conservation Delivery Network (CDN) in the Lower Mississippi Alluvial Valley (MAV). The CDN seeks to help conservation organizations coordinate their otherwise independent on-the-ground conservation delivery within the MAV by facilitating communication and collaboration between these organizations. Furthermore, the CDN will facilitate connection of biological objectives of the LMVJV and member organizations to translate landscape-scale objectives into site-scale priorities. The Arkansas Game and Fish Commission (AGFC), with full support of the other Management Board partners, have accepted the responsibility to lead the effort to establish this CDN. The Partners for Fish and Wildlife (PFW) Program is optimally situated to provide significant support to this effort, and the Arkansas Partners Coordinator will represent the Service in Arkansas on the CDN.

Monitoring

Habitat improvement projects implemented through the Partners Program in Arkansas will be monitored throughout the life of the landowner agreement according to Partners Program Project Monitoring Guidelines described in Appendix E of this strategic plan. Working with our partners, species-level monitoring may be conducted when feasible. Habitat-based monitoring that focuses on successful establishment of the target environmental features such as seedling survival, streambank stability and development of a functioning riparian zone, etc., will likely be the most feasible option to accomplish in the short term.

It should be noted that designing and implementing a monitoring program is a time consuming activity that will require cooperation and assistance of agency/organization partners to accomplish our intended monitoring goals. Arkansas Partners staff will work with our agency and nongovernmental organization partners to utilize their expertise to not only help accomplish our monitoring goals, but to increase the efficiency of our collective monitoring efforts.

Arkansas Partners Program Focus Areas

Arkansas contains approximately 34 million acres of which more than 14.6 million acres (43.9 percent) are farmland and over 15 million acres (44.1 percent) are forest (Encyclopedia of Arkansas 2011). The State originally had an estimated 9.8 million acres of wetlands, almost 30 percent of the state's surface area. By the 1980s, less than 2.8 million acres of wetlands remained, and the Delta suffered the greatest loss. Of the 8.0 million acres of forested wetlands in the Delta, only about 875,000 acres remain in fragmented forests. The wetlands of the bottomland forest ecosystem include some of the most productive fish and wildlife habitat in the country. Arkansas' wetlands, especially those located in the Delta, are sometimes referred to as part of the 'mallard flyway' (Smith, 1998).

Arkansas' Wildlife Action Plan (AGFC, 2005), along with other agency strategic plans and assessments and input from area experts, were used in defining the five focus areas established in Arkansas for implementation of the PFW Program. They include valuable river systems, bottomland hardwood forests, and at-risk ecosystems such as tallgrass prairie. Numerous plans have addressed all or parts of these focus areas, including the Ozarks Ecoregional Conservation Assessment prepared by The Nature Conservancy Ozarks Ecoregional Assessment Team (TNC, 2003), wetland prioritization plans created by the Arkansas Multi-Agency Wetland Planning Team (MAWPT), the AGFC's private lands program, and the Lower Mississippi River Ecosystem Team.

Red River-Bayou Dorcheat (RRBD) Focus Area

The RRBD Focus Area, located in southwest Arkansas, traverses the South Central Plains and Ouachita Mountains ecosystems. The focus area contains many unique and declining habitats including tallgrass prairies, sandhill woodlands, shortleaf pine-hardwood forests, and bottomland hardwood forests. The focus area encompasses all or parts of Polk, Montgomery, Sevier, Howard, Pike, Clark, Little River, Hempstead, Nevada, Calhoun, Miller, Lafayette, and Columbia Counties and includes the Blackland Prairie Sub-Focus Area.

The major rivers of the RRBD Focus Area are the Red, Little Missouri, Antoine, Cossatot, and Saline Rivers, Bodcau Creek, and Bayou Dorcheat. The Cossatot River is designated as a National Wild and Scenic River. In addition, portions of the Little Missouri and Cossatot Rivers are State designated Extraordinary Resource Waters, Natural and Scenic Waterways, and Ecologically Sensitive Waterbodies. Grassy Lake, renowned for its rich and diverse avian fauna is also designated as an Ecologically Sensitive Waterbody. The sandhills ecosystem includes xeric sandhill woodland-barrens and seeps that support many unique and rare species such as bluejack oak and Margaretta oak. The lower portions of slope are dominated by ferns, sedges and grasses specially adapted to conditions in these acidic seeps.

Federally listed freshwater mussels including pink mucket, Arkansas fatmucket, Ouachita rock pocketbook, Louisiana pearlshell, and scaleshell, and fish such as leopard darter are found in focus area rivers. The diverse mussel and fish species found in these river systems are especially sensitive to chemical contaminants and sedimentation. Many of the RRBD

Red River-Bayou Dorcheat (RRBD) Focus Area

Focus Area's rivers are also home to a variety of other aquatic species of concern (AGFC 2005). There is one Sub-Focus area in the RRBD Focus Area: the Blackland Prairie Sub-Focus Area.

Priority Habitats

Bottomland hardwood forest; Riparian, Sandhill Ecosystem

Five-Year Accomplishment Targets (FY 2012-2016)

- Wetland (Bottomland Hardwoods): 350 acres
- Riparian: 2.0 miles
- Upland (Sandhill): 20 acres

Focus Species (doesn't necessarily include sub-focus area species):*

- Bachman's sparrow (SGCN)
- Winged mapleleaf (E)
- Swainson's warbler
- Yellow-billed cuckoo (SGCN)
- Bayou Bodcau crayfish (SGCN)

Threats

- Urban development; poor logging practices; agricultural runoff and sedimentation; water diversions and withdrawal, fossil fuel development, mercury contamination, invasive species, fire exclusion

Action Strategies

- **Habitat Improvement:** Reforest agricultural land to increase forest block size and reduce forest fragmentation; create riparian buffers and fence cattle out of

The Interior Least Tern, federally listed as endangered, nests in the Red River in the Red River-Bayou Dorcheat Focus Area, credit: Luke Meduna, Arkansas Tech University.

streams to reduce sedimentation and chemical runoff into rivers and streams to improve mussel and fish habitat. Reduce forest stand density and conduct prescribed burning to restore and enhance native grassland and woodland habitats. Control invasive species through chemical or mechanical means.

- Emphasize partnering with landowners, the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the AGFC, the Arkansas Natural Heritage Commission (ANHC), The Nature Conservancy (TNC), Audubon Arkansas, and other entities to aid and support the various USDA Farm Bill programs (e.g., the Wetland Reserve Program, the Conservation Reserve Program, Grassland Reserve Program, the Wildlife Habitat Incentives Program, Healthy Forest Reserve Program), buffer initiatives, and other available programs.
- **Water Conservation Planning:** Work with landowners and other agencies to develop water conservation features, and alternative water sources for irrigation and livestock watering to reduce water withdrawal from aquifer and river systems. Coordinate with various agencies and landowners to design water features that also provide additional foraging/resting habitat for migratory waterfowl and shorebirds.

Coordinate with various agencies and landowners to design water features that also provide additional foraging/resting habitat for migratory waterfowl and shorebirds.

Red River-Bayou Dorcheat – Blackland Prairie (BP) Sub-Focus Area

The Blackland Prairie is a unique ecosystem, historically comprising a mosaic of woodland, savanna, and prairies with species that were found nowhere else in Arkansas (Woods et al. 2004). It is considered one of the most at-risk ecosystems in the southeast (Foti 1989). The BP Sub-Focus Area is widely dispersed within the RRBD Focus Area in parts of Clark, Hempstead, Howard, Pike, Little River, Nevada, and Sevier counties and is characterized by gently rolling topography. In Arkansas, the blackland prairies and associated woodlands do not occur contiguously, but are found in localized areas where the blackland soils have formed from calcareous substrates (Foti, 1989). The ecology and requirements of this fragmentary ecosystem set it apart as its own sub-focus area. These small, highly productive prairie habitats, with their associated woodlands and bottomlands, support more than 600 plant and 315 animal species. Many of the species associated with these prairie lands are classified as rare and are listed as state species of concern.

The associated BP woodlands occur on dry to mesic sites and have an open canopy with well-established herbaceous development. A fire-dependent ecosystem, the blackland prairies and forests become degraded when subjected to long-term fire suppression. Degraded prairie forests are characterized by closed canopies and a reduced herbaceous layer dominated by sedges. These sites have an increased abundance of woody species and aggressive, non-native plant species in direct competition with native prairie species (Hattenbach et al., 2006).

Red River-Bayou Dorcheat – Blackland Prairie (BP) Sub-Focus Area

Considerable work has been done to protect, preserve and restore blackland prairies in recent years. Several state agencies and NGOs have acquired land in the area and are using Partners Program technical and financial assistance to restore prairies on private lands. A primary goal in this sub focus area is to restore the blackland prairie ecosystem landscape using the AGFC's Rick Evans Grandview Prairie Wildlife Management Area as the core area from which to expand.

Priority Habitat

Tallgrass Prairie, savanna, upland pine and hardwood woodland

Five-Year Accomplishment Target (FY 2012-2016)

- Upland (Prairie): 500 acres
- Upland (Pine and Hardwood): 50 acres

*Focus Species**

- American burying beetle (E)
- Henslow's sparrow (SGCN)
- Bell's vireo (SGCN)
- Bachman's sparrow (SGCN)
- Painted bunting (SGCN)
- Northern bobwhite (SGCN)

Threats

- Prairie conversion to other land uses; long-term fire suppression; poor livestock and pasture management; competing invasive plants

Action Strategies

- **Manage Existing Prairies:** Coordinate with landowners, TNC, AGFC, ANHC, and other partners to support efforts to maintain existing prairies through fire management and control of undesirable vegetation. Support and partner with TNC and their fire management efforts to maintain existing prairies.
- **Reestablish Native Prairies:** Partner with willing landowners and other agencies to reestablish native prairies and the reintroduction of native prairie grasses and forbs.
- **Control Invasive Species:** Provide cost-sharing to support the creation and implementation of fire management plans, including prescribed burning, and removal of invasives by mechanical and/or chemical treatment
- **Restore and Manage Savanna and Upland Woodlands:** Partner with private landowners, NRCS, TNC and other agencies to implement thinning to restore savanna and woodlands and implement prescribed burning to promote development of native grasses and forbs in the understory.

Clearing of invading eastern red cedar, top, to allow native prairie plants to revegetate naturally, below, credit (both photos): Mark Clark, The Nature Conservancy of Arkansas.

Ozark Highlands (OH) Focus Area

The landscape of the Ozark Highlands Focus Area includes clear, cold perennial, spring-fed streams, and many small dry valleys. The area historically consisted of an interspersion of open mostly oak-hickory forest, shortleaf pine, grass dominated glades and native prairie (Woods *et al.* 2004). Current land use includes poultry and swine production as well as pasture and livestock, and upland forest, much of which is managed for timber production. In recent years, natural gas development has become a major activity in much of the focus area.

The primary feature of the OH Focus Area, which covers all or portions of 18 northern counties, is the karst ecosystem. Another feature of the Ozark highlands are the many glades ranging in size from only a few to thousands of acres occurring on the mid to upper slopes and tops of the hills. Most glades are currently degraded by invasive species, primarily eastern red cedar. In fact, most people refer to them as "cedar glades," thinking this is their natural condition.

There are two sub-focus areas within the OH Focus Area, the Illinois River and Upper Little Red River Sub-Focus Areas.

The Ozark Highlands Karst Ecosystem is home to a variety of rare and endemic species. Bats, fish, salamanders, crayfish, insects and spiders coexist in a delicate balance in some of the caves, but degraded water quality and disturbance is a threat to their continued survival.

All Arkansas bats hibernate in caves during the winter when their main food source (insects) is absent. Bats roused from hibernation may lose one to three months' worth of body fat, leading to starvation. In summer, bats use caves as maternity colonies. Human disturbance of these colonies leads to their decline. Usually producing only

Ozark Highlands (OH) Focus Area

one young per year, bats are one of the slowest reproducing mammals of their size in the world. This is one of the reasons that bats are extremely vulnerable to extinction. Human disturbance sometimes causes female bats to abandon or drop their young (TNC, 2006).

Many human-induced activities degrade or destroy karst habitat by altering the quality of air and water entering cave systems. Karst systems are easily contaminated by urban development and agricultural runoff, which introduces fecal coliform bacteria, nutrients, and chemical contaminants into karst networks. This is especially problematic because Arkansas' karst geology provides a direct connection to the Ozarks aquifer system (U.S. Geological Survey 2012).

Priority Habitat
Karst; Riparian and Instream, Glades

Five-Year Accomplishment Target (FY 2012-2016)

- Caves Protected: 2
- Riparian/Instream: 1.0 Mile
- Upland (Glades): 10 acres

*Focus Species**
(doesn't necessarily include sub focus area species)

- Ozark big-eared bat (E)
- Gray bat (E)
- Ozark Hellbender (E)
- Least darter (SGCN)
- Henslow's sparrow,
- Northern bobwhite (SGCN)

Threats

- Groundwater contamination; reduction in surface water quality; habitat degradation; human disturbance
- The threats to water quality include excessive phosphorous runoff, unrestricted livestock access to streams, and a reduction in the number and size of woodlands throughout the recharge area due to urban development and land use conversion.
- Poor agricultural and silvicultural activities, urbanization, in-stream gravel mining, natural gas development white nose syndrome, invasive species; and wind energy development are also threats.
- Human disturbance threats to cave species include irresponsible caving and vandalism.

Action Strategies

- Cave Gating and Fencing: Gate or fence selected caves to prevent human disturbance of bats and other indigenous cave species.
- Protection of Cave Recharge Areas: Protect and improve water quality entering cave recharge areas. Partner with landowners and USDA conservation programs to fence livestock out of streams, provide alternative water sources, and increase buffer zones in cave recharge areas.
- Creation of Buffers: Improve and increase the size of riparian buffers along rivers and streams in cave recharge areas.
- Habitat Restoration: Control invasive eastern red cedar in glades to benefit rare plants, grassland birds, and Indiana bats. Restore ephemeral wetlands.
- Protect Streams and Water Quality: Apply Best Management Practices (BMPs) for gas and pipeline development.

A cave in the Ozark Highlands Focus Area, USFWS

Ozark cavefish, Brian Wagner, AGFC

Gray bats , federally listed as endangered, in a cave in the Ozark Highlands Focus Area, USFWS

Ozark Highlands – Upper Little Red River (ULRR) Sub-Focus Area

The Upper Little Red River Sub-Focus Area lies in the Boston Mountains of north-central Arkansas. It includes four forks that make up the headwaters of the Little Red River (LRR) and drains a watershed of 537,000 acres, 98 percent of which are in private ownership. These headwater streams provide habitat for two rare endemic species: the speckled pocketbook (E), and the yellowcheek darter (Proposed Endangered). These four forks of the LRR are now functionally isolated since construction of Greer's Ferry

Ozark Highlands – Upper Little Red River (ULRR) Sub-Focus Area

Lake on the main stem of the LRR in 1963. Critical habitat is being proposed in the forks of the LRR for yellowcheek darter at the time of this publication.

In 2005, The Service with key partners (NRCS, AGFC, and TNC) developed a landscape-level aquatic Joint Programmatic Safe Harbor Agreement and Candidate Conservation Agreement with Assurances in an attempt to engage landowners into proactively applying good land management and conservation practices on their land. The PFW Program provides support for this conservation effort.

Priority Habitat
Instream and riparian

Five-Year Accomplishment Target (FY 2012-2016)

- Instream and Riparian: 2.5 miles

*Focus Species**

- Speckled pocketbook (E)
- Yellowcheek darter (PE)
- Rabbitsfoot (C)

Threats

- Water quality degradation due to sediment and pollutant runoff from poorly designed roads, poor timber harvesting activities, unrestricted livestock access, and streambank instability; human alteration of stream channels; instream gravel mining; hillside rock mining; invasive species; and, natural gas development

Action Strategies

- **Riparian Restoration and Protection:** Restore/create riparian buffers along streams and creeks, improve and increase the size of riparian buffers and forests along rivers and streams. Fence cattle out of streams. Manage access to streams and develop off stream watering facilities for cattle.
- **Stream Restoration and Protection:** Restore and enhance instream habitat; stabilize eroding streambanks.
- **Improve Land Management to Reduce Sediment and Runoff:** Work with landowners to improve grazing and upland land use practices, such as implementing rotational grazing systems, and best management practices (BMPs) to reduce sediment and pollutant runoff. Work with landowners to educate them on proper gravel road construction and on BMPs for natural gas development on their lands. Work with landowners, county and city governments to promote use of sediment reduction BMPs when rehabilitating existing gravel roads and constructing new roads.

Ozark Highlands – Illinois River Basin Sub-Focus Area

The Illinois River Sub-Focus Area, located in Washington and Benton counties of northwest Arkansas, is within one of the fastest growing regions of the state. The Illinois River, portions of Osage Creek, and other lesser creeks are state designated ecologically sensitive waterbodies. Many areas are losing streams that are major recharge sources for caves such as Logan Cave National Wildlife Refuge, which provide habitat for numerous federally listed and species of concern. Poultry production and livestock grazing are major land uses in the sub focus area.

Priority Habitats
Instream and riparian habitats

Ozark Highlands – Illinois River Basin Sub-Focus Area

Five-Year Accomplishment Target (FY 2012-2016)
Instream and Riparian: 1.0 mile

*Focus Species**

- Ozark big-eared bat (E)
- Gray bat (E)
- Arkansas darter (C)
- Sedge wren (SGCN)

Threats

- Urban development; water quality degradation, especially phosphorus in streams, partially related to land application of poultry litter; habitat degradation; human disturbance; invasive species; and wind energy development
- The threats to water quality and quantity include unrestricted livestock access to streams, and a reduction in the number and size of woodlands throughout the recharge area.
- Human disturbance threats also include poor logging practices and instream gravel mining.

Action Strategies

- **Protection of Cave Recharge Areas:** Protect and improve water quality entering cave recharge areas by partnering with landowners, NRCS, TNC, and others to implement conservation programs to fence livestock out of streams, provide alternative water sources, restore and enhance riparian buffers in cave recharge areas, and stabilize eroding streambanks.

Arkansas Valley Prairie (AVP) Focus Area

The Arkansas Valley Ecoregion contains the largest and most pristine tracts of unplowed tallgrass prairie in the state. The AVP Focus Area, located in Franklin County, contains two ANHC prairie natural areas, and one TNC preserve. These adjoin several privately owned remnant prairie tracts managed primarily for hay and are approximately five miles from Fort Chaffee Maneuver Training Center, which contains the largest contiguous tract of tallgrass prairie in the Arkansas Valley.

The AVP Focus Area prairies are home to several Arkansas Wildlife Action Plan designated species of greatest conservation need including ornate box turtle, Aragos skipper, short-eared owl, sedge wren, and Sprague's pipit, which is also a federal candidate species. The focus area is also within the range of the endangered American burying beetle.

Priority Habitat
Tallgrass Prairie

Five-Year Accomplishment Target (FY 2012-2016)
Upland (Prairie Restoration and Enhancement): 20 acres

*Focus Species**

- American burying beetle (E)
- Sprague's pipit (C)
- Short-eared owl (SGCN)
- Northern bobwhite (SGCN)
- Henslow's sparrow (SGCN)
- Painted bunting (SGCN)

Threats

- Prairie conversion to other land uses; long-term fire suppression; competing invasive plants

Action Strategies

- **Habitat Improvement:** Coordinate and partner with landowners, TNC, AHNC, AGFC, and others to support efforts to maintain existing prairies through fire management and control of undesirable vegetation. Support TNC of Arkansas and their fire

Arkansas Valley Prairie (AVP) Focus Area

management efforts to maintain existing prairies.

- **Reestablish Native Prairies:** Partner with willing landowners and other agencies to reestablish native prairies and reintroduce native prairie grasses and forbs. Partner with the Department of Defense to use the military installation buffer program to enhance prairie buffer around Ft. Chaffee.
- **Control Invasive Species:** Provide cost-sharing to support invasive species control through prescribed burning and mechanical or chemical treatment.

The Ouachita-Saline Rivers (OSR) Focus Area

The Ouachita-Saline Rivers (OSR) Focus Area is in both the Ouachita Mountains and South Central Plains Ecoregions. Habitats range from bottomland forests along the major rivers that flow through the OSR focus area to pine flatwoods in the coastal plain and pine and pine-hardwood forests in the Ouachita Mountains. The bottomland forests of the South Central Plains are considered old extensions of the bottomland hardwood forests of the adjoining Mississippi Alluvial Plain and are vital to maintaining the health of these aquatic ecosystems.

The OSR Focus Area has many ecologically significant and extraordinary water resources: The Saline River and portions of the Caddo River and Moro Creek are state designated Extraordinary Resource Waters; the Saline, and portions of the Caddo and Ouachita Rivers are Ecologically Sensitive Waterbodies. And, the Saline River is also designated as a state Natural and Scenic Waterway. The ecologically sensitive rivers are home to several federally listed endangered mussel species and many species of concern.

Priority Habitat
Riverine; bottomland hardwoods; shortleaf pine; pine flatwoods, saline glades; upland woodlands

Five-Year Accomplishment Target (FY 2012-2016)

- Bottomland Hardwoods: 250 acres
- Riparian: 3.75 miles
- All Pine, Glades, and Upland: 50 acres

*Focus Species**

- Red-cockaded woodpecker (E)
- Henslow's sparrow (SGCN)
- Eastern towhee (SGCN)
- Arkansas fatmucket (T)
- Caddo madtom (SOC)
- Geocarpon minimum (T)

Threats

- Forest fragmentation, mainly from conversion to agricultural development; agricultural runoff and sedimentation; urbanization; stream alteration; in-stream gravel mining; bottomland hardwood forest conversion to other land uses; mineral extraction (lignite mining); mercury contamination; poor forest management (esp. understory) practices; fire suppression; invasive species
- Sedimentation from poor timber harvesting practices, gravel roads, urbanization, and off-road recreational vehicle use are also threats

Action Strategies

- **Habitat Management:** Reforest agricultural land, create riparian buffers, and fence cattle out of streams to reduce sedimentation and chemical runoff into area rivers and streams to improve mussel and fisheries habitat. Remove/control midstory, incorporate prescribed burning and thinning to manipulate species composition to favor shortleaf pine, as appropriate, and to create open woodlands.

Ouachita/Saline Rivers (OSR) Focus Area

Two mussels federally listed as endangered found in the Ouachita/ Saline Rivers Focus Area, the winged mapleleaf, left, and the Ouachita rock-pocketbook, right, USFWS.

Emphasize partnering with landowners, NRCS, FSA, AGFC, ANHC, TNC, and other agencies to aid and support the various USDA Farm Bill programs (e.g., the Wetland Reserve Program, the Conservation Reserve Program, Grassland Reserve Program, the Wildlife Habitat Incentives Program, and the Healthy Forest Reserve Program), buffer initiatives, and other available programs.

- **Invasive Species Control:** Remove invasives such as salt bush, tallow tree, and water hyacinth.

Mississippi Alluvial Plain (MAP) Focus Area

The MAP Focus Area occupies the entire portion of the Mississippi Alluvial Valley in Arkansas. It has been highly altered and has suffered the most extensive loss of wetlands in the state with more than 80 percent of this habitat having been converted to agriculture and other uses. This conversion was facilitated by the extensive levee systems constructed along the Mississippi, Arkansas, White and other major rivers in this ecosystem along with extensive ditching, dredging and channelization of other streams. Most of the remaining bottomland hardwood forests in the MAP are in public ownership, though a considerable amount of private land is being reforested through the PFW Program and especially the USDA's Wetland Reserve Program.

Bottomland hardwood forests constitute some of the most important habitat within the MAP Focus Area, and hydrology is the primary driving factor that determines what bottomland hardwood community occupies a particular area. The lowest areas within the floodplain experience more frequent and longer duration flooding, and support woodlands typically composed of a mixture of water hickory, overcup oak, water locust, sugarberry, green ash, baldcypress, and water tupelo. Bottomland hardwood forests at higher elevations that flood less frequently and for shorter durations are variously comprised of willow, water, Nuttall, cherrybark, and swamp chestnut oaks, green ash, red maple, and sweetgum.

The periodic inundation of floodplain habitat that creates and sustains a bottomland hardwood ecosystem makes this habitat one of the most productive for fish and wildlife in the United States. The lower White River basin (LWRB) includes the largest contiguous bottomland hardwood forest left on any tributary of the Mississippi River. It provides habitat for over 265 species of migratory and

Mississippi Alluvial Plain (MAP) Focus Area

resident breeding birds, 58 species of mammals, 58 species of reptiles, 24 species of amphibians, 132 species of fish, and 37 species of mussels. The LWRB is especially renowned for its use by migrating and wintering waterfowl, with duck numbers ranging from 46 to 55 percent of the statewide duck population. The LWRB also includes some of the most productive deer habitat in the state, with densities estimated at 1 deer per 15 acres or better. The southern portion of the LWRB, primarily in and around the White River National Wildlife Refuge, has a black bear population estimated at 500 individuals.

The recognized importance of this ecosystem has led to the wetlands within the Cache-Lower White River system being designated as one of only seventeen "Wetlands of International Importance" by the United Nations Ramsar Convention on Wetlands in 1989. The plant and animal communities of the Big Woods of the MAP focus area are among the most biologically diverse and productive in the world (TNC 2006). Thought to be extirpated for more than 60 years, the Ivory-billed Woodpecker was rediscovered in the lower Cache River basin in 2004. Because the MAP focus area is so large, four sub-focus areas; Grand Prairie, Boeuf-Macon, Lower Cache and White Rivers, and St. Francis, were identified to further focus habitat restoration efforts.

Priority Habitats

Bottomland hardwood forest; Tallgrass prairie; Seasonally flooded herbaceous wetlands; Semi-permanent emergent marsh

Five-Year Accomplishment Target (FY 2012-2016)

- Wetland (Bottomland Hardwood): 1,500 acres
- Riparian: 12.5 miles

*Focus Species**

- Prothonotary warbler (SGCN)
- Pondberry (E)
- King rail (SGCN)
- Swainson's warbler (SGCN)

Threats

- Forest fragmentation, mainly from conversion to agricultural development; agricultural runoff and siltation; ditching; stream alteration; river levees; hardwood forest conversion to other land uses; invasive species

Action Strategies

- **Habitat Restoration:** Reforest bottomland hardwood forest on agricultural land, create riparian buffers, and fence cattle out of streams to reduce sedimentation and chemical runoff into the focus area rivers and streams to improve mussel and fish habitat. Emphasize partnering with landowners, NRCS, FSA, AGFC, ANHC, TNC, Audubon Arkansas and other agencies to aid and support the various USDA Farm Bill programs (e.g., the Wetland Reserve Program, the Conservation Reserve Program, healthy forest Reserve Program and the Wildlife

Bottomland hardwood reforestation in the Mississippi Alluvial Plain Focus Area, USFWS.

The Prothonotary Warbler, a forest-breeding neotropical migrant of concern occurring in the Mississippi Alluvial Plain Focus Area, credit: Allan Mueller, The Nature Conservancy of Arkansas.

Habitat Incentives Program), buffer initiatives, and other available programs.

- **Water Conservation Planning:** Partner with landowners and other agencies to develop water retention ponds/reservoirs and tailwater recovery systems to reduce water withdrawal from aquifer and river systems. Coordinate with various agencies and landowners to design water retention areas. If properly designed and executed, reservoirs/ ponds and tailwater recovery systems will increase the basin's wetland and surface water areas and provide additional foraging/ resting habitat for migratory birds traveling the flyway.

MAP – Grand Prairie (GP) Sub-Focus Area

The Grand Prairie terrace covers approximately 900,000 acres in all or portions of Arkansas, Prairie, Lonoke, and White counties within the central portion of the Mississippi River Delta in Arkansas. The GP ecosystem includes several other habitat types including bottomland and terrace hardwood forests, upland hardwood forests, savanna, and seasonal herbaceous wetlands. The most notable habitat of this region was the approximate 320,000 acres of tallgrass prairie present at the time

MAP – Grand Prairie (GP) Sub-Focus Area

of European settlement in the early 1800's; however, over 99 percent of the tallgrass prairie has been lost, mostly through conversion to agriculture. The GP terrace drops off to the White River floodplain to the east and Arkansas River to the south. Major streams in the sub focus area include Bayou Des Arc, La Grue Bayou, Wattensaw Bayou and Bayou Meto.

The GP is renowned for wintering waterfowl, primarily mallards, and historically supported large numbers of Greater Prairie Chickens, as well as grassland and marshland shorebirds. Currently, Smith's longspurs, Le Conte's sparrows, short-eared owls and Sprague's pipits can still be seen at select locations of remaining prairie.

Priority Habitat

Tallgrass prairie; Semi-permanent Emergent Marsh; Seasonally Flooded Herbaceous wetlands

Five-Year Accomplishment Target (FY 2012-2016)

Upland (Tallgrass Prairie): 20 acres

*Focus Species**

- Le Conte's sparrow (SGCN)
- Sprague's pipit (SGCN)
- Northern bobwhite (SOC)
- Painted bunting (SGCN)

Threats

- Prairie conversion to other land uses; fire suppression; competing invasive plants

Action Strategies

- **Habitat Restoration:** Restore tallgrass prairie on marginal agricultural lands; Restore seasonally flooded herbaceous wetlands. Partner with landowners, NRCS, AGFC, ANHC, Audubon Arkansas and other agencies to restore prairie and herbaceous wetlands on marginal farmland.
- **Habitat Improvement:** Work with landowners to improve management of riparian buffers, irrigation and drainage ditches and reservoirs to benefit secretive marsh birds.

MAP – Boeuf-Macon Sub-Focus Area

The Boeuf-Macon Sub-Focus Area is located in the southernmost portion of the MAP Focus Area in Chicot, Ashley, and Drew Counties. Bayou Bartholomew, a highly diverse stream and former channel of the Arkansas River constitutes the western boundary of the Sub-Focus Area. The Boeuf River and Bayou Macon are the two primary waterways in the Sub-Focus Area.

The Boeuf-Macon Sub Focus Area has largely been converted to agriculture, though bottomland hardwood forests remain in the area, mostly along waterways. The area also has numerous aquaculture operations that specialize in catfish production, many of which have been abandoned. This area is suffering problems with high saline concentrations in groundwater causing problems for agricultural irrigation. The Boeuf-Macon Sub-Focus Area has the highest concentrations of marshbirds such as king rail, and least bittern, in the state.

Priority Habitat

Wetland: Semipermanent emergent marsh; Seasonally flooded herbaceous wetlands; Bottomland hardwood forest; Riparian buffers; Canebrakes

MAP – Boeuf-Macon Sub-Focus Area

Five-Year Accomplishment Target (FY 2012-2016)
Wetland (Semi-permanent Emergent Marsh): 20 acres

*Focus Species**
- King rail (SGCN)
- Least bittern (SGCN)

Threats
- Saltwater intrusion into aquifer, excessive surface water withdrawals, invasive species, poor residue management and farming practices that introduce sediment runoff into streams.

Action Strategies
- **Habitat Restoration/Improvement:** Restore semipermanent marsh; seasonally flooded herbaceous wetlands; restore bottomland hardwood forest, manage drainage and irrigation ditches to provide habitat for secretive marshbirds; restore riparian buffers control invasive species.
- **Water Conservation Planning:** Partner with landowners and other agencies to develop water conservation features, and alternative water sources for irrigation to reduce water withdrawal from aquifer and river systems. Coordinate with various agencies and landowners to design water features that also provide additional foraging/resting habitat for migratory waterfowl and shorebirds.

MAP – Lower Cache and White Rivers (LCWR) Sub-Focus Area

The Lower Cache/White Rivers Sub-Focus Area includes the lower Cache River basin to the confluence of the Cache and White Rivers in Monroe County, and extends northward into Woodruff County and westward to the town of Bald Knob in White County. The White and Cache Rivers are the major rivers in the Sub-Focus Area. Smaller, but still important streams include Bayou De View, Glaise Creek, the Little Red River, and Des Arc Bayou.

The LCWR Sub-focus Area is an important wintering area for migratory waterfowl, especially Northern Pintails and Mallards. It is not uncommon for Bald Knob and Cache River National Wildlife Refuges to have in excess of 300,000 ducks in their respective winter waterfowl counts. Like much of the remainder of the MAP, however, much of the bottomland hardwood forested wetlands of the sub focus area have been converted to agricultural production, and the area has been hydrologically altered by levee construction, ditching, draining, land leveling, and excess irrigation withdrawals.

Priority Habitat
Wetland: Bottomland hardwood forest; Semipermanent emergent Marsh; Seasonally flooded herbaceous wetlands; Canebrakes

Five-Year Accomplishment Target (FY 2012-2016)
Five-year targets are included in MAP Focus Area target.

*Focus Species**
- Prothonotary warbler (SGCN)
- Painted bunting (SGCN)
- Northern bobwhite (SGCN)
- Wood thrush (SGCN)

MAP – Lower Cache and White Rivers (LCWR) Sub-Focus Area

Threats
- Forest fragmentation, mainly from conversion to agricultural development; agricultural runoff and sedimentation; ditching; stream alteration; river levees; excessive ground and surface water withdrawal for irrigation; and, invasive species

Action Strategies
- **Habitat Restoration:** Reforest agricultural land to increase forest patch size and reduce forest fragmentation; create riparian buffers to reduce siltation, and chemical runoff into rivers and streams to improve mussel and fish habitat. Emphasize partnering with landowners, NRCS, FSA, AGFC, ANHC, TNC, Audubon Arkansas and other agencies to aid and support the various USDA Farm Bill programs (e.g., the Wetland Reserve Program, the Conservation Reserve Program, Healthy Forest Reserve Program, and the Wildlife Habitat Incentives Program), buffer initiatives, and other available programs.
- **Water Conservation Planning:** Partner with landowners and other agencies to develop water conservation features, and alternative water sources for irrigation and livestock watering to reduce water withdrawal from aquifer and river systems. Coordinate with various agencies and landowners to design water features that also provide additional foraging/resting habitat for migratory waterfowl and shorebirds.

MAP – St. Francis River Sub-Focus Area

The St. Francis River Sub-Focus Area is located in Craighead, Poinsett, Mississippi, and Green counties in the northeast portion of the MAP Focus Area. The St. Francis River and Left Hand Chute of the Little River are the major streams in the sub focus area.

The St. Francis Sub-Focus Area is among the most intensively farmed and hydrologically altered portions of the MAP. The St. Francis River has been confined within a narrow leveed corridor; however, the portion within the Sub-Focus Area is mostly forested and in public ownership. This leveed corridor and Big Lake National Wildlife Refuge comprise two very important islands of habitat that support significant numbers of wintering waterfowl. In addition, these areas comprise the core habitat for the Lower Mississippi Joint Venture designated priority area for interior forest breeding bird habitat restoration.

Priority Habitat
Wetland: Bottomland hardwood forest; Instream habitat; Riparian buffers; Herbaceous wetlands

Five-Year Accomplishment Target (FY 2012-2016)
Five-year targets are included in MAP Focus Area target.

*Focus Species**
- Pink mucket (E)
- Fat pocketbook (E)
- Pondberry (E)
- Swainson's warbler (SGCN)
- Wood thrush (SGCN)
- King rail (SGCN)
- Northern bobwhite (SGCN)
- Illinois chorus frog (SGCN)

Threats
- Forest fragmentation, mainly from conversion to agricultural development; agricultural runoff and siltation; ditching; stream alteration; river levees; excessive ground and surface water withdrawal for irrigation; and, invasive species

MAP – St. Francis River Sub-Focus Area

Action Strategies
- **Habitat Restoration:** Reforest agricultural land to increase forest patch size and reduce forest fragmentation, create riparian buffers, and to reduce forest fragmentation, siltation, and chemical runoff into the focus area rivers and streams to improve mussel and fish habitat. Emphasize partnering with landowners, the NRCS, the FSA, the Arkansas Game and Fish Commission, the Arkansas Natural Heritage Commission, TNC, and other agencies to aid and support the various USDA Farm Bill programs (e.g., the Wetland Reserve Program, the Conservation Reserve Program, healthy Forest Reserve Program, the Wildlife Habitat Incentives Program), buffer initiatives, and other available programs.
- **Water Conservation Planning:** Partner with landowners and other agencies to develop water conservation features, and alternative water sources for irrigation and livestock watering to reduce water withdrawal from aquifer and river systems. Coordinate with various agencies and landowners to design water features that also provide additional foraging/resting habitat for migratory waterfowl and shorebirds.

* E – federally listed as endangered; T – federally listed as threatened; C – candidate species for federal listing; SCGN – Species of Greatest Conservation Need identified in the Arkansas Wildlife Action Plan (2005); SOC – species of concern designated by the state

Key Partners in Arkansas

The following is a list of stakeholders involved in the PFW Program in Arkansas. The stakeholders are involved in carrying out program activities in varying degrees; however, to some extent all participate in supporting the program by providing technical assistance, locating potential projects, and promoting the program.

The PFW program staff over the next five years will reach out to other in-state organizations, such as the Arkansas Association of Conservation Districts, corporate landowners, and others to develop new partnerships.

- Private Landowners (over 200)
- USDA Natural Resources Conservation Service
- USDA Farm Service Agency
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- Arkansas Forestry Commission**
- Arkansas Game and Fish Commission**
- Arkansas Natural Heritage Commission**
- Arkansas Department of Environmental Quality
- University of Arkansas - Pine Bluff
- The Nature Conservancy of Arkansas**
- Ducks Unlimited, Inc.
- Audubon Arkansas**
- Fish America Foundation
- Bayou Bartholomew Alliance
- Mississippi River Trust
- Lower Mississippi River Conservation Committee
- ARKLATX Operating Co., Inc.
- Des Arc Elementary School

**Stakeholders that provided input on development of the strategic plan.

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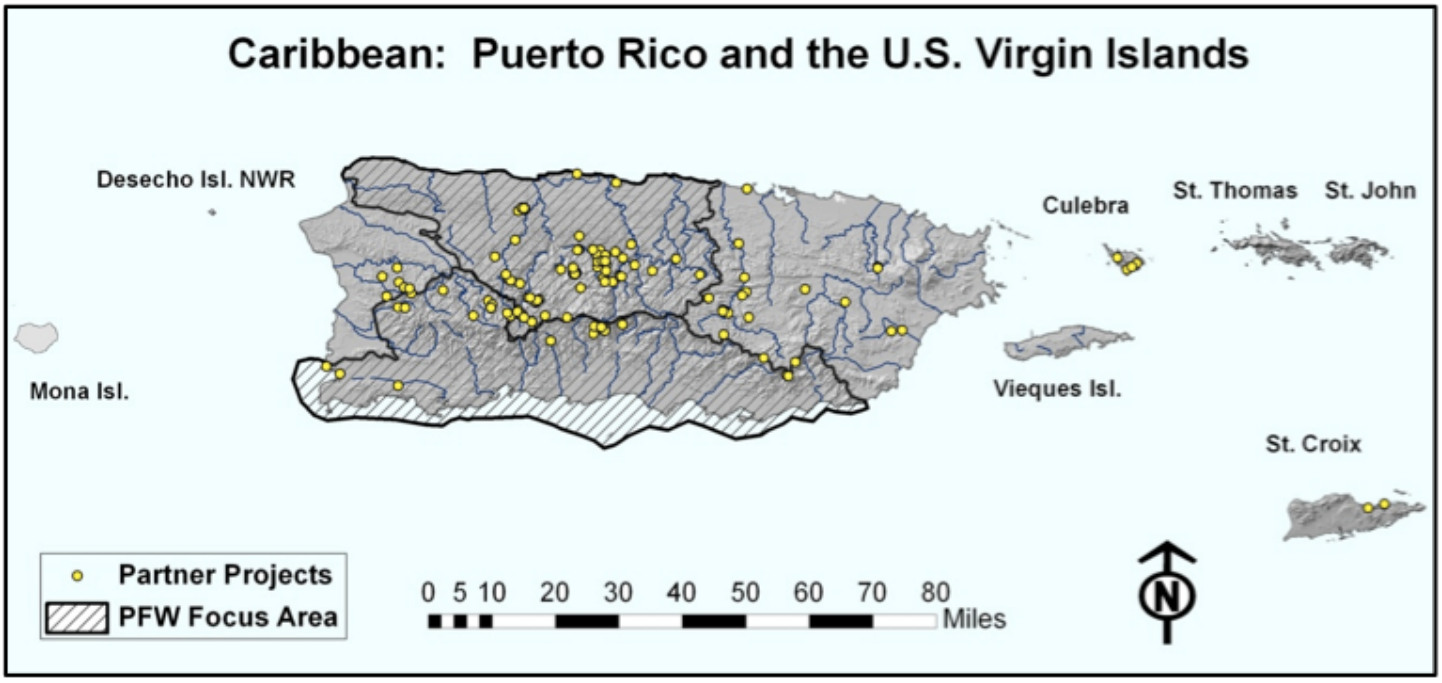
Appendix A: Caribbean



Caribbean Partners Program Focus Areas

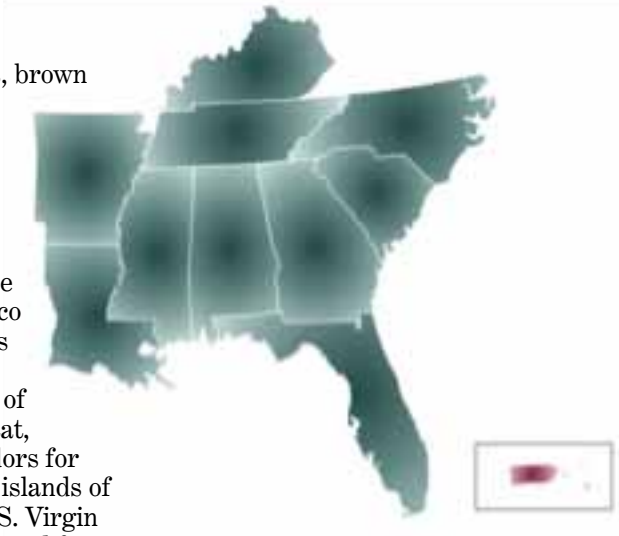
Introduction and Overview

Caribbean ecosystems are diverse and rich in biodiversity with a variety of geology, soil types, and rainfall regimes forming the framework for diverse habitats. The U.S. Caribbean Islands (Puerto Rico and the U.S. Virgin Islands) form a subtropical-tropical ecosystem lying on the edge of the Caribbean tectonic plate. The islands form part of the Antilles Archipelago with the Atlantic Ocean to the north and the Caribbean Sea to the south. The Puerto Rico trench, the deepest point in the Atlantic Ocean, lies a few miles North of Puerto Rico. The islands are volcanic in origin with alluvial coastal plains mixed with limestone formations. Based on historical records and native plant communities, the islands were predominantly forest habitat over volcanic, serpentine and limestone geology. Grassland, now common on the islands, was rare.

In addition to the federally listed trust resource species that include some migratory and more endemic species, Puerto Rico and the Virgin Islands lie on the Atlantic Flyway, and are important stopover sites for migratory birds that include a variety of songbirds, seabirds, shore birds and wading birds. These include migratory terns, waterfowl, tropic birds, brown boobies, peregrine falcons, and warblers, among others.

By the 1920's more than 90 percent of the island was deforested. Following this extensive deforestation, shade coffee plantations (Puerto Rico and Hawaii are the only areas in the U.S. where coffee is cultivated) represented most of the remaining available habitat, serving as refuges and corridors for many species of wildlife. The islands of Vieques, Culebra, and the U.S. Virgin Islands were similarly deforested for agriculture, and are now dominated by invasive exotic grasses and trees.

The coffee region of Puerto Rico covers an area of approximately 900,000 acres. Modern agricultural practices have converted many of the shade coffee plantations to sun coffee plantations. This conversion practice destroys habitat for many wildlife species and epiphytic plants, and causes greater soil erosion and pollution (e.g., heavy use of chemical fertilizers and pesticides), resulting in downstream impacts to river systems and sensitive marine coastal ecosystems (coral reefs and seagrass beds). The karst and



volcanic mountains constitute the most important area for coffee production on the island. Traditionally, coffee was cultivated under a partial shade canopy of natural forest or planted shade trees. For more than a decade the U.S. Fish and Wildlife Service's (Service) Partners for Fish and Wildlife (PFW) Program has been working with private landowners, government, and nongovernment organizations to promote the "shade" coffee agricultural approach and to restore canopy with native forest species in these mountains. Increasing the percentage of coffee plantations that preserve shade canopy is an important goal of the PFW program in Puerto Rico.

Partnership with private landowners is a critical part of habitat protection in the Caribbean. With 92 percent of Puerto Rican lands and 89 percent of the US Virgin Islands under private ownership, the future of endangered species relies heavily on the availability of habitat within private property.

The Caribbean Area is one of the world's centers of biodiversity and endemism (Helmer 2002). The karst and volcanic montane forest region of Puerto Rico exhibits approximately 54 percent of the known species exclusively native to the region.

Seventy three animal and plant species under Service jurisdiction are listed as federally endangered or threatened (3 amphibians, 11 reptiles, nine birds, one mammal and 49 plants) within the Caribbean Area. In addition, six species are candidates for listing without federal protection. The Commonwealth's Department of Natural and Environmental Resources (DNER) lists 133 species of concern (three amphibians, 13 reptiles, 17 birds, seven mammals and 48 plants). The DNER also has listed all species of seahorse and one mullet (DNER 2006). The National Marine Fisheries Service has jurisdiction over two species of coral and five marine mammals as well as sharing responsibilities with the Service for sea turtles that are federally listed in the Caribbean Area. Priority species for the Puerto Rico Focus Area are listed in Table 1.

Monitoring

The Service, working with our partners, will continue to monitor participating lands, starting with certification of the implementation of practices, and following through the 10-year landowner commitments. The PFW Program monitoring protocol is presented in Appendix E. Project areas will be mapped with GPS, and documented by taking photos of points on the farms that can be repeated. Geo-referenced aerial photos from various years will also be used to track the progress of the projects. Additionally, we have initiated a study with DNER and an non-government organization to monitor the change in wildlife use on a selected number of farms as the trees grow and develop a canopy.

For the coffee farm initiative, success will be measured primarily based on the amount of area enrolled in the program, and growth of trees planted for the reforestation efforts. This will include an evaluation of forest health that evaluates measures such as canopy development and tree height on a sample of the farms. The shade coffee practice seeks the eventual development of about 30 percent shade within the plantations. A significant increase in the number of bird, reptile, and amphibian species using the areas will also be considered as a measure of success. The relatively short time frame (10 years) of obligation by the landowners will require that measures be based on early secondary forest development.

For the potential benefits to coral reefs from addressing upland erosion and sedimentation, the National Oceanic and Atmospheric Administration (NOAA) is developing a monitoring plan to quantify the sediment and pollutant runoff from several of the farms to compare with natural forest areas in the Guánica Watershed.

Caribbean PFW Program Focus Areas and Priority Habitats

The revised PFW Strategic Plan for the next five years (2012-2016) will expand the previous geographic focus area in Puerto Rico to include the Southern Strategic Habitat Conservation Area (SHCA) developed by the Ecological Services Field Office in the Caribbean. These two PFW focus areas have considerable overlap in priority species (Table 1) and habitats (see below). For the next five years, the PFW Program will retain its main focus in the moist and wet subtropical montane forests and associated riparian areas. While efforts will be focused in these two priority habitat areas, the PFW Program will continue to engage partners in other locations, such as Vieques Island and the US Virgin Islands for habitat improvement projects that address habitat for trust resource species.

Information from the Puerto Rico (Garcia et al., 2005) and U.S. Virgin Islands (DFW, 2005) Comprehensive Wildlife Conservation Strategies, and related documents such as the Critical Wildlife Areas of Puerto Rico (Ventosa et al., 2005), Areas of Particular Concern for the U.S. Virgin Islands (DPNR, 2006), Puerto Rico GAP analysis (Helmer, et al., 2002; Gould, et al,, 2008), and available information on trust resource species were used to further define priority habitats according to the PFW Program National Priority Ranking Factors. Additionally, the PFW Program considers focus areas that have a high percentage of private lands, a high number of endangered, threatened, candidate, or other high-priority species, and high potential to connect important habitat types.

Five-year accomplishment targets for the North and South Puerto Rico Focus Areas were determined based on the PFW Program budget allocation for fiscal year 2011. The targets take into consideration availability of new partners and private lands, as well as stakeholder input and project selection criteria, to determine challenging but achievable goals.

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Upland: 500 acres of upland forest
- Riparian/Instream: 4.0 miles
- Wetland: 10 acres

Action Strategies

In general, PFW Program staff in the Caribbean will continue to work closely with all of our partners to deliver conservation on-the-ground while focusing on the following actions:

- Expand efforts in the coffee growing region to convert sun coffee farms to shade coffee to restore transitional forest.

Species	North SHC	South SHC	Status	Habitat
*Puerto Rican parrot *(Amazona vittata)*	x		E, En	Well developed primary or secondary forest (wet and dry)
*Puerto Rican broad-winged hawk *(Buteo platypterus)*	x	o	E, En	Large areas of well developed moist karst forest (mostly in and near Rio Abajo Forest)
*Puerto Rican sharp-shinned hawk *(Accipiter striatus venator)*	o	x	E, En	Well-developed montane moist forest (particularly in and near Maricao Forest)
*Elfin-woods warbler *(Dendroica angelae)*		x	C, En	Well developed moist to wet secondary forest (volcanic)
Palo de Rosa tree *(Ottoschulzia rhodoxylon)*	x	x	E	Characteristic of old growth moist forest and moist drainages in dry forest areas
*American eel *(Anguilla rostrata)*	x	x	IF	Lower to mid-elevation streams without serious obstacles (dams or waterfalls)
*Sirajo goby *(Sicydium plumieri)*	x	x	IF	Up to headwater streams, high capacity for ascending obstructions
Puerto Rican nightjar *(Caprimulgus noctitherus)*		x	E, En	Well-developed dry forest, endemic to Puerto Rico, mostly southwest
Glossy ibis *(Plegadis falcinellus)*	x	x		Coastal fresh to brackish wetlands, represents wading bird and waterfowl guilds
Puerto Rican crested toad *(Peltophryne lemur)*	x	x	T, En	Karst dry to moist forest with ephemeral ponds, north and south historic populations
Yellow-shouldered blackbird *(Agelaius xanthomus)*		x	E, En	Southwest coast mangroves and dry forest
Roseate tern *(Sterna d. dougalii)*	o	x	T	South coast: exposed reef rubble cays, North coast: offshore rocky cays
Hawksbill sea turtle *(Eretmochelys imbricata)*	x	x	E	Sandy beaches with vegetation on berms
Staghorn and elkhorn corals *(Acropora cervicornis, A. palmata)*	o	x	T	Reefs and hard bottom, particularly shallow fore- and back-reef areas

Table 1. Priority species for the Puerto Rico Focus Area (North and South SHC Areas). Area where the species is known to occur (X), occasional records (O), endangered (E), threatened (T), candidate (C), endemic (En), Interjurisdictional fish (IF). Species with an (*) are the most pertinent to the majority of PFW projects. In moist and wet montane forest.

- Connect Maricao Commonwealth Forest with other forests in the Central mountain range by creating agro-forestry corridors with private landowner partners.
- Expand existing core habitat areas near refuges and commonwealth forests.
- Introduce listed plant species on private land.
- Restore and enhance wetland, riparian, and instream habitat on private land.
- Work with all partners to eliminate and/or control invasive or undesirable species within priority habitat areas
- Seek additional organizations with which to partner to increase leveraged funding.

Since the PFW Program will continue to focus mostly on the reforestation efforts on coffee farms, the primary focus species will be the elfin-woods warbler, the sharp-shinned hawk, and the broad-winged hawk. The Puerto Rican parrot is only recently released in the areas and although it is certainly a protected and important species of concern, these releases are experimental and it is not yet determined what other threats they may face.

The habitat map (Figure 1) for the North and South PFW Focus Areas and the rest of the island is taken from the Puerto Rico GAP analysis (Gould, et al., 2008), and includes the essential habitats that the priority species depend upon. Both the North and the South PFW Focus Areas contain elements of the major habitat types below, with the exception of the subtropical dry forest, which is found predominantly in the Southern Focus Area. These are the most important natural habitats in the Caribbean

area, starting from high elevations and proceeding to the coasts and marine communities. The classifications are descriptive, and it should be understood that these habitat types are often a continuum and intermingle to form mosaics that increase the value of the habitat for many species. For example, the moist and wet montane forests, the PFW Program primary focus habitat, is inextricably mixed with riparian and stream habitats.

Subtropical Moist, Wet and Rain Montane Forest

Montane rain forest is dominated by a mixture of native and introduced semi-deciduous trees, and is found in the central volcanic mountains and northern karst formations. The Puerto Rican karst forms habitats of exceptional complexity resulting in high species diversity, and a source of fresh water for the North coast wetlands (Lugo et al, 2001). With few exceptions, the forests are in various stages of secondary growth, some very well developed. This habitat type is mostly within the higher elevations of Puerto Rico, but moist forest also is found in the riparian areas of the various islands, in the northwest section of St. Croix and Vieques, and on parts of the northern slopes of Culebra Island. These forests support a wide variety of native or endemic bird, bat, reptile, amphibian, and plant species, including a number of endemic Puerto Rican tree frog (coquí) species, as well as habitat for a wide variety of warblers and other resident and migratory songbirds. Subtropical rain forest is found in the highest reaches of the Toro Negro Commonwealth Forest, and in the El Yunque National Forest on the East end of the Island.

The Puerto Rican sharp-shinned hawk inhabits moist to wet forest areas in the Maricao Forest and surrounding area, and the Puerto Rican broad-winged hawk is known mostly from the Rio Abajo Forest in the northern karst zone. The Maricao Forest and adjacent areas, on the border of the two PFW focus areas, is one of the primary

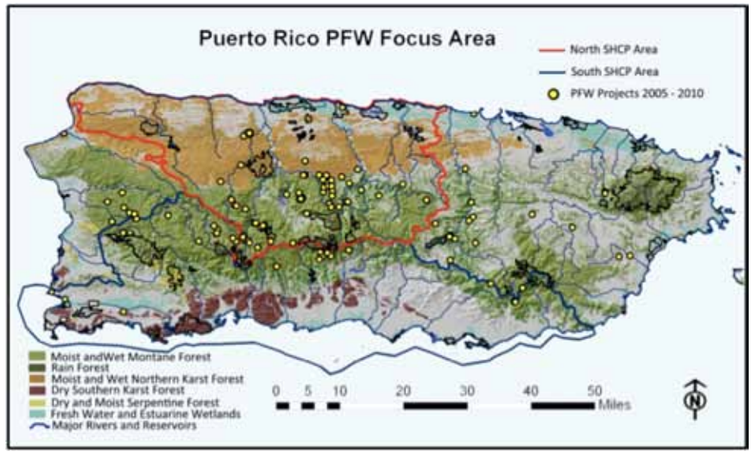


Figure 1. Habitat map for Puerto Rico (modified from the PR GAP land cover layer) showing the North and South SHC Areas, the habitat types for the priority species, and the location of the PFW projects through 2010

habitats known for the candidate elfin-woods warbler. The Puerto Rican parrot, whose last natural population is within the El Yunque National Forest, has been released successfully in the Río Abajo Forest, within the northern focus area. Plans are in process for re-establishing another population somewhere within these focus areas. The Puerto Rican boa is also found in most moist forest areas, but is particularly known from the northern karst zone, where it is known to feed on bats in exiting caves. The habitat is utilized by other native snakes, and a large number of lizard and amphibian species utilize these forests. Puerto Rico is known for the large number of endemic tree frog species that inhabit wet and moist forests in the central mountains.

*Focus Species**
Moist and Wet Montane Forest

- Puerto Rico Broad-winged hawk (E)
- Puerto Rico Sharp-shinned hawk (E)
- Puerto Rican parrot (E)
- Elfin-woods Warbler (C)
- Palo de Rosa tree (E)

Moist and dry forest habitats on serpentine soils merit special mention since the soil characteristics limit the plant community, creating a favorable environment for tolerant endemic plant species. In Puerto Rico, these serpentine soils are found on the southwest side of the central mountain range, particularly the Maricao and Susua Commonwealth Forests and in the Sierra Bermeja coastal range of southwest Puerto Rico. At least 28 non-endemic and 12 endemic serpentine restricted plants occur in these forests, two of which are listed species (Crescentia portoricensis and Cranichis ricartii).

There is also an effort to restore or develop new populations of listed plant species typical of moist and wet montane forest, including the palma de manaca (a candidate species), the "palo de rosa" (a focus species), and other listed or state recognized rare plants.

Threats
In the 1980s, a government initiative heavily promoted the conversion of forested areas and remaining shade coffee plantations to sun coffee, effectively deforesting large areas. Development, particularly linear highway or utility line construction, has also fragmented many of the montane forests. Several Commonwealth Forests are afforded some protection, but even these are not immune to linear projects (such as PR Highway-10 passing through the Rio Abajo Forest, power line rights-of-ways through

U.S. Fish & Wildlife Service

Top: denuded hillside; bottom: conversion to shade coffee, USFWS.

several forests, and transmission tower construction within protected forest areas). In addition to habitat impacts from deforestation, these actions have greatly increased erosion that affects streams, reservoirs, and coastal waters through increased sedimentation, turbidity and nutrient input, all particularly damaging to coral reefs and sea grass beds that rely on clean coastal waters.

Riparian Forest and Freshwater Streams

Stream and riparian habitat in Puerto Rico connects with and is important for all of the other habitats from the montane forests to the coast. High watershed streams in Puerto Rico are very steep with many falls and steep passes in the mountains, and

Elfin-woods warbler, © Mike Morel

Sharp-shinned hawk, © Mike Morel

relatively short, low gradient coastal plain reaches, making these streams subject to extended periods of low base flow and high flash flood frequency. Riparian forest varies from wet and moist habitat in the mountains and northern watersheds to moist and dry forest riparian habitat along the south coast of Puerto Rico. Moist riparian forest also occurs on the larger dry washes (guts) of St. Thomas, St. John, northwest St. Croix, and Culebra. Riparian forests provide corridors for wildlife in an increasingly urbanized landscape, and protect water quality by retarding erosion and sedimentation to the coastal regions from the steep, highly erodible slopes.

Sirajo goby—capable of climbing wet rocks and walls with its modified pelvic fins, Patrick Cooney.

Drainages throughout the islands are major sediment conduits to sensitive near shore coral reefs and seagrass beds (see additional information below under coral reefs and seagrass beds). Potential benefits to coral reefs through reduction of erosion on the farms and input to the streams is a major justification for USDA Farm Bill (Environmental Quality Incentive Program or EQIP) conservation program concentration in the Guánica Bay (Río Loco) watershed.

In addition to providing diverse in-stream habitat, the streams are also corridors for both upstream and downstream movement of the native stream fish and crustaceans. The native aquatic fauna include at least five fish, 12 shrimp, and a snail species that are migratory, either catadromous or amphidromous. Additionally, there is a freshwater river crab that does not have to migrate, and a number of estuarine species enter into the lower portions of the rivers. Many of the fishes and shrimps are fished for recreation and consumption, and populations are interjurisdictional as they are shared with other Caribbean areas. Stream habitats are largely restricted to the main island of Puerto Rico, although there are intermittent streams with persistent pools in Vieques and St. Croix.

*Focus Species**
Freshwater Streams

- Sirajo goby (SOC)
- American eel (SOC)

Threats
The threats to riparian habitat in the mountains are much the same as the threats to montane forest habitat. Riparian reforestation is generally carried out in these areas as an extension of the shade coffee treatments on farms. The Service is working with NRCS to define better practices for reducing erosion and sedimentation resulting from farm roads in the coffee region. The Service is also working with other partners to reduce road erosion and development impacts to near shore waters in the U.S. Virgin Islands. Quantifying the beneficial effects of upland treatment to coastal waters is challenging; however, upland erosion has been identified by the Coral Reef Task Force and local action strategies as a major impact that should be addressed.

Major threats to instream habitat include the excessive extraction of water for public water supply, and the construction of low and major high dams on rivers for water supply, irrigation and flood control. These actions affect the availability of habitat and migration of the stream fauna. Poorly constructed bridges, culverts and road crossings also impact stream habitat and migration of the native stream fauna. These impacts can be reduced by allowing for an environmental flow in the streams, off-mainstem construction of water supply dams, intake design to provide fish passage or eliminate the need for low dams, and careful design of culverts for road crossings.

Subtropical Dry Forest

Subtropical dry forest is a declining upland forest type worldwide. Dry forest is characterized by high species diversity of semi-deciduous trees, shrubs and cactus. It was the dominant forest type in the lower slopes of the Puerto Rican South Coast watersheds, Culebra, Vieques, and St. Croix, and it dominates Mona, Desecheo, and Navassa islands. Dominant species are highly influenced by the underlying geology that includes serpentine, volcanic, and limestone.

Remaining dry forest is in various stages of secondary growth. The dry forest varies from older secondary forest with relatively high canopies in the dry streambeds to low scrub-shrub mixed with cactus in drier areas, particularly those on very thin soils and exposed to the coastal winds. In addition to the high plant diversity, it provides habitat for many native and resident songbirds, bats, reptiles and amphibians. This includes habitat for federally listed species such as the Puerto Rican nightjar, the yellow-shouldered blackbird, the Puerto Rican crested toad, the Virgin Islands tree boa, the Mona boa, the Monito gecko, and the St. Croix ground lizard. At least 15 federally listed plant species are found in or near dry forest, and many are found on the coastal hills (Sierra Bermeja) of southwest Puerto Rico. Dry forest on cays of St. Croix is particularly important for the St. Croix ground lizard.

The southern mountain slopes and coastal hills in the Puerto Rico Southern Focus Area support secondary subtropical dry forest in various stages of development, and remnants of primary dry forest occur in the Guánica dry forest. The Guánica Dry Forest, a Commonwealth Forest, is recognized as a World Biosphere Reserve and supports a high diversity of birds, reptiles, insects, and plants. These include the last known natural population of the Puerto Rican crested toad and habitat for the Puerto Rican nightjar, both federally listed species included as focal species for this Plan. The Puerto Rican crested toad used ephemeral ponds in karst forest drainages for breeding and tadpole development, living the adult portions of its life in the karst dry forest. Nightjar populations use the Guánica Forest and well developed dry forest habitat in the Guayanilla hills.

Dry forest is also prevalent on the offshore islands and much of the U.S. Virgin Islands. The Virgin Islands tree boa inhabits coastal dry and moist drainage forests on St. Thomas, Culebra, some of the small rocky islands between Culebra and

Puerto Rico, and coastal dry forest in eastern Puerto Rico. The rare cactus, Leptocerus grantianus, occurs in dry forest on Culebra, and the rare cactus Harrisia portoricensis, is found in dry forest on Mona and Desecheo Islands, and coastal dry forest in southwest Puerto Rico. Both are listed species. The candidate agave, Agave eggersiana, is found in coastal dry forest on St. Croix. The last known natural populations of the St. Croix ground lizard, Ameiva polops, are found in dry forest habitat on Green Cay NWR and Protestant Cay on St. Croix. An introduced population occurs on Ruth Cay, a dredge spoil island off the south coast of St. Croix, and another population is in the process of being restored on Buck Island National Monument off St. Croix. Mona Island harbors the only known population of the Mona iguana, which uses dry forest coastal habitat on that island.

*Focus Species**
Dry Forest

- Puerto Rican nightjar (E)
- Puerto Rican crested toad (T)

Threats
Dry forest in the coastal hills is particularly vulnerable to deforestation for development. The soils of these areas are thin, underlain by rock, and highly erodible. Once removed, dry forest is one of the more difficult habitats to restore, due to the recurrence of man-made fires that set back the succession to exotic invasive grasses. Also, the emerging interest in constructing wind turbines for energy production is a concern, as it has been estimated that as much as five percent of the existing population of the Puerto Rican nightjar could be lost if such wind turbines are constructed within their habitat area.

The Service has been focusing on various techniques for dry forest restoration within and outside of the National Wildlife Refuges. The use of hardier exotic "nurse" trees is being carefully considered, along with the potential removal of highly invasive exotic plants combined

Puerto Rican nightjar, © Mike Morel

Puerto Rican crested toad, USFWS

Yellow-shouldered blackbird, @ Mike Morel.

with reforestation with native dry forest species. Major effort in this habitat type has been directed at fire suppression within areas of existing dry forest or where reforestation is being attempted.

There are efforts to protect and enhance populations of federally listed or otherwise rare plants that occur in dry coastal forest habitat. These include, but are not limited to, Leptocereus grantianus in Culebra, and Harrisia portoricensis on Desecheo Island and in southwest Puerto Rico. Removal of invasive exotic predators has also been a goal on offshore islands, particularly Desecheo NWR. Two previous efforts to establish additional populations of Leptocereus grantianus on Culebra were burned by incidental fires, but efforts to establish more populations within and off the Refuge will continue.

The PFW Program has been working with other partners to re-establish several northern and southern populations of the Puerto Rican crested toad, particularly in the northern karst in conjunction with the Recovery Plan for this species and a large partner group that includes other agencies, private landowners, and non-governmental organizations. The restoration efforts include the creation of some ephemeral ponds needed for reproduction for the toad, and reforestation efforts to improve karst dry forest habitat.

Freshwater (Palustrine) Wetlands

Freshwater wetlands consist mostly of freshwater marsh and open water. The Northern PFW Focus Area has several large coastal freshwater lagoon and wetland areas that receive much of their water from aquifer flow. These include Caño Tiburones, wetlands within Hacienda Esperanza, Tortuguero Lagoon, and sinkholes or other areas with freshwater aquifer input. The north coast freshwater bodies have some estuarine characteristics due to small connections with the ocean, but the aquifer outflow typically overwhelms the tidal input.

Swamp forest dominated by swamp bloodwood and swamp apple were once common, but have been reduced to small stands, mostly due to conversion of swamps to sugar cane production. The major remaining natural freshwater open water habitat in the Southern Focus Area is Laguna Cartagena National Wildlife Refuge. It was associated with similar marsh and open water areas that were drained in the Lajas Valley for an agricultural project. These areas included the Anegado and Laguna de Guánica. Most other open water habitats within these focus areas are small man-made impoundments such as the Ponce Serralles Lakes and farm ponds.

Restoration in freshwater marsh with water-control structures in northern Puerto Rico, USFWS.

Culebra, Vieques, and St. Croix have a few man-made farm ponds that provide some waterfowl habitat.

Freshwater marsh is the most common freshwater wetland type, and much of it is dominated by a variety of exotic grasses, sedges, and cattails that vary according to the seasonal water regime. There are some relatively extensive freshwater marsh wetlands dominated by sawgrass near Laguna Tortuguero and Caño Tiburones in the Northern Focus Area.

These areas provide feeding and nesting habitat for a variety of migratory and resident wading birds and waterfowl. Variable water levels in many of these areas increase their value as seasonal feeding habitat for many bird species. Open-water freshwater wetlands provide habitat for an endemic turtle species, and are frequented by raptors such as ospreys, peregrine falcons, and other raptors.

*Focus Species**
Freshwater Wetlands

- Glossy ibis (SOC) (represents wading and waterfowl guilds)

Threats
Freshwater wetlands and lagoons were subject to drainage and filling for agricultural purposes from the 1800s. Major conversion of freshwater wetlands occurred in the middle of the 1900s, in Caño Tiburones in the North and in the Lajas Valley in the South. Swamp forest was cleared, ditched, and drained for agricultural use, but in many cases has reverted to wetlands dominated by exotic grasses and sedges. Only remnants remained, generally on the edge of mangrove forests where soil salinities limited the utility of the land for agriculture.

Excessive pumping on the north coast wetlands resulted in subsidence in some areas through loss of organic soils and saline intrusion, eventually reducing the utility of these areas for agriculture. The Lajas Valley wetlands have had continuous soil salinity problems that have not been resolved, limiting their utility for agriculture. Sinkhole wetlands are common in the Northern Focus Area, but have been affected by polluted runoff from dairy and swine farms, and some have been filled or drained for agriculture.

Invasive exotic plants dominate a number of the freshwater wetlands. Most of the invasive plants are exotic grasses, sedges, and floating vegetation; however, both Australian pine and Melaleuca quinquenervia were introduced to Puerto Rico, and have invaded several of the freshwater wetlands areas. Laguna Tortuguero in the Northern Focus Area is particularly vulnerable as it hosts a number of endemic plant species found only on the quartz sands near the lagoon.

Wetland Mangrove Forest, Saline Mudflats, and Shallow Coastal Lagoons

The development of mangrove forest, coastal lagoons, salt ponds, and unvegetated (hypersaline) mud flats depends upon isolation from the open sea, tidal range, and local climate conditions. They generally co-occur forming rich mosaics that greatly enhance their nesting, roosting, and foraging habitat value for a high diversity of migratory and resident seabirds, shorebirds, wading birds, and songbirds. The federally listed yellow-shouldered blackbird and recently delisted brown pelican utilize these areas.

The Puerto Rican yellow-shouldered blackbird (a priority species) occurs in the southwest and southern coastal areas, favoring coastal mangroves and also utilizing adjacent dry forest habitat. A large portion of southwest coastal Puerto Rico (from Cabo Rojo to Guánica) is designated as Critical Habitat for this species. The root systems of mangroves, particularly red mangroves, form substrate for a rich invertebrate and algal community, and provide food and cover for juvenile fish and shellfish.

*Focus Species**
Estuarine and Saline Wetlands

- Yellow-shouldered blackbird (E)

Coastal and estuarine mangrove forests and salt ponds serve as a superb natural water treatment filter by removing sediments and nutrients from upland runoff, and they provide a major barrier to coastal erosion due to storm damage and potentially sea-level rise. Mangrove swamp is prevalent along low wave energy shorelines, estuarine river mouths, and back-basin wetlands with saline intrusion. The four dominant species (red, black, white and buttonwood mangrove) occur in zones determined by soil salinity and tidal influence. Mangroves are often mixed on the edges with other trees, shrubs and forbs with some tolerance to saline soils, including the federally listed cobana negra tree.

PFW biologists checking a soil survey pit, USFWS.

PFW mangrove restoration area in St. Croix, USFWS.

Red mangroves occur in estuarine and ocean salinity intertidal and shallow subtidal coastal areas where they colonize shallow shoals. Their canopy provides a superb environment for a large number of birds for roosting and nesting, while their root system forms the substrate for a rich invertebrate and algal community and habitat for juvenile fish and shellfish. Black mangroves tolerate very high salinities, and dominate back-basin hypersaline areas adjacent to unvegetated salt flats. White mangroves dominate high intertidal and supertidal estuarine and lower salinity wetlands. The canopies of black and white mangrove forest form similar roosting and nesting habitat for a wide variety of seabirds, wading birds, and song birds; and their root systems form habitat for a variety of crabs and other invertebrates. Buttonwood grows from upper intertidal to upland beach berm, where, with other salt tolerant species, they provide beach and dune stabilization and forest habitat.

Threats
Most of the mangrove wetlands are officially public or Commonwealth managed lands. There are opportunities for restoration of mangroves on private lands that border existing mangrove forest, as some of these were areas where wetland vegetation was previously cleared to attempt agriculture. Most of these areas have marginal agricultural use due to high soil salinities, and are used as marginal pasture land. There are opportunities to work with farmers to fence cattle out of mangrove forest (where they damage the root system of the trees), or to work with developers to restore some mangroves within project areas and incorporate them into the landscaping needs. Vehicles also impact certain beach areas, and the use of fencing to exclude vehicles is appropriate is some cases.

Beaches and Dunes

Puerto Rico and the Virgin Islands have a relative wealth of sandy beaches, many of which provide nesting habitat for four species of sea turtles. The most common sea turtles that nest

on these beaches are leatherback and hawksbill sea turtles, with occasional nesting of green sea turtles and very rare occurrences of loggerheads. The beaches also support populations of mole crabs, other crustaceans, and small clams that are popular forage for a variety of shorebirds.

*Focus Species**
Dune and Beach Habitat

- Hawksbill sea turtle (E) (representing all the sea turtle species that nest on island beaches)

Dune habitat has become very rare on the island, with some remaining dunes in the northeast and northwest sectors of Puerto Rico. Forested low dune or beach berm is more common, on some beaches in Puerto Rico, along some bays in Vieques, and on some embayments in the Virgin Islands. The beach forests support a variety of songbirds, and coastal beach forest in Culebra, St. Thomas, and eastern Puerto Rico support populations of the Virgin Islands tree boa. The dunes and higher beach berms are often the only defense against inundation of low coastal lands from storm waves. Vegetated beach berms and dunes also help reduce erosion to near shore coastal waters that affects sensitive seagrass beds and coral reefs.

Hawksbill sea turtles forage on coral reefs, and nest on sandy beaches in the Caribbean, USFWS.

Threats
The major cause for elimination of dunes in Puerto Rico has been sand extraction for construction. This extraction has caused some areas formerly protected by dunes in the northwest part of the island to experience coastal flooding during heavy storm activity. Dune, beach berm, and beach habitat, particularly for sea turtle nesting, has been directly (through construction on the beach) and indirectly (through lighting and human related activities) affected for sea turtle nesting habitat.

Although this habitat type is more of a priority for the Service's Coastal Program, opportunities may arise to work with private landowners to restore beach berm and sea turtle nesting habitat through reforestation, other dune restoration techniques, and lighting alterations.

Seagrass Beds and Coral Reefs

These habitats are critical for a large number of marine fish and invertebrate species, and coral reefs, in particular, represent one of the most diverse ecosystems in the world, rivaling tropical rain forests. In addition to a majority of shallow water fish and free-living shellfish, seagrass beds provide foraging habitat for the Antillean manatee and green sea turtle, while coral reefs provide habitat and forage for hawksbill sea turtles. They are both living habitat and important species, in themselves.

*Focus Species**
Seagrass Beds & Coral Reefs

- Staghorn coral (T)
- Elkhorn coral (T)

Seagrass beds and coral reefs need clean, clear coastal waters, USFWS.

Threats
There are many threats for these habitats, and the Commonwealth of Puerto Rico and NOAA (2010) identified land-based sources of pollution as a major factor affecting coral reefs and seagrass beds, and included promoting the use of agricultural incentives to modify upland farm practices.

Upland erosion from the sun coffee farming area in the Guánica Bay watershed was one of the major factors identified by the Guánica Bay Watershed Plan developed by the Center for Watershed Protection (2008) for NOAA and DNER. NRCS committed to working with the upland farm issue identified in the Plan, and the PFW and Coastal Programs are working with them to implement the shade coffee practice as part of this plan. The PFW program will not work directly with these habitats; however, the reforestation projects done on steep upland farms should indirectly benefit seagrass beds and coral reefs.

*E=Endangered, T=Threatened, C=Candidate, SOC= Species of Concern

U.S. Fish & Wildlife Service

A coral reef in Culebra, USFWS.

Key Partners in the Caribbean

The PFW Program in the Caribbean engaged in extensive outreach to stakeholders and partners to develop its geographic focus areas for 2012-2016. It solicited input from 23 stakeholder organizations, including other Federal agencies, Commonwealth and Territory agencies, universities, and non-government organizations. Also, a series of public forums was held to engage landowners from various communities throughout the island about their views on the Program. Most comments focused on a desire to expand the focus area of the program, and continuing to provide incentives for wildlife improvement. Providing incentives for setting aside existing good quality habitat was also desired, but is not currently provided within the PFW Program. However, the Service works with the USDA Farm Service Agency to implement conservation programs that they have for this purpose.

- Over 80 private landowners
- PR Department of Natural and Environmental Resources
- USDA/Natural Resource Conservation Service
- USDA/Farm Service Agency
- USDA/Forest Service
- PR Department of Agriculture
- USVI Department of Planning and Natural Resources
- Conservation Trust of Puerto Rico
- Envirosurvey, Inc.
- Iniciativa Herpetologica, Inc.
- Citizens of the Karst
- American Zoo and Aquarium Society
- Fort Worth Zoo
- St. Croix Environmental Association
- The Nature Conservancy (St. Croix program)
- University of Puerto Rico, Mayaguez
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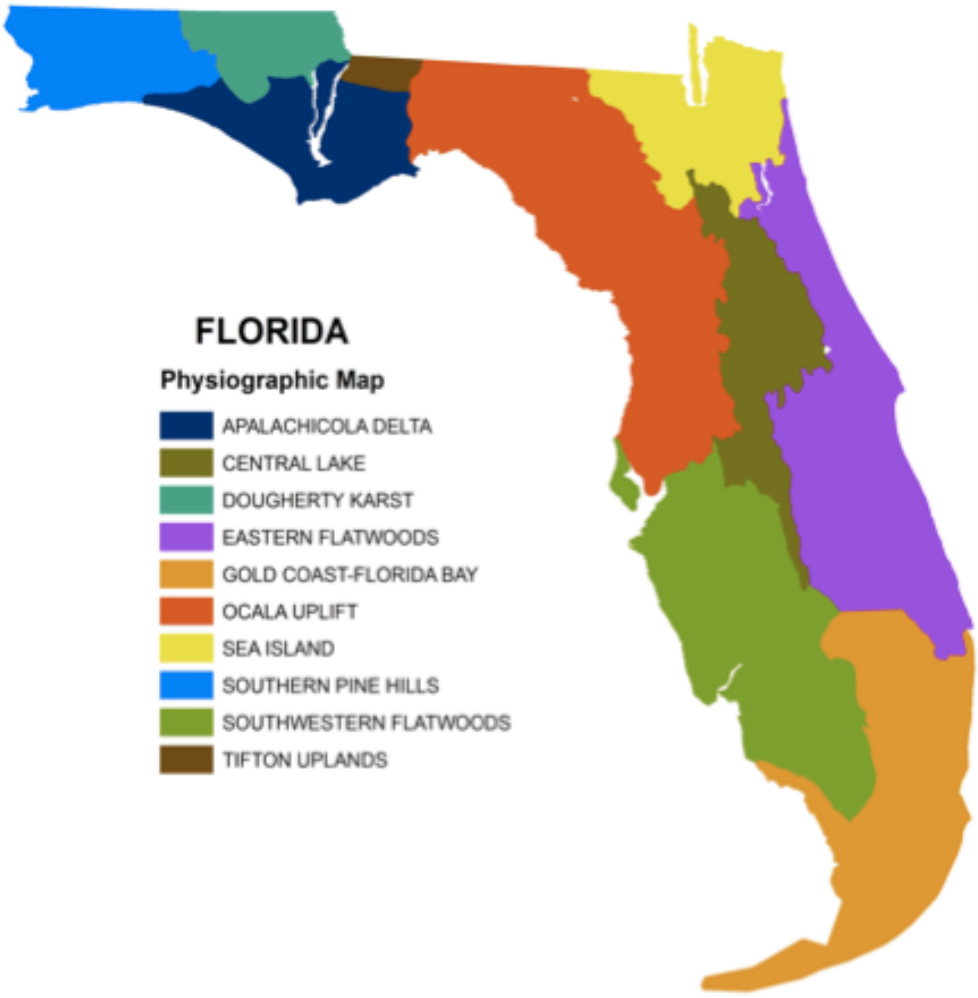
Appendix A: Florida



Introduction and Overview

Florida is an ecologically diverse region ranging in climate from the temperate to the subtropical. It is relatively flat with a maximum elevation in the North of approximately 330 feet, and much of the State lies below elevations of 100 feet.

Northern Florida is within the southern temperate zone and consists of broad alluvial riparian habitats, and upland flats and ridges once dominated by longleaf pine communities. The central peninsula consists of broad flatlands once dominated by longleaf and slash pine, dry and wet prairies and sandy ridges with scrub and sandhill communities harboring numerous rare and endemic species. The southern tip of the peninsula, though heavily modified by development, still contains tropically-influenced hammocks, swamps, rocklands, and marshes of the Big Cypress Swamp, Everglades, and the Florida Keys.

Rivers originating in the southern Appalachians and Piedmont are an important ecological component in North Florida that harbor increasingly rare mollusk and fish species. Lakes are very common in the Florida peninsula, and Lake Okeechobee in South Florida is one of the largest lakes in North America. Numerous springs are also characteristic of the vast limestone regions of North and Central Florida. Springs, limestone caves, and sinks support many rare aquatic invertebrates. Estuarine ecosystems include productive salt marsh communities in the northern half of the State, mangrove communities in the southern half of the peninsula and seagrass communities statewide (Florida Fish and Wildlife Conservation Commission (FWC) 2005).

In Florida, there are 57 animals and 55 plants federally listed as endangered or threatened species or experimental non-essential by the U.S. Fish and Wildlife Service (Service) under the Endangered Species Act. In addition, FWC lists 118 animals as State endangered, threatened, and species of special concern. Furthermore, the Florida Department of Agriculture and Consumer Sciences lists 55 plants as State listed endangered or threatened.

Numerous habitats in Florida provide forage, refuge, cover, and staging areas for several species of migratory waterfowl, wading birds, shorebirds and neotropical migrants and other game and non-game mammals, reptiles, amphibians, fish and invertebrates.

Priority Habitats

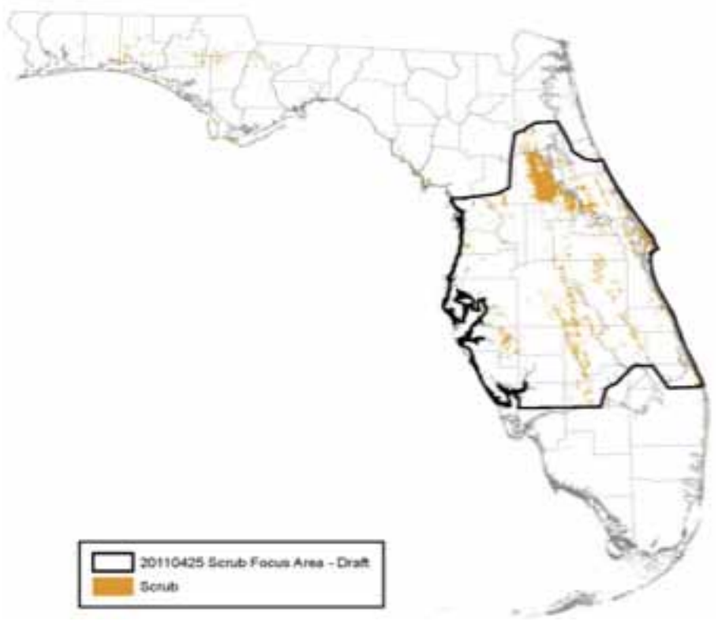
As Florida grows, a number of threats such as habitat loss and fragmentation, degradation of water resources, invasive plants and animals, incompatible fire management, and management of the physical environment continue to alter many of Florida's delicate and imperiled habitats. In concert with FWC's Comprehensive Wildlife Conservation Strategy Plan (State Wildlife Action Plan), which lists 45 different habitat types, the Service, through our strategic planning process, has identified specific habitats with the highest likelihood of threats; or, habitats that have a substantial resource value to federally listed animals and plants, migratory birds, interjurisdictional fisheries, marine mammals, and Service owned lands.

Four unique important habitats have been identified by the Service as focus areas for the state. In addition, invasive species management is important in all the focus areas.

Partners for Fish and Wildlife (PFW) Program in Florida

The focus of the PFW Program in Florida is on improvement of native habitats (i.e., pineland, scrub, dry prairie) for the benefit of Federal Trust and other species of concern. The PFW Program in Florida has been active since 1996, and has received overwhelming acceptance by private landowners. The result has been an innovative partnership between the Federal government and the private landowner, providing habitat benefits to Florida's fish and wildlife. While the PFW Program has worked diligently to develop habitat improvement projects with individual landowners, it has also made a major effort to form partnerships with conservation organizations, State agencies, and local units of governments to create habitat and conservation initiatives for the benefit of the private landowner and Florida's wildlife. The PFW Program has worked with FWC to develop a private landowner assistance program to meet specific habitat improvement goals that are identified in the State's Comprehensive Plan.

The State of Florida lies within three Landscape Conservation Cooperatives (LCCs); the Peninsular Florida LCC, the South Atlantic LCC, and the Gulf Coastal Plains and Ozarks LCC (Appendix D). Each of these LCCs has identified Regional Resource Management Challenges (RRMCs) for their geographic areas. These RRMCs include biological carbon sequestration, ecosystem restoration, fish and wildlife response to climate change, fire, invasive species, habitat fragmentation, and water quantity and quality, among others. The PFW Program is recognized as one of the Service's premiere conservation delivery programs that will help to address these LCC RRMCs. A brief discussion, based upon the Florida Natural Areas Inventory (FNAI) natural community descriptions, as well as the habitat



Scrub Focus Areas

descriptions in FWC's Comprehensive Wildlife Conservation Strategy Plan, of each focus area is provided in our Florida PFW Program Focus Area discussion below.

Monitoring

Habitat improvement projects implemented through the PFW Program in Florida will be monitored throughout the term of the landowner agreements according to the PFW program Monitoring guidelines described in Appendix E of this Strategic Plan. Within each of our designated focus areas we will work with our partners in developing and carrying out a monitoring strategy that will attempt to efficiently document the success of our habitat improvement efforts based on clearly defined measurement criteria. The extent of our monitoring will depend on our internal and external capacity, including the support from the established Landscape Conservation Cooperatives, and contributions from our partners.

Florida PFW Program Focus Areas

Scrub Focus Area

Scrub habitat within the Scrub Focus Area occurs on areas of deep, well-drained, infertile sandy soils that are typically white or near white. Scrub has a patchy distribution and occurs in both inland and coastal areas, from the panhandle through subtropical regions of the peninsula. The largest and most important patches of scrub occur along the central ridge of the peninsula near Ocala and in Polk and Highlands counties.

This habitat is fire-dependent; it is maintained by fires that are usually very hot or intense, but occur infrequently at intervals of 10-20 years, or more. Generally, scrub is dominated by evergreen, or nearly evergreen, oaks and/or Florida rosemary, with or without a pine overstory. A relatively large suite of plant species is endemic to scrub (e.g., scrub holly and inopina oak); the rarest endemic plant species are restricted to the Lake Wales area of the central ridge (e.g., pygmy fringe tree and scrub plum). Some species

Florida scrub-jay, USFWS

of wildlife also are endemic or largely restricted to scrub habitat (e.g., Florida scrub-jay, bluetail mole skink and sand skink).

Several types of scrub are recognized. Oak scrub is a hardwood community typically consisting of clumped patches of low growing oaks interspersed with patches of bare, white sand. Pines are uncommon or absent. Oak scrub is dominated by myrtle oak, Chapman's oak, sand-live oak, inopina oak, scrub holly, scrub plum, scrub hickory, rosemary, scrub palmetto, and saw palmetto. Sand pine scrub occurs on former shorelines and islands of ancient seas. This plant community is dominated by an overstory of sand pine and has an understory of myrtle oak, Chapman's oak, sand-live oak, rusty lyonia, wild olive, scrub bay, and scrub holly. Ground cover is usually sparse to absent, especially in mature stands, and rosemary and lichens occur in some open areas. Rosemary scrub has few or no sand pines or scrub oaks but is dominated by rosemary with scattered lichen cover, scrub hypericum, and paper nailwort (FWC Comprehensive Wildlife Conservation Strategy).

Florida's ancient xeric scrub once covered approximately 7,000 square miles. Today less than 600 square miles remain.

Priority Habitat
Upland scrub

Florida scrub habitat, USFWS

Five-Year Accomplish Targets
(FY 2012- FY 2016)

- Upland (scrub): 750 acres

*Focus Species**

- Eastern indigo snake (T)
- Florida scrub jay (T)
- Florida panther (E), Kirtland's warbler (E)
- Bluetail mole skink (T)
- Sand skink (T)
- 37 federally listed plant species, endemic to xeric scrub.

Threats

- Loss of xeric scrub habitat with conversion to agriculture; lack of prescribed burning; residential and commercial development; invasion by exotic species such as natal grass and carrotwood

Action Strategies

- Partner with, share costs with, and provide technical assistance to landowners to implement best management practices and improve existing overgrown xeric scrub and restore scrub on appropriate sites where it has been removed.
- Promote the removal and continued control of the Florida Exotic Pest Plant Council Category I and II plants. Partner with Cooperative Invasive Species Management Areas (CISMAs) to provide outreach, training, management, and monitoring of invasive species for landowners and land managers in this focus area.
- Conservation practices include: mechanical reduction of vegetation; burn; apply herbicide; establish and maintain firebreaks; plant native xeric scrub vegetation.
- Within the scope of our project budgets, work with our partners to develop and implement a monitoring plan to help us document the success of our efforts.

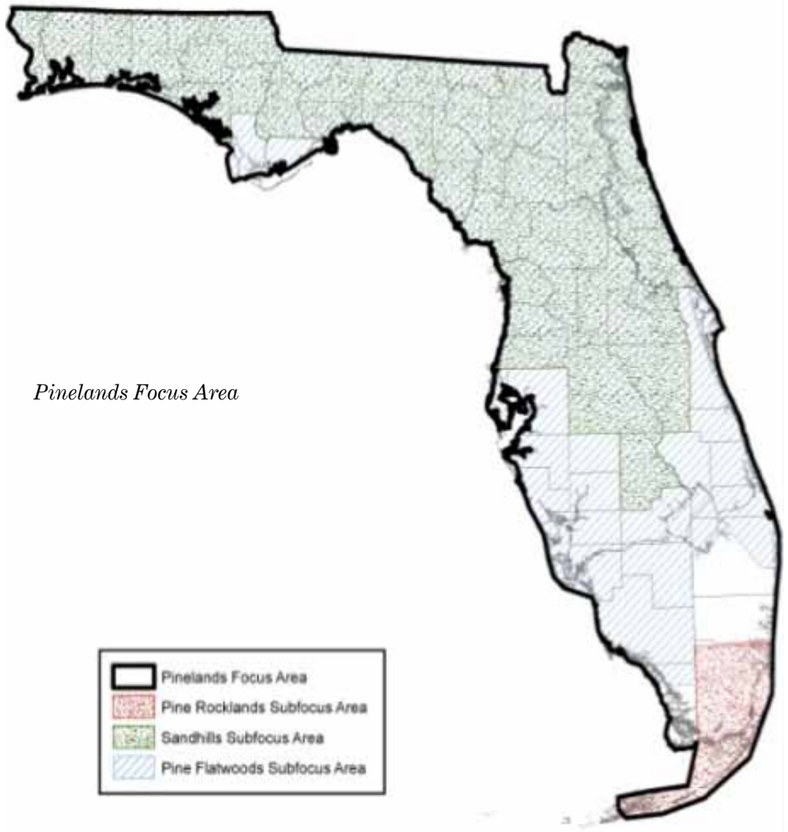
Pinelands Focus Area

Before human settlement, much of north and central Florida was covered by natural pineland. Much of this habitat type has been altered by humans as a result of conversion to agriculture and pine plantations, alteration of fire regimes, and introduced species. The type of pineland habitat present is usually related to soil differences and small variations in topography. Hydroperiod is an important factor determining what kind of pineland is represented. Fire is an important factor that helps to maintain and shape natural pineland communities; almost all of the plants

and animals found here are adapted to having fires occur at least every one to eight years (FWC 2005).

The longleaf pine ecosystem once covered approximately 90 million acres in the southeast United States. Today, less than three million acres remain, mostly in the coastal plains of the Carolinas, Georgia, Florida, Alabama, and Texas. In Florida, the PFW Program is working to provide economically feasible options to help restore the longleaf pine ecosystem on private lands. Once established, longleaf pine offers drought, insect, disease, and fire resistance that can lead to greater survival and higher economic return. To reduce restoration costs, the PFW Program has purchased a seed harvester for use within the state to allow landowners and conservation groups to harvest their own wiregrass seed.

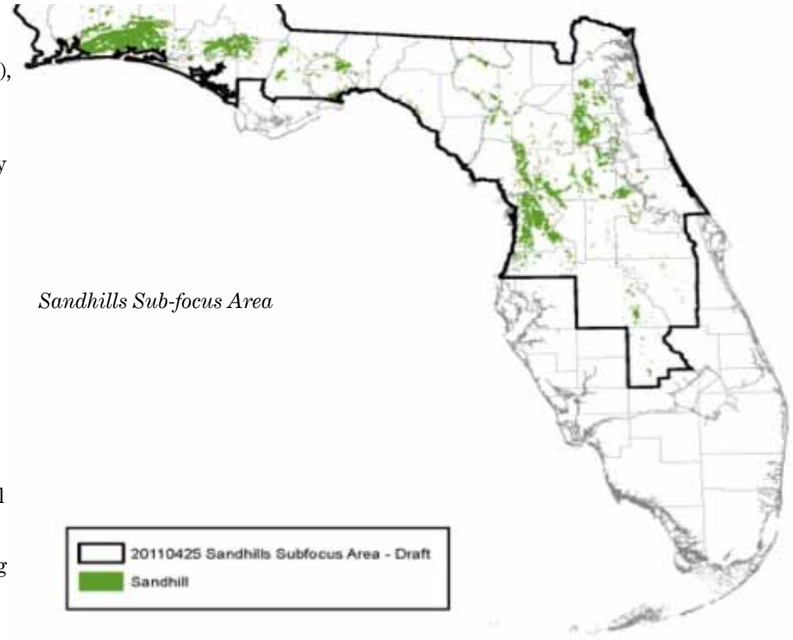
Within the Pinelands Focus Area are found several vegetative community types as described by the Florida Natural Areas Inventory (FNAI) (FNAI 2010 guide to the natural communities of Florida). The Service has identified the following community types as sub-focus areas: sandhills, flatwoods (including wet flatwoods, mesic flatwoods, and scrubby flatwoods), and pine rocklands. We will attempt to prioritize our funding and technical assistance efforts within these sub-focus areas, but will retain the flexibility to work anywhere within our larger overreaching Pineland Focus Area.



Pinelands Focus Area

Sandhills Sub-Focus Area

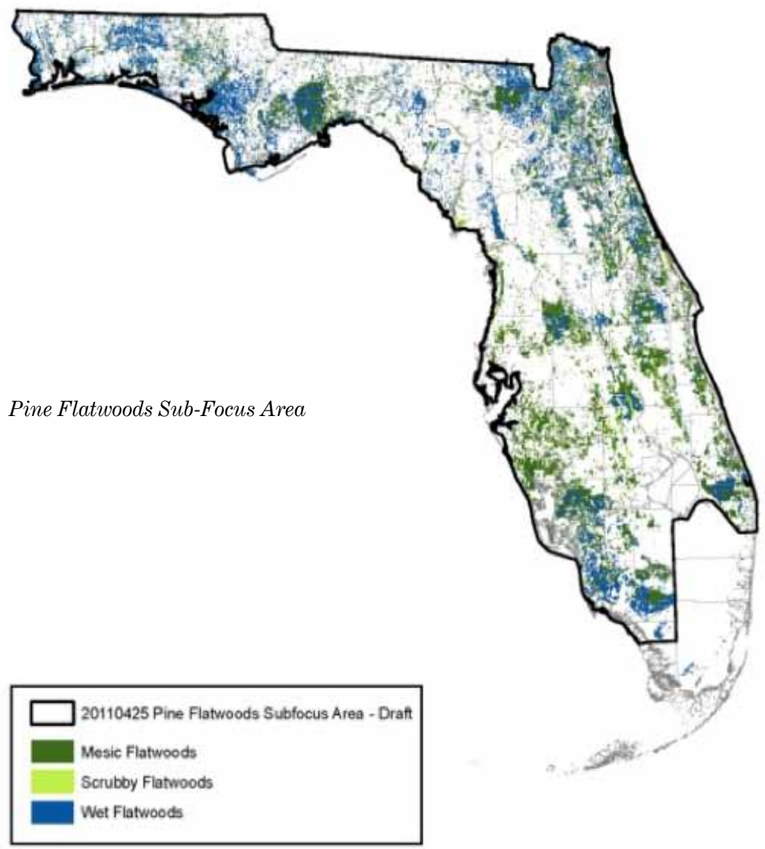
The Sandhills were historically widespread on well drained sands throughout the Southeastern U.S. Coastal Plain and were once a major part of an extensive mosaic of longleaf pine dominated natural communities. In Florida, sandhill occurs in the panhandle and in the north and central peninsula. In the interior peninsula of Florida, sandhill is concentrated, but not restricted to high ridges, extending south along the Lake Wales Ridge to Highlands County.



Sandhills Sub-focus Area

Sandhill is a xeric community characterized by widely spaced pine trees with a sparse midstory of oaks and a moderate to dense ground cover of grasses, herbs, and low shrubs. Typical species include longleaf pine with an over/midstory of turkey oak, post oak and bluejack oak. South Florida slash pine may replace longleaf pine on the southern portion of the Lake Wales Ridge. The greatest plant diversity within the sandhill community is in the herbaceous ground cover which may include wiregrass, lopsided Indian grass, bluestems, blazing star partridge pea, beggars tick, milk pea, gopher apple, green brier, and prickly pear cactus.

Sandhill provides important habitat for many rare animals such as the gopher frog, gopher tortoise, eastern indigo snake, and red-cockaded woodpecker. Sandhill is a community that is sustained by ground fires with short (1-3 years) return intervals. Growing season fire is required to maintain the community's open structure. Growing season fire reduces hardwood intrusion and promotes flowering of many grasses and herbs.



Pine Flatwoods Sub-Focus Area

Pine Flatwoods Sub-Focus Area

Flatwoods are mesic or hydric pine communities on flat sandy or limestone substrates that may have a hardpan that impedes drainage. Unlike those of the previously discussed scrub and sandhill communities, plants of flatwoods must be able to withstand the stress of soil saturation or inundation during wet times of the year as well as dry conditions at other times. There are three different flatwoods communities within the Pine Flatwoods Sub-Focus Area; wet flatwoods, mesic flatwoods, and scrubby flatwoods.

Wet Flatwoods are common throughout most of Florida, except at the southernmost tip of the Everglades and Florida Keys. The pine canopy of wet flatwoods typically consists of one or a combination longleaf pine, slash pine, pond pine, or South Florida slash pine. The community is characterized by a sparse or absent midstory and a dense ground cover of wiregrass and wetland associated grasses and herbs such as maidenecane, toothache grass, coastal plain yellow-eyed grass, beak sedges, and pitcher plants. Saw palmetto occurs in a low frequency on or near the Lake Wales Ridge, where cutthroat grass replaces wiregrass as the dominant species in the ground layer. Many rare plants are found in grassy wet flatwoods. Rare animals dependent upon this community include the frosted and reticulated salamanders and the Panama City crayfish (found only in Bay County). FNAI notes that changes in hydrology (due to a variety of factors) have made wet flatwoods vulnerable to the exotic invasive plants such as melaleuca, cogon grass, and Brazilian pepper. The fire return interval is generally two to four years, with the exception of wet flatwoods that are naturally shrubbier dominated by naturally occurring slash or pond pine that may have a return interval of five to ten years.

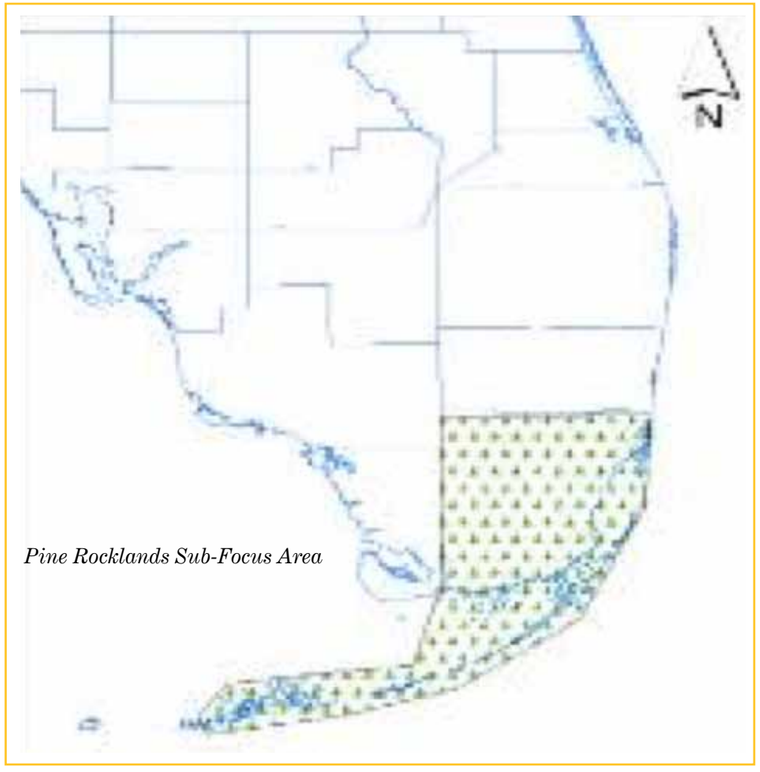
Mesic Flatwoods are the most common and widespread natural community in Florida, occurring throughout the State, except for the Florida Keys and portions of the Big Cypress and Everglades areas. Mesic flatwoods are characterized by an open canopy of tall pines and a dense ground cover of low shrubs grasses and forbs. Longleaf pine is the principal canopy tree of northern and central Florida. South Florida slash pine is the dominant pine south of Lake Okeechobee. FNAI notes that although slash pine is more common than longleaf pine in the mesic flatwoods in North Florida, this is the result of planting of slash after logging of the longleaf followed by a long period of fire exclusion in the early part of the twentieth century. Characteristic shrubs include saw palmetto, gallberry, staggerbush and fetterbush. Lower

growing shrubs include dwarf live oak, runner oak and vaccinum species. The herbaceous layer is predominately grasses including wiregrass, dropseeds, panic grasses and bluestems combined with a large number of showy forbs. Many rare plants endemic to Florida are found in mesic flatwoods. Rare animals include the frosted and reticulated flatwoods salamanders, Bachman's sparrow, swallow-tail kite, Florida panther, Florida black bear, and the red-cockaded woodpecker. The fire return interval is two to four years.

Scrubby flatwoods occur throughout Florida with the exception of extreme South Florida where limestone is close to the surface. Scrubby flatwoods habitat typically occurs on drier ridges on moderately well drained soils. The community is often associated with and grades into, mesic flatwoods, scrub, and dry prairie or sandhill communities. Scrubby flatwoods have an open canopy of widely spaced pines and a low shrubby, understory often interspersed with areas of barren white sand. Principal canopy species are longleaf pine and slash pine in North and Central Florida and South Florida slash pine South of Lake Okeechobee. The shrub layer consists of scrub-oak species, and other shrubs that may include, saw palmetto, fetter bush, stagger bush, and deerberry. Grasses and dwarf shrubs also make up a substantial portion of the cover. Grasses include wiregrass, broomsedge bluestem, and little bluestem. Notable rare plants that occur in Scrubby Flatwoods include the Florida golden aster and Carter's warea. Rare animals include the Florida scrub jay, gopher tortoise, Florida gopher frog, and Florida mouse.

Pine Rocklands Sub-Focus Area

Pine rocklands are globally imperiled, occurring only in South Florida and a few islands in the Bahamas. The forest canopy is dominated by a single tree species (the south Florida slash pine). The subcanopy is dominated by palms and tropical hardwoods such as saw palmetto, silver palm, locust berry



Pine Rocklands Sub-Focus Area

and beauty berry. The ground cover is dominated by a rich diversity of herbs and grasses. In Florida, pine rocklands are primarily limited to Miami-Dade along the Miami Rock Ridge, and in Monroe County in the lower Florida Keys, both on Pleistocene deposits of oolitic limestone.

Pine rocklands are habitat for a diversity of Caribbean plant species that are at the northern end of their ranges, temperate plant species at the southern end of their ranges, and endemic species with small ranges in southern Florida. Pine rockland plants have adapted to seasonal wildfires and the lack of soil in the exposed limestone. These pinelands contain dozens of plant species found nowhere else in the U.S., including six federally-listed plant taxa, such as Small's milkpea and Deltoid spurge; seven plant species that are candidates for Federal listing, including pineland sandmat and sand flax, and 74 state-listed plant species including rockland morning glory and Carter's orchid. This habitat also supports rare vertebrate and invertebrate species such as lower keys marsh rabbit, Florida panther, key deer, swallow-tailed kite, bald eagle, key ringneck snake, gopher tortoise, Bartram's hairstreak, and Florida leafwing butterfly.

Pine rocklands habitat in Miami-Dade County have been reduced to about 11 percent of its natural extent. Of the original 182,780 acres, 20,106 acres of pine rocklands habitat remained in 1996. Outside of Everglades National Park, less than two percent of the Miami Rock Ridge pinelands have escaped clearing and much of what is left is in small remnant blocks isolated from other natural areas. The remaining fragments are often in a degraded condition due to invasion of exotic plant species and decades of fire suppression.

The PFW Program in South Florida has partnered with the Institute for Regional Conservation (IRC) to implement management and restoration of pine rocklands on private lands in the Miami area and the Florida Keys. IRC actively works with landowners to remove invasive exotic plants, conduct prescribed burning and establish listed plant species. With the help of IRC, over 20 landowners have restored more than 200 acres of pine rocklands. We will continue assisting these landowners with management and strive to involve new landowners in the program.

Priority Habitat
Uplands (various pinelands)

Five-Year Accomplishment Targets
(FY 2012 – FY 2016)

- Upland (all Pinelands): 1,200 acres

*Focus Species**

- eastern indigo snake (T)
- red-cockaded woodpecker (T),
- Florida scrub jay (T)
- frosted and reticulated flatwoods salamanders (T)
- gopher tortoise (SOC)), Audubon's crested caracara (T),
- Florida panther (E)
- key deer (E)
- Florida black bear (SOC))
- Miami blue butterfly (C)
- striped newt (C)
- and 32 federally listed plant species

Threats

- Loss of longleaf pine and other pinelands habitat to monoculture forestry; lack of prescribed burning; residential and commercial development; and invasion by exotic plants such as Climbing fern, cogon grass, Chinese tallow, melaleuca, and Brazilian pepper tree

Pine Rocklands habitat in South Florida, USFWS.

Action Strategies

- Work with private landowners and other partners to provide and leverage technical and financial assistance to improve existing degraded longleaf and other important pine stands on appropriate sites where it has been removed.
- Encourage appropriate fire return intervals with growing season burning employed when habitat and other conditions permit. Encourage the use of other best management practices.
- Promote removal and continued control of the Florida Exotic Pest Plant Council Category I and II plants. Partner with Cooperative Invasive Species Management Areas (CISMAs) to provide outreach, training, management, and monitoring of invasive species for landowners and land managers in this focus area.
- Provide technical and financial assistance to landowners within the Greater Everglades Conservation Area, specifically those within the Everglades Headwater National Wildlife Refuge proposed boundary, Fisheating Creek, and the Florida Panther Wildlife Refuge expansion area.
- Within the scope of our project budgets, work with our partners to develop and implement a monitoring plan to help us document the success of our efforts.

Dry Prairie Focus Area

Dry prairie is a treeless expanse occupied by a diverse plant community of grass species and forbs with interspersed low-growing shrubs. Dry prairie relies on frequent fires and poorly drained soils to maintain these vegetative parameters. This habitat is critically important for the Florida grasshopper sparrow.

The Florida grasshopper sparrow relies on a diverse herbaceous groundcover of bluestems, wiregrass, indiangrass, blazing star, and St. Johns wort, with few low-growing saw palmetto, Lyonia and runner oaks. By using prescribed burning primarily during the growing season, on a one to three-year rotation, the dry prairie is typically comprised of 25 percent diverse herbaceous groundcover, 19 percent low growing shrubs (≤ 22 inches), and a network of open ground (22 percent bare ground and 14 percent litter) under and between vegetation clumps, which is ideal for Florida grasshopper sparrow. These clumping grasses and shrubs allow sparrows to move through the groundcover looking for arthropods or seeds on the bare ground, while staying under a protective cover from predators.

Historically, dry prairie covered an area from the Kissimmee River Basin flowing southwest towards DeSoto and Sarasota counties (> 1 million acres). Today, only 19 percent of the dry prairie remains, and only 41 percent of that is occupied by the Florida grasshopper sparrow.

Due to the location and vegetation component of dry prairie in Florida, this ecosystem has been used extensively for cattle grazing and farming. Much of the area has been converted to improved pasture or sod farms, but some has remained in native range for cattle ranching. There have been few studies on the effect cattle grazing has on the life-cycle of grasshopper sparrow, and all have concluded some level of effect. There are currently several cattle ranches with active grazing, prescribed burning and mechanical vegetation

management that have these sparrows on site.

The PFW Program in South Florida is working with Federal, State, and private landowners to manage and monitor prescribed grazing and prescribed burning on some of these ranches to determine how cattle and grasshopper sparrows can be compatible. With this information, the PFW Program can promote establishment of grasshopper sparrow habitat parameters on currently unoccupied dry prairie sites in the Focus Area.

Priority Habitat
Upland (dry prairie)

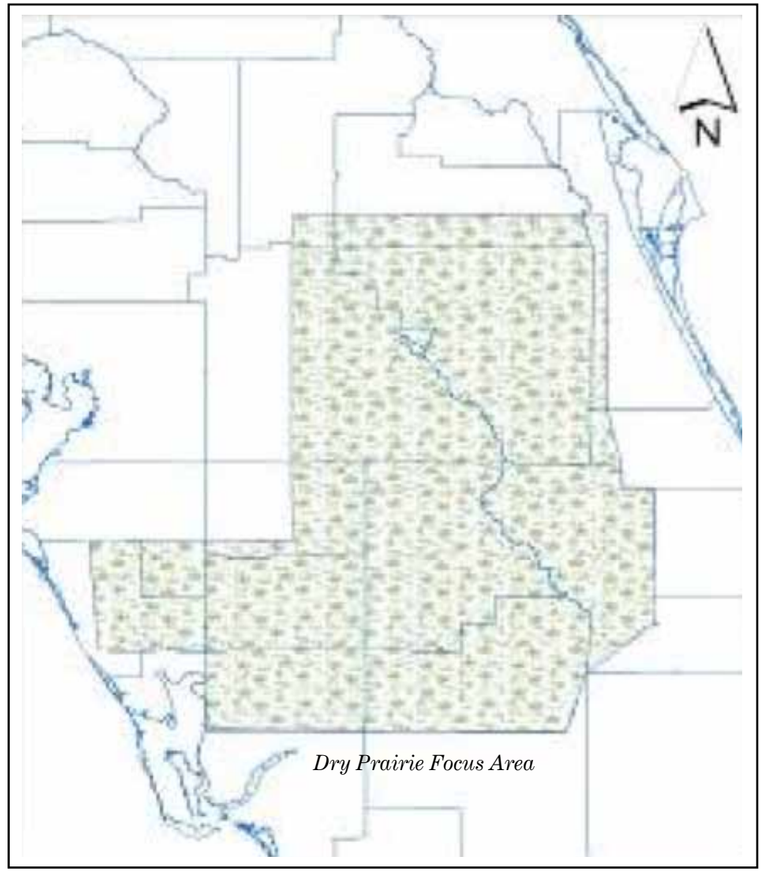
Five-Year Accomplishment Targets
(FY 2012 – FY 2016)

- Upland: 50 acres

*Focus Species**
- Florida grasshopper sparrow (E)
- eastern indigo snake (T)
- gopher tortoise (SOC)
- Florida black bear (SOC)
- Carter's small-flowered flax (C)

Threats
- Loss of native dry prairie habitat to improved pasture and agriculture; residential and commercial development; lack of prescribed burning; overgrown shrub component; and invasion by exotic plants such as cogon grass and tropical soda apple

Action Strategies
- Work with private landowners and other partners to provide and leverage technical and financial assistance to improve existing degraded dry prairie on appropriate sites where it has been removed.
- Encourage appropriate fire return intervals with growing season burning employed when habitat and other conditions permit. Encourage the use of other best management practices.



Dry Prairie Focus Area

- Promote removal and continued control of the Florida Exotic Pest Plant Council Category I and II plants. Partner with Cooperative Invasive Species Management Areas (CISMAs) to provide outreach, training, management, and monitoring of invasive species for landowners and land managers in this focus area.
- Provide technical and financial assistance to landowners within the Greater Everglades Conservation Area, specifically those within the Everglades Headwater National Wildlife Refuge proposed boundary, Fisheating Creek, and the Florida Panther Wildlife Refuge expansion area.
- Within the scope of our project budgets, work with our partners to develop and implement a monitoring plan to help us document the success of our efforts.

Stream/Riparian Focus Area

Alluvial streams occur throughout Florida. Streams in the north region of Florida are characterized as having meandering channels with a mixture of sand substrates, sand/gravel substrates, and areas of bedrock or shoals. Large alluvial streams have flow rates and sediment loads that range from low to high (flood) stages, consequently causing water depth and other water quality parameters to fluctuate substantially with seasonal rainfall patterns. Flood stages that overflow the banks and inundate the adjacent floodplain and bottomland hardwood forest communities usually

occur one or two times each year during winter or early spring. Due to the natural alluvial sediment movement in these streams, there is minimal aquatic vegetation in the threshold channel. Most vegetation is confined to channel edges or backwater areas. Typical plants include spatterdock, duckweed, American lotus, water lily, and water hyssop.

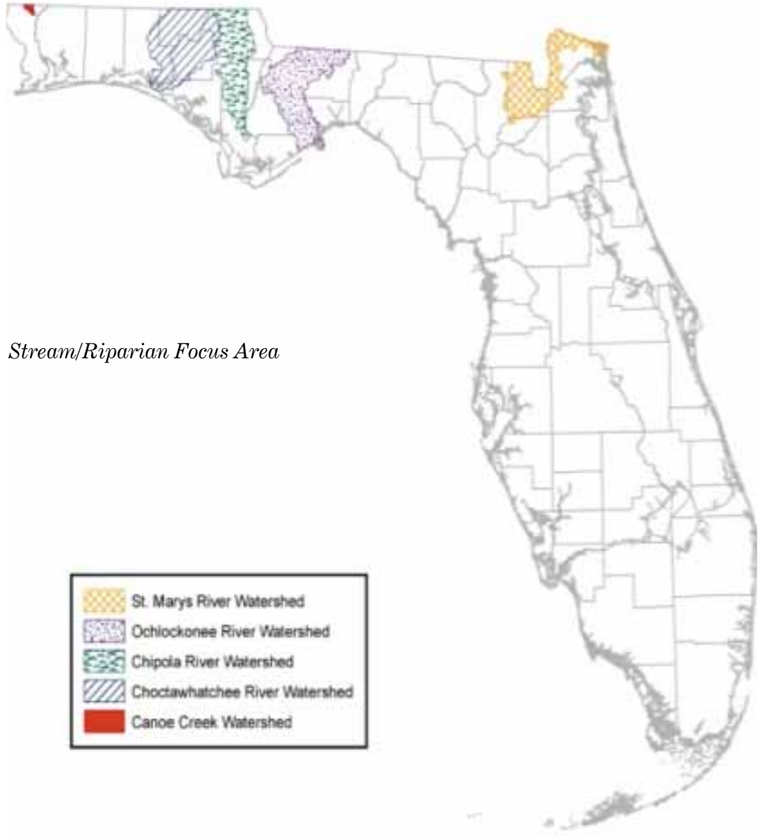
Florida streams and rivers are home to many fish and wildlife species. Some of these streams have become impacted due to human influences. The PFW Program is working with many partners, including ranchers and other private landowners to establish conservation buffers. Conservation buffers are vegetative strips along streams and rivers that help improve water quality by reducing nutrient and sediment loads. In some of the more impacted streams, biologists have used instream techniques to design new stream channels to stabilize and reduce bank erosion, channel grade, and improve fish and wildlife habitat. PFW Program projects have been completed on streams in the Escambia, Choctawhatchee, Ochlockonee and the Apalachicola/Chipola river basins.

Eleven federally listed species benefit from activities undertaken to improve riparian areas and water quality. Additionally, stream and watershed improvement activities are helping to minimize the future need to list candidate species or species of concern. Thirteen invertebrate species (primarily mussels), three fish species, and two reptile species (turtles), currently listed as candidate species or species where listing is currently being considered, all inhabit these large alluvial stream focus areas.

Priority Habitats
Riparian/Instream

Five-Year Accomplishment Target (FY 2012 – FY 2016)
- Riparian/Instream: 6.0 miles

*Focus Species**
- Gulf sturgeon (T)
- Atlantic Sturgeon (SOC)



Stream/Riparian Focus Area

- Okaloosa darter (T)
- West Indian manatee (E)
- Fat threeridge mussel (E)
- Chipola slabshell mussel (T)
- Purple bankclimber mussel (T)
- Shinyrayed pocketbook mussel (E)
- Gulf moccasinshell mussel (E)
- Ochlockonee moccasinshell mussel (E)
- Oval pigtoe mussel (E)

Threats
- Siltation from poor agriculture and forestry practices, residential and commercial development, invasion of exotic species, road construction and maintenance, discharge of pollutants, habitat alterations, and other natural and human-related factors

Action Strategies
- Work with partners to identify degraded sites and associated landowners. Contact and encourage landowners to participate in Program.
- Promote stream and riparian restoration using natural channel techniques. Fence livestock out of streams, provide alternative watering sources, install heavy use area protection in streams, and re-vegetate as necessary.
- Within the scope of our project budgets, work with our partners to develop and implement monitoring plans to help us document the success of our efforts.

*E=Endangered, T=Threatened, C=Candidate, SOC=Species of Concern

Key Partners in Florida

The following is a list of stakeholders involved in the Partners for Fish and Wildlife program in Florida:

- Private Landowners (over 200)
- Florida Fish & Wildlife Conservation Commission
- South Florida, Southwest Florida, St. Johns, and Suwannee River Water Management Districts
- Florida Department of Environmental Protection
- Florida Division of Forestry
- University of Florida
- Other State of Florida agencies and universities
- University of Georgia
- USDA - Natural Resources Conservation Service
- Various municipality and county agencies
- Allen Broussard Conservancy Inc.
- Apalachicola Bay and River Keepers Inc.
- The Nature Conservancy
- Archbold Biological Station
- Florida Audubon
- Conservancy of SW Florida,
- Florida's Legacy Program
- Key West Botanical Garden
- Pine Ridge Sanctuary
- Rookery Bay Estuarine Research Reserve
- Sanibel Captiva Conservation Foundation
- Sarasota Bay National Estuary Program
- Seminole Indian Tribe
- South Walton Sea Turtle Watch
- St. Andrew Resource Management Association
- Water Resources Partnership Inc.
- Institute for Regional Conservation
- Choctawhatchee Basin Alliance
- Tall Timbers Research Station

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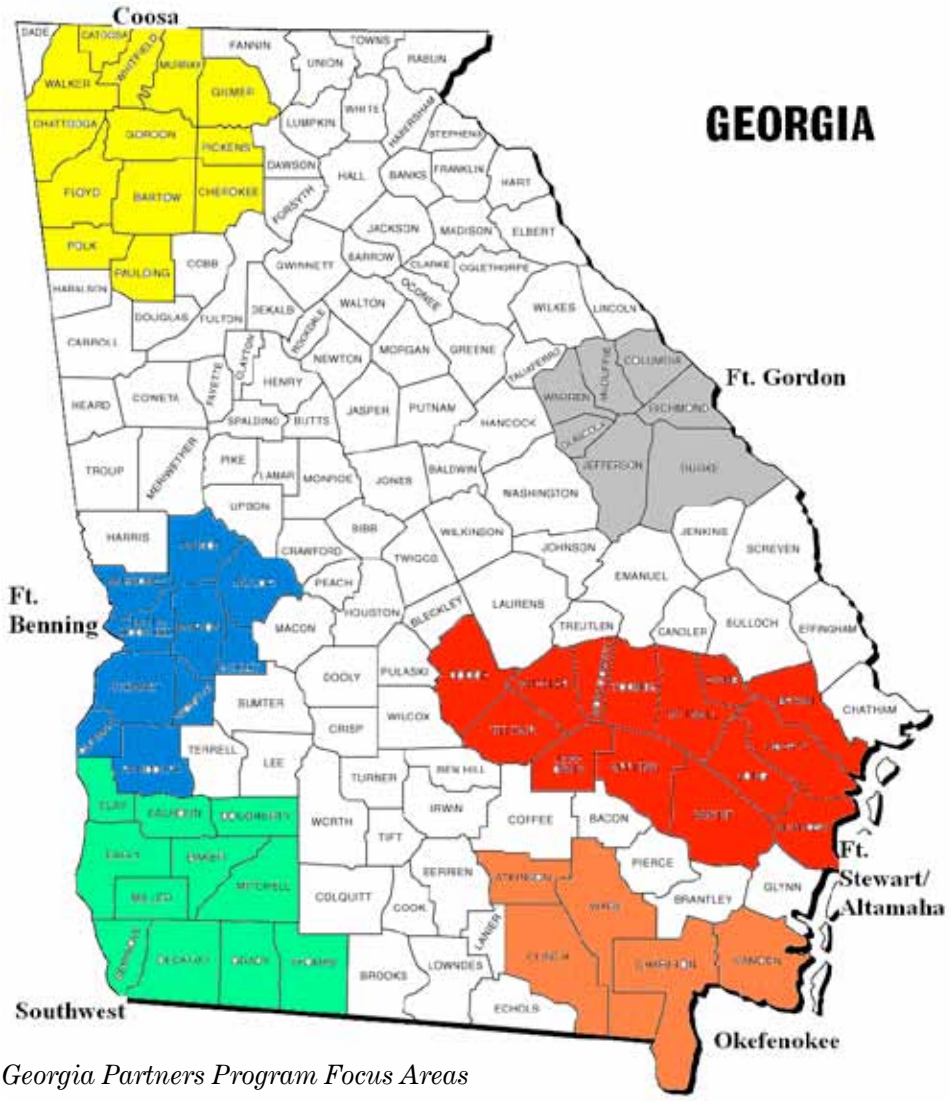
Appendix A: Georgia



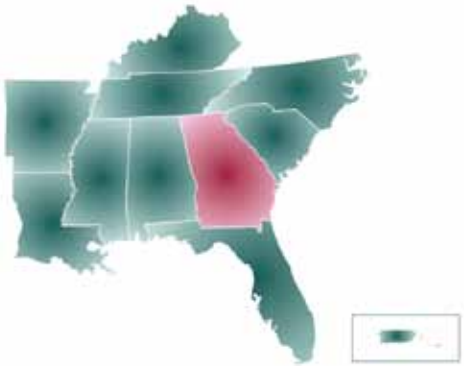
Georgia Partners Program Focus Areas

Introduction and Overview

Georgia has an area of 59,441 square miles, which ranks it 24th in size among the fifty states. The Georgia landscape runs from the mountains in the north and northeast to the Coastal Plain in the southeast. Georgia's highest point is Brasstown Bald at 4,784 feet above sea level and the lowest elevation is sea level along the coast. Georgia experiences a humid and subtropical climate with fairly mild winters and hot moist summers. The annual precipitation varies from 40 inches in central Georgia to more than 74 inches in northeast Georgia.

Georgia is divided into five physiographic provinces: the Cumberland Plateau (also known as the Appalachian Plateau), the Ridge and Valley, the Blue Ridge, the Piedmont, and the Coastal Plain (upper and lower).

The vegetation varies within and among these provinces depending upon soil type, elevation, moisture, and disturbance regimes. In addition to these provinces there are distinct differences in areas such as the Fall Line and coast.



Georgia's location within the temperate zone is associated with moderate to high levels of biodiversity. Georgia ranks second among all states in amphibian diversity, third in freshwater fish diversity, seventh in plant diversity, seventh in reptile diversity, fifteenth in bird diversity and seventeenth in mammal diversity. Based on a recent nationwide assessment of 21,395 species, Georgia ranks sixth in the Nation in overall biological diversity based on numbers of vascular plants, vertebrate animals, and the better known invertebrate groups. Georgia also ranks twelfth in the Nation in terms of endemic species, eighth in percentage of species considered globally imperiled (12.9%), and fifth in terms of number of known or suspected extinctions (Stein et al., 2000).

Habitat loss is the greatest threat facing wildlife habitat in Georgia today. Georgia's population has grown to over nine million people in 2010, up 18 percent from a decade ago. As a result, thousands of acres of wildlife habitat are lost each year to accommodate the expanding human population. Georgia has 62 species of federally listed endangered and threatened species and many more State listed and rare species. More than 90 percent of the land in Georgia is privately owned, therefore the future health of Georgia's land, water, and wildlife depends upon private landowners.

Partners Program in Georgia

The Partners for Fish and Wildlife (PFW) Program has worked with landowners to restore native habitats since about 1995. Habitat improvement projects are focused in areas where conservation efforts will provide the greatest benefit for Federal Trust Species.

Projects include improving and restoring longleaf pine habitat, degraded streams and riparian areas, and the restoration and improvement of endangered, threatened, and rare species habitat.

While the PFW Program has worked diligently to develop habitat improvement projects with individual landowners, it has also made a major effort to form partnerships with conservation organizations, state agencies, and local units of governments to create habitat initiatives for the benefit of the private landowner and Georgia's wildlife. In addition, the state lies within three Landscape Conservation Cooperatives (LCCs); the Appalachians LCC, the South Atlantic LCC, and the Gulf Coastal Plains and Ozarks LCC. Each of these LCCs has identified resource concerns for their geographic areas. These resource concerns include carbon sequestration, ecosystem restoration, fish and wildlife response to climate change, fire, invasive species, habitat fragmentation, water quantity and quality, etc. The PFW Program through the conservation action strategies identified for each focus area below will help to address these LCC resource concerns. A brief discussion of each focus area is given below.

Monitoring

PFW Program projects in Georgia will be monitored throughout the life of the landowner agreement according to PFW Program Project Monitoring Guidelines (Appendix E). Working with our partners, habitat and/or species-level monitoring may be conducted when feasible. Habitat-based monitoring that focuses on successful establishment of the target environmental features such as seedling survival, streambank stability and development of a functioning riparian zone, etc., will likely be the most feasible option to accomplish in the short term.

Georgia PFW Program Focus Areas

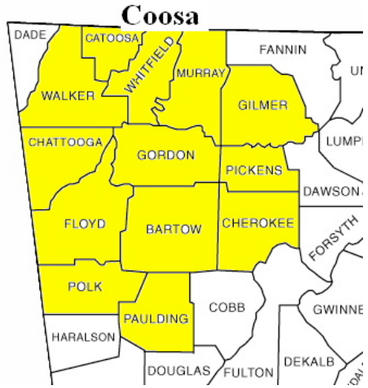
Six geographic focus areas were identified in Georgia to concentrate PFW funding opportunities. These areas were identified based on consultations with partners concerning areas of greatest conservation need and also based upon the number of fish and wildlife species of greatest concern according to the Georgia Comprehensive Wildlife Conservation Strategy (State Wildlife Action Plans) (Wildlife Resources Division 2005), and Georgia's many different habitat types according to The Natural Environments of Georgia (Wharton 1978). Several natural resource plans were also consulted in establishing these focus areas including: the Range-Wide Conservation Plan for Longleaf Pine (America's Longleaf 2009), and the Georgia Statewide Forest Resources Assessment & Strategy (Georgia Forestry Commission 2010).

These focus areas were also chosen because of ongoing efforts in these areas to restore and improve habitat around existing Federal and State lands, and the potential to restore and improve habitat on private lands. These six focus areas are the Coosa, Fort Benning, Southwest, Okefenokee, Fort Stewart/ Altamaha, and Fort Gordon.

Coosa Focus Area

The Coosa Focus Area includes the upper Coosa River, Etowah River, Coosawattee River, Oostanaula River, and the Conasauga River. The Coosa River system begins as tiny springs in the Cohutta Mountains of Northwest Georgia (headwaters of the Oostanaula River) and in the Blue Ridge Mountains of North Central Georgia (headwaters of the Coosawattee and Etowah rivers).

Draining more than 5,000 square miles of land, the Upper Coosa River Basin ranges from southeastern Tennessee and north central Georgia to Weiss Dam in northeast Alabama and holds an incredible array of aquatic species.



No other river basin in North America has a higher percentage of endemic species than the Upper Coosa River Basin. Thirty different species of fishes, mussels, snails and crayfishes are endemic to the Coosa. The Upper Coosa River is the historic home to 100 different fish species, 43 mussel species and 32 species of snails, and 18 species of crayfish. Six fish species, and seven mussels and snails are listed as federally threatened or endangered. In addition, portions of the western counties in this focus area are home to the montane (mountain) longleaf pine forest, the most imperiled of the longleaf pine ecosystems in the U.S.

Priority Habitats
Restored stream channel

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian/Instream: 3.0 miles
- Structures (removed): 2
- Upland (Longleaf pine): 100 acres

*Focus Species**
- Cherokee darter (T)
- Etowah darter (E)
- Conasauga logperch (E)
- Blue shiner (T)
- Upland combshell (E)
- Southern acornshell (E)
- Coosa moccasinshell (E)

Restored stream channel, USFWS.

Threats
- Residential and commercial development, construction of impoundments on tributaries, siltation from development and road construction, silviculture practices, and lack of implementation of best management practices on agricultural and forestry lands

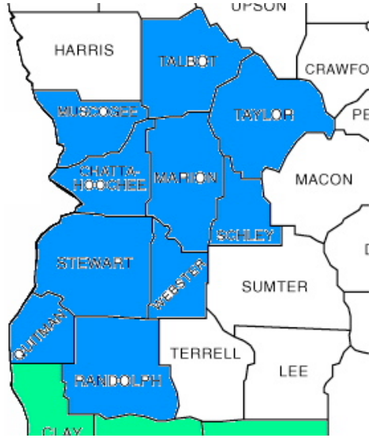
Action Strategies
- Work with partners to leverage technical and financial assistance to:

  1) identify and prioritize conservation needs and projects;

  2) restore, enhance and protect rare and high quality habitats for priority species; and,

  3) monitor the results of conservation activities.

- PFW funds will target riparian and floodplain buffer restoration, livestock and vehicular exclusion from streams, re-establishing stream channel stability using natural channel design methods and bioengineering practices, re-establishing instream habitat connectivity through the removal of barriers to aquatic species passage, restoration of montane longleaf pine habitat within its former range, and the control of invasive and exotic species.



Fort Benning Focus Area

Fort Benning Focus Area

The Fort Benning Focus Area is located around the Fort Benning Military Base and Eufaula National Wildlife Refuge in the mid-western edge of the state and on the northwestern edge of the Southeastern Plains ecoregion. The Fort Benning Focus Area contains part of the western edge of the Fall Line which is a distinctive zone of transition between the topographically-varied Piedmont and the relatively flat Coastal Plain (Wildlife Resources Division 2005). The Fall Line is the landward boundary of encroachment by the ocean during the Cretaceous Period when sea level was much higher than it is today.

The Fall Line contains an area known as the Sand Hills, that form a narrow, rolling to hilly, highly dissected coastal plain belt stretching across the State from Augusta to Columbus. These sand hills are composed primarily of Cretaceous and some Eocene-age marine sands and clays deposited over the crystalline and metamorphic rocks of the Piedmont. On the drier sites, turkey oak and longleaf pine are dominant, while shortleaf-loblolly pine forests and other oak-pine forests are common throughout the region.

Some of the more important river systems in this focus area are: Middle Chattahoochee, Upper and Middle Flint.

Priority Habitats
Riparian/Instream, Longleaf pine

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 1.0 mile
- Upland (Longleaf pine): 350 acres

*Focus Species**
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SR)
- Broadstripe shiner (SR)
- Alligator snapping turtle (ST)
- Gopher tortoise (ST)
- Relict trillium (E)

Threats
- Loss of habitat from residential and commercial development, siltation from development, road construction, lack of implementation of best management practices on agricultural and forestry lands; conversion to slash and loblolly pine plantations, lack of prescribed fire

Planted longleaf pines, USFWS.

Action Strategies
- Work with partners to leverage technical and financial assistance to identify stream restoration projects, and to restore, enhance and protect rare and high quality habitats for priority species.
- PFW funds will target riparian and floodplain buffer restoration, livestock exclusion from streams, and the control of invasive and exotic species.

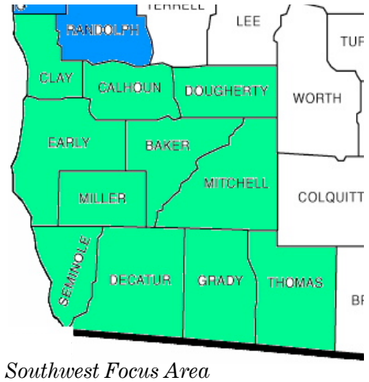
- Partner with other agencies and landowners to provide technical and financial assistance to improve existing degraded longleaf pine stands and restore longleaf pine habitat to appropriate sites where it has been removed. Some practices are midstory control, prescribe burning, establish and maintain firebreaks, competition control, plant longleaf seedlings, plant ground cover, and control invasive and exotic species.

Southwest Focus Area

The Southwest Focus Area is located in a subdivision of the Southeastern Plains ecoregion of Georgia called the Dougherty Plain (Wildlife Resources Division 2005). The Dougherty Plain is mostly flat to gently rolling and influenced by limestone near the surface of the soil. The karst topography contains numerous sinkholes and springs, and relatively few streams in the flatter part of the plain. Predominant landcover types are row crop and pasture, with some small areas of upland mixed forest. Crops such as cotton, peanuts and pecans are common. Many shallow, flat-bottomed depressions (Grady ponds and limesink ponds) are scattered throughout the region.

This focus area contains Spring Creek, Sawhatchee Creek, Ichawaynochaway Creek, Lower Chattahooche, and Lower Flint, in southwest Georgia. Sawhatchee Creek in Early County is the last known tributary of the Chattahoochee River to still harbor three federally endangered mussel species. Portions of Sawhatchee Creek have been designated as Critical Habitat for these mussel species.

The Spring Creek watershed drains 530,000 acres of land in southwest Georgia. The headwaters of Spring Creek originate from natural springs in Clay, Calhoun, and Early Counties. Spring Creek then continues its journey through Miller, Decatur, and Seminole Counties where it empties into Lake Seminole. The watershed is part of the larger Flint River System and sits on top of the Floridian/



Southwest Focus Area

Jacksonian Aquifer and the Claiborne Aquifer systems. Important natural communities in the Spring Creek watershed include lacustrine habitats, clay-based sandhills, steephead ravines, springs, and limesink ponds.

Spring Creek's eroding banks, USFWS

Priority Habitats
Riparian/Instream, Longleaf pine

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian/Instream: 3.0 miles

*Focus Species**
- Alligator snapping turtle (ST)
- Shiny-rayed pocketbook (E)
- Oval pigtoe (E)
- Gulf moccasinshell (E)
- Gopher tortoise (ST)
- Striped newt (SR)
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SR)
- Upland (Longleaf pine): 350 acres

Threats
- Residential and commercial development, construction of impoundments on tributaries, siltation from development, road construction, lack of implementation of best management practices on agricultural and forestry lands; conversion to slash and loblolly pine plantations, and lack of prescribed fire

Action Strategies
- Work with partners to leverage technical and financial assistance to identify and prioritize stream restoration projects, and to restore, enhance and protect rare and high quality habitats for priority species
- PFW funds will target riparian and floodplain buffer restoration, livestock exclusion from streams, re-establishing stream channel stability using natural channel design methods and bioengineering practices, and the control of invasive and exotic species.
- Partner with other agencies and landowners to provide technical and financial assistance to improve existing degraded longleaf pine stands and restore longleaf pine habitat to appropriate sites where it has been removed. Some practices are midstory control, prescribe burning, establish and maintain firebreaks, competition control, plant longleaf seedlings, plant ground cover, and control invasive exotic species.

Okefenokee Focus Area

The Okefenokee Focus Area is located around Okefenokee National Wildlife Refuge in the southeastern part of the state on the border with Florida. This focus area is located in the southeastern section of the Southern Coastal Plain and consists of the Okefenokee Plains and the Okefenokee Swamp (Wildlife Resources Division 2005).

The Okefenokee Plains are flat plains and low terraces developed on Pleistocene-Pliocene sands and

gravels, and contain pine stands interspersed with numerous swamps and bays. There are some highly acidic natural lakes with low clarity and darkly colored water. Soils in the region are somewhat poorly drained to poorly drained. The region has mostly coniferous forest and young pine plantation land cover, with areas of forested wetlands.

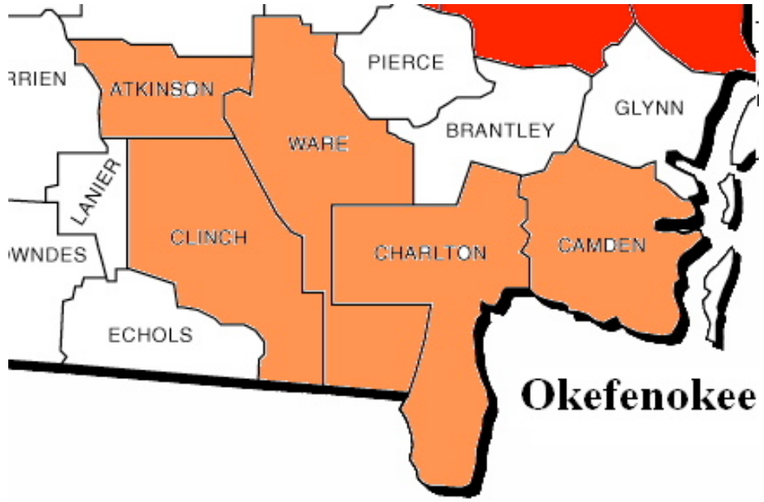
The Okefenokee Swamp is a mixture of forested swamp and freshwater marsh with some pine-dominated upland. The swamp drains to the south and southwest and contains the headwaters for the St. Mary's and Suwannee Rivers as well as numerous islands, lakes, and thick beds of peat. The slow-moving waters are darkly colored and acidic. Cypress, swamp blackgum, and bay forests are common, with scattered areas of prairie, which are comprised of grasses, sedges, and various aquatic plants. Cycles of drought and fire affect both its vegetation and wildlife. Trail Ridge forms the eastern boundary of the Okefenokee Swamp. Loblolly and slash pine plantations cover much of the region.

Priority Habitats
Riparian, Longleaf pine

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 1.0 mile
- Upland (Longleaf Pine): 250 acres

*Focus Species**
- Round-tailed muskrat (ST)
- Gopher tortoise (ST)
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SR)
- Wood stork (E)
- Black-banded sunfish (SE)

Threats
- Loss of habitat from residential and commercial development, mining, road construction, lack of implementation of best management practices on agricultural and forestry lands; conversion to slash and loblolly pine plantations, and lack of prescribed fire



Action Strategies
- Partner with other agencies and landowners to provide technical and financial assistance to improve existing degraded longleaf pine stands and restore longleaf pine habitat to appropriate sites where it has been removed. Some practices are midstory control, prescribe burning, establish and maintain firebreaks, competition control, plant longleaf seedlings, plant ground cover, and control invasive and exotic species.
- Work with partners to leverage technical and financial assistance to identify and prioritize stream restoration projects, and to restore, enhance and protect rare and high quality habitats for priority species. Partners funds will target riparian and floodplain buffer restoration, livestock exclusion from streams, and the control of invasive exotic species.

Prescribed fire is an essential practice in the longleaf pine ecosystem/USFWS.

Fort Stewart/Altamaha Focus Area

The Fort Stewart/Altamaha Focus Area is located around Fort Stewart and Townsend Bombing Range and the Altamaha River in the southeastern part of the state. This focus area is located in the Southeastern Plains and the Southern Coastal Plain and consists of the Sea Island Flatwoods, the Bacon Terraces, and the Atlantic Southern Loam Plains (WRD 2005). The Fort Stewart/ Altamaha Focus Area includes the following River systems: lower Ogeechee, Canoochee, Ocmulgee, and Altamaha.

The Sea Island Flatwoods are poorly drained flat plains with Pleistocene terraces and shoreline deposits. Poorly drained soils are common in this region; small areas of better drained soils contribute to ecological diversity.

The Bacon Terraces include several relatively flat, moderately dissected terraces with subtle east-facing scarps. The terraces, developed on Pliocene to Pleistocene sands and gravels, are dissected in a dendritic pattern by much of the upper Satilla River Basin. Cropland is mostly on well-drained soils on the long, narrow, flat to gently sloping ridges paralleling the stream courses. The broad flats are typically poorly drained pine stands, while bottomland hardwood forests are found in the wet, narrow floodplains.

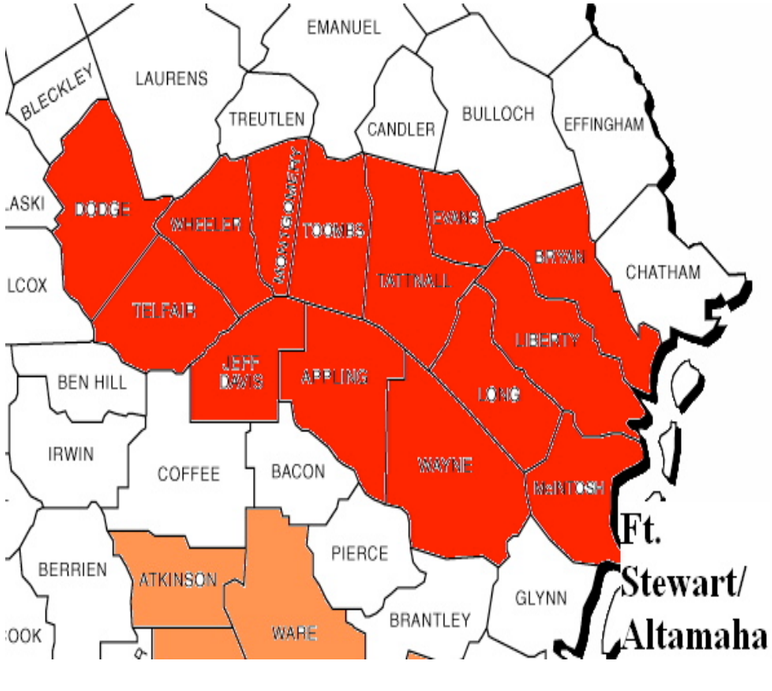
Floodplains and Low Terraces consist of the broad floodplains and terraces of major rivers, such as the Savannah, Ogeechee, and Altamaha. Soils consist of stream alluvium and terrace deposits of sand, silt, clay, and gravel, along with some organic muck and swamp deposits. Swamp forests of bald cypress and water tupelo and oak-dominated bottomland hardwood forests provide important wildlife habitat.

The Atlantic Southern Loam Plains, also known as the Vidalia Upland, is generally lower, flatter, and more gently rolling than the Coastal Plain Red Uplands and has more cropland and finer-textured soils than the adjacent Sea Island Flatwoods. It has an abundance of agriculturally important soils in active cultivation, but also contains forests in areas that are more sloping or are low, flat and poorly drained. Parallel to some of the major streams in this region (e.g., Ohoopee, Little Ohoopee, Canoochee, and Little Ocmulgee) are deep wind-derived sand ridges with xeric vegetation such as longleaf pine-turkey oak forests as well as evergreen shrubs such as sandhills rosemary and woody mints.

Priority Habitats
Riparian, Longleaf pine

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 2.0 miles
- Upland (Longleaf pine): 500 acres

*Focus Species**
- Frosted flatwoods salamander (T)
- Gopher tortoise (ST)
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SR)
- Wood stork (E)
- Swallow-tailed kite (SR)
- Altamaha spinymussel (C)
- Georgia plume (GT)



Threats
- Residential and commercial development, lack of implementation of best management practices on agricultural and forestry lands, conversion to slash and loblolly pine plantations, lack of prescribe fire

Action Strategies
- Work with partners and landowners to improve water quality in area rivers and streams by encouraging participation in PFW or other conservation programs. Fund projects to fence livestock out of streams, provide alternative watering sources, install heavy use area protection, revegetate riparian areas as needed, control invasive exotic species.
- Partner with other agencies and landowners to provide technical and financial assistance to improve existing degraded longleaf pine stands and restore longleaf pine habitat to appropriate sites where it has been removed. Some practices are mid-story control, prescribe burning, establish and maintain firebreaks, competition control, plant longleaf pine seedlings, plant ground cover, and control invasive species.

Gopher tortoise in Longleaf pine habitat/USFWS.

Fort Gordon Focus Area

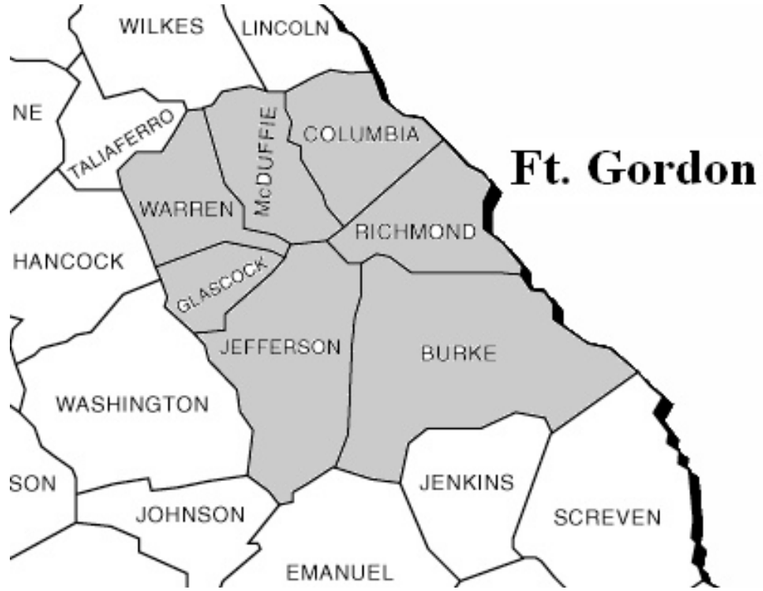
The Fort Gordon Focus Area is located around Fort Gordon in the mid-eastern edge of the state and on the northern edge of the Southeastern Plains ecoregion. Some of the more important river systems in this focus area are: Middle Savannah River, Brier Creek, and Little River. This focus area contains part of the Fall Line which is a distinctive zone of transition between the topographically-varied Piedmont and the relatively flat Coastal Plain (Wildlife Resources Division 2005). The Fall Line is the landward boundary of encroachment by the ocean during the Cretaceous period when sea level was much higher than it is today.

The Fall Line contains an area known as the Sand Hills, which form a narrow, rolling to hilly, highly dissected coastal plain belt stretching across the state from Augusta to Columbus. These sand hills are composed primarily of Cretaceous and some Eocene-age marine sands and clays deposited over the crystalline and metamorphic rocks of the Piedmont. On the drier sites, turkey oak and longleaf pine are dominant, while shortleaf-loblolly pine forests and other oak-pine forests are common throughout the region.

Priority Habitats
Riparian, Longleaf pine

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 1.0 mile
- Upland (Longleaf pine): 150 acres

*Focus Species**
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SR)
- Gopher tortoise (ST)
- Robust redhorse (SE)
- Spotted turtle (SU)
- Sandhill rosemary (ST)



Threats
- Loss of habitat from residential and commercial development, siltation from development, road construction, lack of implementation of best management practices (BMPs) on agricultural and forestry lands; conversion to slash and loblolly pine plantations, lack of prescribed fire

Action Strategies
- Partner with other agencies and landowners to provide technical and financial assistance to improve existing degraded longleaf pine stands and restore longleaf pine habitat to appropriate sites where it has been removed. Some practices are mid-story control, prescribe burning, establish and maintain firebreaks, competition control, plant longleaf seedlings, plant ground cover, and control invasive exotic species.
- Work with partners to leverage technical and financial assistance to identify and prioritize stream restoration projects, and to restore, enhance and protect rare and high quality habitats for priority species. Partners funds will target riparian and floodplain buffer restoration, livestock exclusion from streams, and the control of invasive and exotic species.

Young longleaf pine seedlings in the grass stage/USFWS.

* E=endangered, T=threatened, C=candidate, SE=State endangered, ST=State threatened, SR=State rare, SU=State unusual

Key Partners in Georgia

The following is a list of stakeholders involved in the PFW Program in Georgia:

- Private Landowners (over 250)
- Georgia Forestry Commission
- Georgia Soil and Water Conservation Commission
- Georgia Department of Natural Resources
- Georgia Association of Conservation District Supervisors
- Numerous local Conservation Districts
- Natural Resources Conservation Service
- The Nature Conservancy
- The Longleaf Alliance
- The Conasauga River Alliance
- Etowah River Alliance
- Limestone Valley RC&D
- Seven Rivers RC&D
- Golden Triangle RC&D
- Pine Country RC&D
- Chestatee-Chattahoochee RC&D
- Upper Suwannee River Watershed Initiative
- Spring Creek Watershed Partnership
- Upper Chattahoochee River Keeper
- University of Georgia
- Auburn University
- Farm Services Agency
- Glynn County Board of Commissioners
- City of Jesup
- City of Lakeland
- City of Douglas
- Southeastern Natural Sciences Academy
- U.S. Forest Service
- City of Chickamauga
- Wayne County School Board
- Walker County Board of Education
- Appling County Middle School
- Tattnall County High School
- Gordon Central High School
- Georgia Conservancy
- Sandy Creek Nature Center
- Elachee Nature Science Center
- Emanuel County School Board
- Douglas County
- City of Alpharetta
- Floyd College
- Dade County
- Oconee County
- Ware County
- Morgan County
- Brantley County
- Bacon County
- Darton College
- Joseph W. Jones Ecological Research Center
- National Fish and Wildlife Foundation
- South Georgia Youth Park
- Georgia Wildlife Federation
- Central Savannah River Land Trust
- Athens-Clarke County
- Macon Museum of Arts & Sciences
- Clarke Central High School
- Cherokee Tribe of Georgia
- Project Orianne

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Appendix A: Kentucky

Kentucky Partners Program Focus Areas

Introduction and Overview

Kentucky is one of the most biologically diverse states in the Nation. It is divided into six distinctive physiographic regions, which includes the Appalachian or Cumberland Plateau, Knobs, Bluegrass, Pennyroyal, Shawnee Hills and the Coastal Plain. The beautiful hemlock mountain forests of the eastern Cumberland Plateau extend westward to the Knobs, Bluegrass and karst areas of the Pennyroyal of central Kentucky. The geography then turns into the hilly uplands of the Shawnee Hills, which finally reach the coastal plain of the Mississippi River known as the Jackson Purchase Region of west Kentucky. The famous Land-Between the Lakes, now a National Recreation Area operated by the U.S. Forest Service, lies between the Cumberland and Tennessee Rivers and separates the Jackson Purchase Region from the Pennyroyal. The Ohio River forms the northern boundary of Kentucky, separating it from Ohio, Indiana, and Illinois, while the Mississippi River forms the western boundary of the State.

Kentucky contains 89,000 miles of streams within 17 major watersheds and supports 230 species of fish and approximately 103 species of mussels, which equates to about 35 percent of the Nation's fauna (Kentucky State Nature Preserves Commission (KSNPC). Kentucky is ranked third in the Nation in aquatic diversity (USFWS). The Bluegrass Region of Kentucky has been labeled as one of the endangered ecosystems in the United States, with only one tenth of one percent of the original habitat remaining. Extensive wetlands once dominated the Mississippi River and Ohio River floodplains; however, 85 percent have been lost. There was an estimated two to three million acres of native grassland, savannah, glade, and barrens habitats occupying portions of the Bluegrass, Big Barren and Pennyroyal, now with less than one percent remaining. Many of these rare and unique ecosystems have been severely altered, degraded or destroyed by coal mining activities, urban sprawl and development, dams, highway systems, stream channelization, wetland and prairie conversion for agriculture, poor logging operations and destructive agricultural activities.

The State harbors 37 federally listed species, numerous Federal candidate species and many other at-risk species. In its first State Wildlife Action

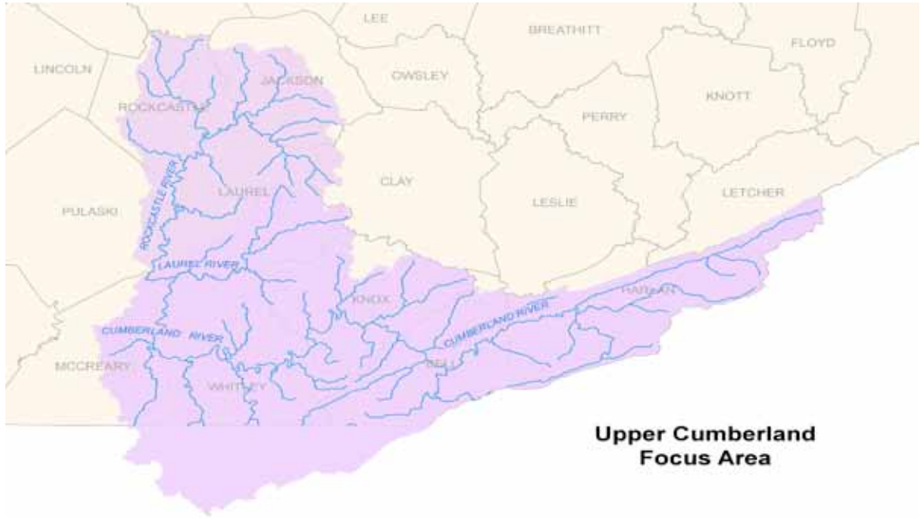
Plan, the Kentucky Department of Fish and Wildlife Resources (KDFWR) identified 251 species in 7 taxonomic groups as those in need of "Greatest Conservation Need." Additional species and taxa are expected to be added by KDFWR as new information arises. The Partners for Fish and Wildlife Program (PFW) strives to work with all willing partners to restore and enhance every ecosystem in the Commonwealth of Kentucky that benefits Federal trust species.

Monitoring

Our monitoring approach is guided by our Regional Monitoring Guidelines (Appendix E). We will be working with our partners to carry out strategic monitoring. However, due to substantial budget reductions at the Federal and State level, our capacity for monitoring is limited. Most of the stream monitoring will be assumption based and derived from other similar stream projects in which habitat and or species responded positively from restoration and enhancement activities. The PFW program in Kentucky will be conducting "before and after" restoration vegetation and insect monitoring regarding one or two projects in the Big Barrens and Oak-Savannah focus areas. The monitoring in these areas will be related to landscape-level project monitoring criteria.

Kentucky PFW Program Focus Areas

Partners for Fish and Wildlife Program funds are delivered in six major priority focus areas in Kentucky. The geographic focus areas were chosen in collaboration with our partners because of the number of federal trust species and the ongoing partnership efforts that help recover species in those areas.



Upper Cumberland Focus Area

These focus areas include, but are not limited to:

- Upper Cumberland River Basin
- Upper Green River Basin
- Mississippi River Bayou Watersheds (includes Bayou du Chien, Terrepin, and Obion Creeks) Watershed
- Clark's River Watershed
- Licking River Basin
- Pennyroyal - Highland Rim Prairie Karst Region (which includes the Big & Lapland Barrens and Trigg County Oak-Savannah focus areas)

There are other sub-focus areas in the State where habitat improvement projects also occur. All the primary and sub-focus areas have Federal trust species present and are in need of habitat conservation.

- Livingston Creek Watershed
- Eagle Creek Watershed of Scott, Owen and Grant Counties
- Madison and Clark Counties
- Sturgeon Creek and the South Middle and North Fork watersheds of the Kentucky River Basin

Upper Cumberland River Basin Focus Area

The Upper Cumberland Basin Focus Area is an approximate 1,900-square mile watershed, which includes the mainstem of the Cumberland River and all of its tributaries upstream of Cumberland Falls. Historically, the middle and upper Cumberland River systems represented one of the most unique and diverse aquatic ecosystems in North America. More mussel species (72) occurred in this system prior to settlement than in any other Kentucky drainage except the mainstem of the Ohio River. Of the 72 mussel species that inhabited the middle and upper Cumberland River basins, half of the species are extinct, extirpated from the state, or no longer occur in this region, and 11 of the 36 extant species are rare at the State or Federal level. There are seven federally listed species, two Federal candidate species, and 20 additional state-listed species that inhabit the middle and upper Cumberland River basins in southeastern Kentucky.

The aquatic fauna continues to be impacted by pollutants associated with coal mining, domestic waste, road construction, urban development, and silviculture. The Cumberland River Basin contains more miles of special use waters (Kentucky Wild Rivers, Outstanding State Resource Waters,

Top: fish passage barrier and degraded stream habitat negatively affecting (T) blackside dace; below: after fish barrier has been removed, 2300 feet of stream restored and replaced with a fish friendly passage, USFWS.

Exceptional Waters) than any other major drainage basin in Kentucky. The PFW Program has been implementing a major habitat improvement initiative to benefit the threatened blackside dace and Cumberland darter, both species being endemic to the upper Cumberland River system. In addition, status reviews are being conducted on the Cumberland arrow darter and eastern hellbender to determine if these species warrant Federal listing. Habitat improvement efforts will concentrate on stream and riparian restoration, and implementing Best Management Practices (BMPs) related to agriculture, livestock production and remediation and improved forestry practices. In 2010, the Upper Cumberland Basin received over one million dollars in funding through the Healthy Forest Reserve Program (HFRP), a program administered by the USDA Natural Resources Conservation Service (NRCS). The PFW Program assisted in the development of the HFRP, and was also involved in the field reviews and implementation planning.

Buck Creek is a 188,000 plus acre watershed containing more than 30 species of freshwater mussels, five being federally endangered and five listed as state concern; 77 species of fish, and two endangered bat species, the gray and Indiana bat. It is located in the Upper Cumberland drainage of Southeast Kentucky. In 2002, Critical Habitat was designated in Buck Creek for the oyster and Cumberland combshell mussels. The PFW Program has been conducting restoration projects in the Buck Creek watershed since 2000. The focus of conservation work in Buck Creek concerns stream restoration, bank stabilization, livestock exclusion fencing, forest riparian establishment, sink hole and cave protection and general stream and wetland improvement and protection. Brushy Creek, a major tributary of Buck Creek, has been a recent priority area within this watershed.

Brushy Creek: top: before and bottom: after, USFWS.

In 2011, the PFW Program also had significant involvement in restoration efforts with the American chestnut tree. The American chestnut tree almost became extinct in the early part of the twentieth century due to chestnut blight. It is a keystone tree species for many neotropical bird species, and the PFW Program is working with the Kentucky Chapter of the American Chestnut Foundation and the State forest and fish and wildlife agencies to aid in the recovery of American chestnut forests.

Priority Habitats

Riparian and In-stream, hardwood and chestnut forests

Five-Year Accomplishment Target (FY 2012-FY 2016)

- Riparian/Instream: 1.0 mile

Focus Species

Six federally endangered, two federal candidates, and twenty state-listed species in the upper Cumberland River system (see table at right).

Threats

- Threats include degraded water quality from excessive sedimentation due to logging, mining, road construction, and agriculture, nutrient enrichment from livestock in streams, acid mine drainage from mining, lack of proper sewer systems, poor BMPs related to silviculture.

Action Strategies

- Develop habitat improvement projects by working with partners, particularly the NRCS and local networks, such as local conservation districts.
- PFW funds will be leveraged with Farm Bill (e.g. CRP, EQIP) and other conservation program funds to exclude livestock from streams, repair failing stream banks, provide alternate water sources, restore riparian habitat, remediate poor logging practices, remove fish passage barriers, and conduct stream restoration.

Common name	*Federal status**	*Kentucky status**
Fishes		
Blackside dace	T	T
Cumberland Johnny darter	C	E
Ashy darter	M	E
Kentucky arrow darter	C	E
Olive darter	M	E
Stargazing minnow		S
Mountain brook lamprey		T
American brook lamprey		T
Amphibians		
Eastern hellbender	M	S
Mussels		
Cumberland bean	E	E
Cumberland elktoe	E	E
Littlewing pearly mussel	E	E
Cumberlandian combshell	E	E
Oyster mussel	E	E
Fluted kidneyshell	C	E
Elktoe	M	T
Cumberland papershell	M	E
Longsolid		S
Pocketbook		E
Tennessee clubshell	M	E
Rabbitsfoot	M	T
Purple lilliput	M	E
Little spectaclecase		S
Crayfish		
Mountain midget crayfish		T
Insects		
Eastern red damselfly		E
Pygmy snaketail dragonfly	M	S
Maine snaketail dragonfly		E
Elusive clubtail dragonfly	M	E

*Federal Status: Endangered (E), Threatened (T), Candidate (C), Proposed for Listing (PFL), Species of Management Concern (M); Kentucky Status: Endangered (E), Threatened (T), Special Concern (S)

- Bioengineering techniques (e.g. cedar tree revetments) will be used to repair stream banks to provide better fish and wildlife habitat.
- Efforts will be made to develop and implement larger, watershed stream improvement projects as well.
- The PFW Program will also attempt to implement forest plantings, or encourage Farm Bill programs that promote healthy forest practices and reforestation in the upper Cumberland watershed.
- Emphasis will be directed within the Buck Creek Watershed of the Cumberland Basin.

Upper Green River Focus Area

The Upper Green River Basin is a one of the most biologically significant watersheds in the United States in terms of fish and mussel fauna. There have been 150 species of fish and 70 species of mussels recorded from the Green River, including seven that are federally listed. This includes the rare ring pink mussel, which was thought to be extinct until 2005. The Green River Basin has an extensive cave system and these sub-terminal stream systems feed the famous Mammoth Cave National Park, which is home to the endangered Kentucky cave shrimp, gray and Indiana bats.

The PFW Program in Kentucky has conducted numerous habitat improvement projects in the Upper Green River watershed, and is currently very active with conservation delivery activities there. The PFW Program also provides technical assistance to the USDA Farm Service Agency, the NRCS, and other conservation partners regarding the Green River Conservation Reserve Enhancement Program (CREP) that was initiated in 2001. Eight Counties in the Upper Green River of south-central Kentucky are eligible for enrollment in the CREP. Target goals are to restore up to 100,000 acres through the Green River CREP. Other goals of the Green River CREP are to: 1) reduce by 10 percent the amount of sediment, pesticides, and nutrients entering the Green River and Mammoth Cave systems by establishing strips of grass and trees around streams and sinkholes; 2) protect wildlife habitat and populations, including threatened and endangered species; 3) restore riparian habitat along the Green River; and, 4) restore the subterranean ecosystem by targeting 1,000 high priority sinkholes.

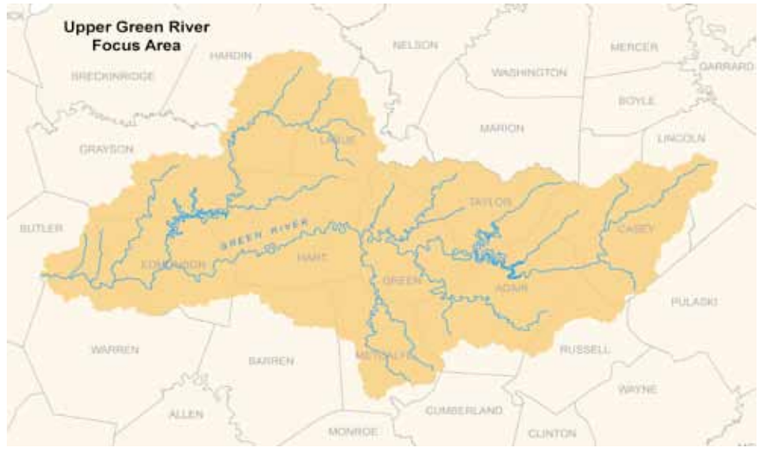
The PFW Program is actively assisting conservation partners to accomplish these goals and to encourage landowners to re-enroll acres once contracts expire.

Priority Habitats
Riparian and In-stream

Five-Year Accomplishment Target (FY 2012 -FY 2016)
Riparian/Instream: 1.0 Mile

*Focus Species**
- Pink mucket (E)
- Fanshell (E)
- Orange-footed pearly mussel (E)
- Ring pink (E)
- Fat pocketbook (E)
- Indiana bat (E)
- Gray bat (E)
- Kentucky cave shrimp (E)

U.S. Fish & Wildlife Service



Threats
- Threats include degraded water quality from excessive sedimentation due to poor agriculture practices, nutrient enrichment from livestock in streams, lack of forested riparian areas, and cold water discharge from dams.

Action Strategies
- Past restoration efforts have been focused primarily in Russell and Pittman Creeks to maximize funding and concentrate restoration efforts; this emphasis will continue to the extent practicable.
- Develop habitat restoration projects by working with various partners, particularly the NRCS and local conservation agencies.
- PFW funds will be leveraged with Farm Bill (e.g. CRP, EQIP) and other conservation program funds to exclude livestock from streams, repair failing stream banks, provide alternate water sources, restore riparian and wetland habitat, remove fish passage barriers, and conduct stream restoration.
- Bioengineering techniques (e.g. cedar tree revetments) will be used to repair stream banks to provide better fish and wildlife habitat.
- Efforts will be made to develop and implement larger, watershed stream improvement projects as well.

Livestock in stream tributary adjacent to the Green River, USFWS.

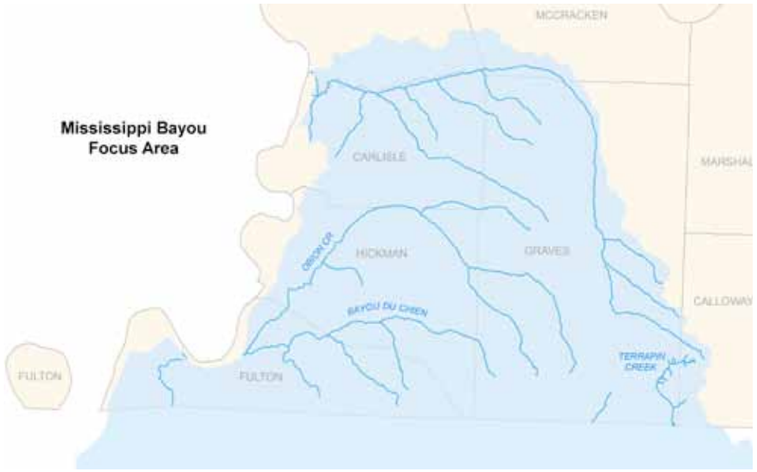
- Various conservation programs will be leveraged with PFW funds to maximize restoration results.
- Efforts will also be pursued to encourage landowners to re-enroll CREP conservation acres and not to allow them to go back into crop production.

Mississippi River Bayou Focus Area

The Mississippi River Bayou Focus Area includes Bayou du Chien, Terrepin Creek and Obion Creek. The Bayou du Chien watershed is located in the western portion of Kentucky and is a major tributary of the Mississippi River. The upper portion of Bayou du Chien contains unique cold springs and has a shallow sandy bottom with under cut banks. The lower third of Bayou du Chien is a low gradient, alluvial and turbid system, commonly associated with the Mississippi River tributaries and wetlands. The federally endangered relict darter is restricted to the upper two thirds of the Bayou du Chien watershed, and is dependent upon the cool spring systems. Most of the spawning habitat is isolated in only a few areas in the upper watershed. Because Bayou du Chien and its tributaries were channelized historically, many of the streams have begun to degrade causing severe bank failure. Excessive sedimentation from bank failure and runoff from agricultural fields buries the in-stream spawning habitat of the relict darter creating further population declines. In addition, high commodity prices (e.g. corn and soybeans) have prohibited habitat improvement efforts and resulted in more farming.

Habitat improvement projects have been completed and others are currently being developed through the PFW Program to reduce sedimentation in the watershed. In the future, the PFW Program hopes to secure funding to complete in-stream habitat improvements to create more quality habitat for this rare endemic species.

The Terrapin and Obion Creek Watersheds contain State listed species and species of concern, such as the fire belly darter and Kirtland's watersnake. Both of these watersheds have been a major conservation area for The Nature Conservancy (TNC) and Kentucky State Nature Preserves Commission for over ten years, and there are currently State nature preserves and ongoing stream improvement projects in both watersheds.



Sampling for the relic darter, USFWS.

Relic darter, USFWS.

Priority Habitats
Riparian and In-stream

Five-Year Accomplishment Target (FY 2012-FY 2016)
- Riparian/Instream: 0.5-Mile

*Focus Species**
- Relict darter (E)
- State listed species (S)

Threats
- Past channelization has destabilized the entire watershed causing massive bank failure. Excessive sedimentation from bank failure and lack of riparian buffers adjacent to row crop fields buries in stream spawning habitat (e.g. logs).
- Lack of forested riparian habitats, nutrient rich materials from swine and chicken production and water depletion from crop irrigation are also causes for relict darter declines.
- Record high commodity prices (e.g. corn and soybeans) have prohibited restoration efforts, and resulted in more land being cleared and use for farming.

Action Strategies
- Habitat improvement efforts will continue to focus on building landowner relationships and developing projects through NRCS and other key partners such as TNC.
- Efforts are being made to establish filter strips and riparian corridors and to repair failing stream banks to help reduce erosion and sedimentation from entering Bayou du Chien.
- PFW biologists will work closely with other partners in trying to secure a larger source of funding to carry out habitat improvement conservation within the watershed.
- Bioengineering techniques (e.g. cedar tree revetments) will be used to repair stream banks to provide better fish and wildlife habitat.
- Various conservation programs will be leveraged with PFW funds to maximize results.
- In 2011, efforts are being taken to develop an EPA 319 Habitat Assessment Grant for the Bayou du Chien watershed and to develop a local landowner watershed friends group to increase awareness in the area. The PFW program has and will continue to have a major role in these endeavors.

Clark's River Focus Area

The Clark's River flows through the Clark's River National Wildlife Refuge (NWR). There is currently 9,000 acres in the refuge with 18,000 acres within the acquisition boundary. Clark's River is a major tributary of the Tennessee River and contains a very diverse mussel and fish assemblage. A recent mussel and fish survey conducted in Clark's River NWR revealed 24 species of freshwater mussels and 54 species of fish. Wetland and bottomland hardwood forest essential to migratory birds were once common in this watershed, and there are many opportunities for habitat improvement within the watershed.

Priority Habitats
Riparian, wetlands and In-stream

Five-Year Accomplishment Target (FY 2012-FY 2016)
Riparian/Instream: 1.0 Mile

Wetland: 30 acres

Clarks River
Focus Area

*Focus Species**
- Indiana bat (E)
- Gray bat (E)
- Mussels (S)
- Neotropical Migratory Birds (S)

Threats
- Past channelization has destabilized the entire watershed causing massive bank failure. Excessive sedimentation from bank failure and lack of riparian buffers adjacent to row crop fields contributes to species declines.
- Lack of forested riparian habitats, nutrient rich materials from swine and chicken production and water depletion from crop irrigation also contribute to water quality problems in Clark's River.
- Many wetlands in the Clark's River watershed have been tiled and drained.

Action Strategies
- Restoration efforts will continue to focus on building landowner relationships, developing projects through NRCS, and developing new partnerships associated with Clark's River NWR.
- Efforts are being made to establish filter strips and riparian corridors and remediate failing stream banks to reduce sediments from entering the watershed.
- Efforts will be made to restore wetlands adjacent to Clark's River NWR and throughout the watershed. Biologists with the PFW will help develop projects for enrollment in the Wetland Reserve Program (WRP), as well as helping NRCS facilitate WRP in the Clark's River watershed.
- Bioengineering techniques (e.g. cedar tree revetments) will be used to repair stream banks to provide better fish and wildlife habitat.
- Various conservation programs will be leveraged with PFW funds to maximize restoration results.

Licking River Basin Focus Area

The Licking River is a major tributary of the Ohio River in northeast Kentucky. It encompasses 16 counties and is part of a major restoration effort by several Kentucky conservation partners. The Licking River has a very diverse fish and mussel assemblage and may have the second most diverse mussel population in Kentucky (M. McGregor KDFWR). It has two federally listed mussel species, which include the fanshell and clubshell mussel. The Licking River is thought to have the last best population of the fanshell mussel and is a viable element for its overall recovery. There are many "wet meadow" wetlands in the Licking River Basin and projects are being developed to restore them through various conservation programs. Two federally endangered plants species, Short's golden rod and running buffalo clover also occur in the watershed. Most of the PFW habitat improvement efforts have been concentrated in Beaver and Greasy Creeks and the North Fork sub-basins. The primary focus of work has been on stream habitat improvement (i.e., restoration, bank stabilization, livestock exclusion fencing, forest riparian establishment, guidance for establishment rotational grazing practices and general wildlife habitat practices).

Priority Habitats
Riparian and Instream

Five-Year Accomplishment Target (FY 2012- FY 2016)
- Riparian/Instream: 1.0 Mile
- Upland: Five Short's goldenrod projects

*Focus Species**
- Fanshell mussel (E)
- Clubshell mussel (E)
- Short's goldenrod (E)
- Running buffalo clover (E)
- Indiana bat (E)

Student interns helping to restore populations of Short's Golden Rod on private lands in the Licking River watershed, USFWS.

Threats

- Most of the threats in the Licking River watershed are from poor agricultural practices (i.e., Livestock freely using the streams, feeding adjacent to streams, failing banks, erosion from row crop fields, and lack of forested riparian areas contribute excessive amounts of sediments into streams throughout the watershed.
- In addition, restriction of the floodplain from the logging of riparian areas, stream barriers, and culverts that limit fish passage have also greatly contributed to destabilization of in-stream habitat.

Action Strategies

- Restoration efforts will continue to focus on building landowner relationships and developing projects through NRCS.
- Efforts are being made to establish filter strips and forested riparian corridors to reduce sediments from entering the watershed.
- Bioengineering techniques (e.g. cedar tree revetments) will be used to repair stream banks to provide better fish and wildlife habitat.
- Biologists will continue to try and secure a larger source of funding to conduct priority habitat improvements in the watershed.
- Various conservation programs will be leveraged with PFW funds to maximize results.

Pennyroyal - Highland Rim Prairie Karst Region Focus Area (includes the Big Barrens and Trigg County Oak-Savannah Focus Areas)

- The PFW Program will also be involved in the implementation and establishment of Short's golden rod and running buffalo clover on private lands. New Short's golden rod sites were established in 2010 and 2011.

Pennyroyal - Highland Rim Prairie Karst Region Focus Area

The Pennyroyal, Big Barrens region of Kentucky is a major part of the Central Hardwoods Joint Venture for birds and covers almost half of Kentucky in the central part of the State. It is also known as the Kentucky Karst Plain (Smalley (1980), and is part of the Interior Low Plateau Physiographic Providence. There are nine to eleven sub-regions within the Big Barrens region.

This Focus Area is in close proximity to the large Hoosier Nation Forest (>200,000 acres) to the North in Indiana, the Fort Knox Military Reserve (109,000 acres) to the East, and Land Between the Lakes National Forest (170,000 acres), the Fort Campbell Military Reserve (105,068 acres), and Mammoth Cave National Park (52,835 acres) to the South. The Big Barrens/Highland areas contain some of the rarest prairie, barren and glade habitats in Kentucky and the United States, with only .01% remaining (KSNPC).

Native grasslands and prairie habitat improvement projects have already been completed in the northern portion of the Big Barrens Region.

The barren-glade systems within the forests are vital swarming areas for many declining species of bats, such as the endangered Indiana bat. The Kentucky Karst Plain itself is one of the most significant bat hibernacula in the southeast United States (e.g. Mammoth Cave system). In addition, it contains many rare and State-listed plants and invertebrates (e.g. Swamp Metal Mark Butterfly).

The habitats in these areas have also been designated by other conservation organizations (e.g., the Central Hardwoods Joint Venture, Partners in Flight, Kentucky Department of Fish and Wildlife Resources (KDFWR), TNC as a very rare, in need of restoration, and vital to the recovery and long-term health of many neo-tropical bird species. In 2008, the Pennyroyal-Highland Rim Prairie Karst (Big Barrens) Region was designated by KDFWR as a northern bobwhite quail focus and recovery area and was endorsed by over 33 universities, joint ventures, government and non-governmental agencies.

Livingston Creek Sub-Focus Area

We have designated the Livingston Creek Watershed (which also contains portions of the Highland Rim Prairie area) as a sub-focus area. There are significant mussel, prairie, and bat resources associated with the Livingston Creek Watershed. This is also a TNC State focus area. We completed one PFW project in Livingston Creek in 2009 that involved the exclusion of domestic hogs and reforestation of the riparian area.

The Eagle Creek Watershed of Scott, Owen, Grant, Madison and Clark counties is also designated as a sub-focus area because it contains the most significant populations of the endangered running buffalo clover (RBC). The PFW Program and other partners have ongoing private lands projects in those counties to restore populations of RBC and the habitats in which they occur. Often PFW biologists have to work with private landowners to develop a rotational grazing plan that benefits the running buffalo clover while still protecting stream habitats. New populations of RBC are also being propagated from local populations and reestablished in new areas to increase the overall numbers of patches. There is also potential for rare prairie-barren restoration in Madison County in associating with the ongoing work between Muddy Creek Friends and the PFW Program.

Priority Habitats
Prairie, barren, glade, karst, stream and oak-hickory mesic forests

Five-Year Accomplishment Target (FY 2012- FY 2016)

- Upland (Native grassland): 500 acres, including five new populations of running buffalo clover
- Riparian: 500 ft.

*Focus Species**

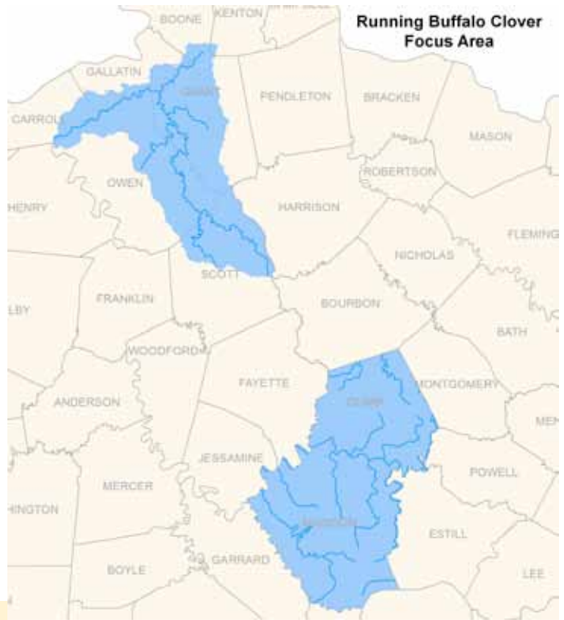
- Indiana bat (E)
- Gray bat (E)
- Various listed mussels (E)
- Running buffalo clover (E)
- Neotropical birds (S)
- State-listed plants (S)

Threats

- The current primary threat to this habitat is fire suppression, invasive species, conversion to agriculture, development, and quarry (limestone) mining.

Action Strategies

- The primary action strategy is to re-establish a prescribe fire regime on remnant habitats and remove invasive species and woody encroachment.



Running Buffalo Clover/Eagle Creek Sub-Focus Area

Above: use of prescribed fire to help restore Kentucky barrens site. Below: native prairie-barrens habitat. Both USFWS.

Kentucky Arrow Darter, KDFWR

- The PFW Program will work through TNC, KDFWR, KSNPC, various Resource and Rural Development Councils, and local NRCS and Conservation District offices to develop private lands projects.
- The PFW Program will try to target large private land blocks in the Big Barrens and Western Highland Rim. Prescribe burns will be conducted by the Kentucky Chapter of TNC.
- All partners will strive to enroll landowners into applicable Farm Bill programs (e.g. Grassland Reserve Program) to improve, expand, and preserve the remaining rare grassland remnants.
- Timber stand improvement and prescribed fire will also be conducted in forest areas to promote native oak-hickory forests, as our capacity allows.
- The PFW Program will work with private industries, such as quarry and mining companies to preserve, restore and manage for native barrens, glades and prairies and to reclaim mine sites with native genotype seed in hopes of re-establishing native grasslands.

Sturgeon Creek Focus Area

The Sturgeon Creek, South, Middle and North Fork watersheds in the Kentucky River Basin is a new focus area to aid in the recovery of the newly listed Kentucky Arrow Darter.

Priority Habitat
Riparian/Stream

Five-Year Accomplishment Target (FY 2012- FY 2016)
- Riparian/Instream: 300 ft.

*Focus Species**
- Kentucky arrow darter (C)

Threats
- Most of the threats to the Kentucky Arrow darter are related to coal mining and poor land practices associated with logging.

Action Strategies
- The Kentucky River Focus Area is new and it will take some time to develop projects in the watershed. The PFW Program in Kentucky will work through the local NRCS office and visit local landowners to address threats and impacts.
- Most projects will focus on improving in-stream habitat, planting riparian corridors, and reducing sedimentation. There may also be opportunities to work with coal companies to implement habitat projects.

Key Partners in Kentucky

The list below represents stakeholders (partners) that the PFW Program has worked with in some capacity in Kentucky. Due to time restraints and scheduling, a meeting was not held with all the partners listed. However, a meeting was held early in the planning process with a core set of partners through which most projects are conducted.

- Private Landowners (over 100)
- Appalachian Mountains Joint Venture
- Bernhiem Forest
- Bluegrass Caving Grotto
- Blugrass Army Depot
- Cumberland Valley RC & D
- Cemex Cement and Quarry Inc.
- Cincinnati Zoo and Botanical Gardens
- Central Hardwoods Joint Venture
- Ducks Unlimited
- East Kentucky Power
- Eastern Kentucky University
- Environmental Protection Agency
- Farm Services Agency
- Fort Campbell
- Jackson Purchase RC and D
- Jackson County Development Association
- Lincoln RC & D Council
- Kentucky Division of Conservation
- Kentucky Department of Local Governments
- Kentucky Department of Fish and Wildlife Resources
- Kentucky Nature Preserve Commission
- Kentucky Division of Water
- Kentucky Division of Forestry
- Kentucky Chapter of The Nature Conservancy
- Kentucky Chapter of the American Chestnut Foundation
- Kentucky Chapter of The Wildlife Society
- Kentucky Transportation Cabinet
- Mammoth Cave National Park
- Madison County Solid Waste
- National Wild Turkey Federation
- Natural Resources Conservation Service
- Northern Jackson County Commission
- Powell County School Board
- Personal Responsibility in a Desired Environment
- Private Landowners throughout Kentucky
- Quail Unlimited
- Roundstone Seed, Inc.
- Southern Conservation Land Corporation, LLC
- Steele-Reese Foundation
- Tennessee Valley Authority
- Toyota
- Upper Cumberland Waterwatch Group
- University of Kentucky
- U.S. Forest Service
- U.S. Geological Survey
- U.S. Army Corps of Engineers

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Appendix A: Louisiana

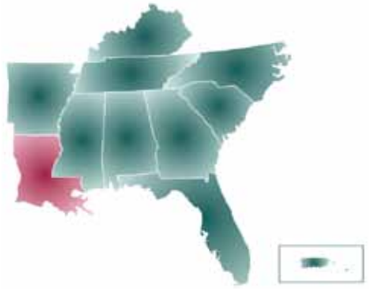
Louisiana Partners Program Focus Areas

Introduction and Overview

Since the passage of the first Farm Bill legislation in 1985, the U.S. Fish and Wildlife Service (Service) has actively pursued habitat improvement through available conservation programs throughout the State in all habitat-types. Likewise, the Service, since 1987, has utilized the Partners for Fish and Wildlife (PFW) Program to provide both technical and financial assistance to private landowners that desire to voluntarily work with us to improve fish and wildlife habitat. Initially, PFW Program projects were pursued with collaborating private landowners primarily in wetland habitat types. However, over time and with the increasing availability and use of Geographic Information Systems (GIS), the Service has incorporated extensive landscape-level targeting of PFW Program projects within priority areas for various Federal trust resources in Louisiana, and throughout the Lower Mississippi River Valley.

Louisiana is a topographically and biologically diverse State with a subtropical climate moderated by the Gulf of Mexico. The State consists of uplands and upland terraces in the southeastern, northwestern, and north-central regions dissected by the Mississippi and Red River alluvial valleys, a prairie terrace in the southwestern portion, and extensive coastal marshes bordering the Gulf of Mexico. Plant communities found within these regions are representative of five major plant communities in Louisiana: longleaf pine, mixed pine/upland hardwoods, bottomland hardwoods, prairie, and coastal marsh.

Of these major plant communities, Louisiana has four major habitat types of special concern due to historical and/or current habitat losses: coastal marsh, bottomland hardwoods, prairie, and longleaf pine and associated savannahs. Louisiana has lost approximately 20 percent of its coastal marshes over the last century, and continues to lose approximately 24 square miles each year. Louisiana's coastal marshes are threatened by sediment deprivation (due to levees and upstream dams), erosion, subsidence, canal dredging, saltwater intrusion



and other causes. Extensive multi-agency planning and restoration efforts have been underway over the past decade through the Coastal Wetland Protection, Planning, and Restoration Act in an attempt to stem and reverse this coastal loss trend.

The State has also lost approximately 70 percent of its original bottomland hardwood forests, almost 90 percent of its longleaf pine communities, and 99.9 percent of its native prairies. Bottomland hardwood habitats in the State are threatened by urban development and conversion to agriculture, while longleaf pine communities are still at risk from development and conversion to other forest types. The few remnant prairies left in Louisiana continue to be degraded by exotic Chinese tallow-tree invasion and fire suppression. A regular regimen of prescribed fire is essential to maintain the longleaf and prairie ecotypes.

For additional information on Louisiana's diverse ecosystems, the Louisiana Department of Wildlife and Fisheries (LDWF) has further identified many additional terrestrial, aquatic, and marine sub-habitats within these four major habitat types as part of their Comprehensive Wildlife Conservation Strategy (i.e., State Wildlife Action Plans).

At least 16 plant and animal species are listed as federally endangered or threatened in Louisiana. These species include two mammals (Louisiana black bear, West Indian manatee), three birds (piping plover, interior least tern, red-cockaded woodpecker), two reptiles (gopher tortoise, ringed-map turtle), two fish (Gulf sturgeon, pallid

sturgeon), four mussels (Louisiana pearlshell, fat pocketbook, Alabama heelsplitter, pink mucket), and three plants (American chaff-seed, earth fruit, Louisiana quillwort). Additionally, the Louisiana pine snake, Sprague's Pipit, and the rabbitsfoot mussel are currently candidates for listing, but are not yet under Federal protection.

Monitoring

Habitat improvement projects implemented through the PFW program are mandated to be monitored throughout the life of the landowner agreement according to PFW Program Project Monitoring Guidelines described in Appendix E. In Louisiana, habitat-based monitoring such as determining seedling survival, grass seed establishment, emergent vegetation invasion of wetland features, etc., will be utilized for the majority of project habitat monitoring. Species-level monitoring will be conducted when possible and feasible.

Louisiana PFW Program Focus Areas

The Service, working with our partners, has identified two focus areas for the PFW Program in Louisiana where most of our voluntary partnership efforts will be directed over the next five-years; these are the Louisiana Black Bear Corridor Focus Area, and the West Central Louisiana Longleaf Pine/Prairie Focus Area.

Louisiana Black Bear Corridor Focus Area

The Louisiana Black Bear Corridor Focus Area is intended to benefit the federally-threatened Louisiana black bear, and is part of a multi-agency, landscape-level planning effort to establish bear travel corridors connecting disjunct, remnant bear populations from northeast Louisiana to south-central Louisiana. Research has indicated that there has been virtually no interchange of individuals between the Tensas River Basin bear population and the northern Pointe Coupee Parish bear population due to bottomland hardwood loss and conversion to a vast expanse of uninterrupted agricultural land. This separation of bear habitat and lack of individual interchange among the remnant black bear populations has led to concern regarding the genetic isolation of these remnant populations of Louisiana black bear. The genetic isolation of populations of animals can lead to genetic vigor issues, such as problems with reproductive viability and reduced disease resistance. For this reason, one of the main goals of Louisiana black bear restoration in Louisiana (as stated within the Service's Louisiana black bear recovery plan) is to ensure the unimpeded exchange of individuals between at least two of the three remaining subpopulations of Louisiana black bears in the State (the coastal, northern Atchafalaya, and the Tensas populations). The recovery plan specifies that the connecting habitat must be permanently protected. The Service, the LDWF, and the Louisiana Black Bear Conservation Committee have completed the sixth year of female bear relocations to the Red River Wildlife Management Area (WMA) and Three Rivers WMA/Lake Ophelia National Wildlife refuge complex as part of this bear recovery strategy.

Logically, another major component of this effort is to encourage the restoration and protection of bottomland hardwood habitat between the remnant bear populations. Therefore, a multi-agency group including the Service, the Natural Resources Conservation Service (NRCS), the LDWF, the Louisiana Black Bear Conservation Committee, and The Nature Conservancy (TNC) has identified a corridor of agricultural land that (when reforested), would connect the Tensas River National Wildlife Refuge to northern Pointe Coupee Parish. For the past 12 years, this corridor has received preferential ranking for the PFW Program and several Farm Bill conservation programs in Louisiana, including the Wetland Reserve Program and the Emergency Watershed Protection Program.

Priority Habitats

Bottomland hardwood forest, Riparian areas

Five-Year Accomplishment Targets (FY 2012-2017)

- Wetland (Bottomland Hardwoods): 500 acres
- Riparian: 2.0 miles

*Focus Species**

- Louisiana black bear (T)
- Pallid Sturgeon (E)
- Swainson's warbler (SOC)
- Yellow-billed cuckoo (SOC)

West Central Louisiana Longleaf Pine/Prairie Focus Area

The West Central Louisiana Longleaf Pine/Prairie Focus Area consists of a broad area that was historically vegetated with longleaf pine and was interspersed with various prairie habitats.

Like the demise of longleaf pine across the southeastern United States, most longleaf pine in Louisiana was converted to loblolly and slash pine plantations in the early to mid 20th century. In Louisiana today, longleaf pine habitats persist (mostly on National Forests and other public lands) primarily in the west central/ southwest portions of the state, and in the Florida parishes (the five Parishes located north of Lake Ponchartrain, and between the Amite and Pearl Rivers). These parishes have been undergoing rapid conversion to suburban uses for the past several decades, and pressures within the ecosystem have only increased since the disastrous hurricane season of 2005. Therefore, the focus of our longleaf pine habitat restoration effort seems more likely to succeed in the more rural western portions of the State.

A wildlife species decline has closely followed the loss of the longleaf pine forest type. Today many species of plants, animals and insects that require longleaf pine forests are either threatened or endangered with global extinction. The future fate of the red-cockaded woodpecker, the Louisiana pine snake, and the Louisiana slimy salamander are closely tied to the restoration of longleaf pine habitats in Louisiana. Many other listed species or species of concern (as identified in the State Wildlife Action Plan) such as the Louisiana pearlshell mussel, Bachman's sparrow, southern crawfish frog, and bobwhite quail stand to benefit from the restoration of longleaf pine habitat.

Prairie habitats in Louisiana once stretched over approximately 2.5 million acres, primarily on the Gulf Coast prairie terrace in the southwestern

Threats

- Urban development, conversion to agriculture, erosion, sedimentation and contaminants into aquatic systems, invasive species

Action Strategies

- **Habitat Improvement/ Reforestation:** Reforest agricultural land to increase forest block size and reduce forest fragmentation; create riparian buffers to improve travel corridors across agricultural landscapes, and reduce agricultural runoff of chemicals and sediment into area waterways.
- **Habitat Protection:** Establish permanently protected habitat and corridors between the north Louisiana and central Louisiana bear populations
- **Control Invasive Species:** Provide cost-sharing to support the removal of invasive species (i.e. Chinese tallow tree, trifoliate orange, kudzu) by mechanical and/or chemical treatments utilizing all applicable conservation programs.

Black bear with cubs in cypress tree, USFWS

- Emphasize partnering with landowners, the NRCS, the Farm Service Agency (FSA), the LDWF, TNC, Ducks Unlimited (DU), and other entities to encourage and support the various USDA Farm Bill conservation programs (i.e., the Wetland Reserve Program, Conservation Reserve program, Wildlife Habitat Incentives Program), and other available restoration and easement programs.

portion of the State. Nearly 1,000 species of herbaceous plants and over 100 species of butterflies and dragonflies can be found in Louisiana prairies. However, the advent of rice culture brought to the state in the late 19th and early 20th century initiated the rapid demise of this incredibly diverse habitat. Today, only a few hundred acres remain (representing a 99.9 percent loss), with small remnants scattered across railroad rights-of-way, edges of marshes, and adjoining longleaf pine stands. The few remnant prairies in Louisiana continue to be degraded by exotic Chinese tallow-tree invasion and lack of fire, which is essential to maintain the ecotype.

Some Federal trust species and species of state concern that were once common on Louisiana prairies include Attwater's prairie chicken, Bachman's sparrow, Henslow's sparrow, whooping crane, bobwhite quail, loggerhead shrike, southern crawfish frog, and western slender glass lizard. Whooping cranes have been recently reintroduced to the White Lake marsh area of southwest Louisiana, and several of those birds have since made forays into the rice/prairie habitats in Evangeline Parish.

A multi-agency effort entitled the Louisiana Native Plant Initiative has been underway for several years to increase the supply of native prairie seed for local prairie restoration efforts and to coordinate restoration strategies. Groups associated with this effort include the Service, the NRCS, the LDWF, the Cajun Prairie Habitat Preservation Society, the U.S. Geological Survey – Biological Research Division, TNC, McNeese State University, Nicholls University, the Gulf Coast Conservancy, and numerous local Soil and Water Conservation Districts. These same groups coordinated with the FSA to finalize a second Conservation Reserve Enhancement Program that authorized the restoration of 18,000 acres of prairie/grassland habitat through 15 year agreements with private landowners.

Priority Habitats

Longleaf Pine, Longleaf Pine Savannah, Coastal Prairie

A young planted stand of longleaf pine, USFWS

Louisiana restored prairie habitat, Dr. Charles Allen

Five-Year Accomplishment Targets (FY 2012-2017)

- Upland (Prairie): 20 acres
- Upland (Longleaf Pine and Savannah): 500 acres

*Focus Species**

- Red-cockaded Woodpecker (E)
- Louisiana Pearlshell Mussel (T)
- American Chaffseed (E)
- Geocarpon minimum (no common name) (T)

Threats

- Loss of longleaf pine habitat to monoculture forestry, residential and commercial development, long-term fire suppression, poor livestock and pasture management, competing invasive plants

Action Strategies

- Reestablish and Manage Native Prairies: Support the Louisiana Native Plant Initiative, Partner with the Cajun Prairie Habitat Preservation Society, willing landowners, and other agencies to reestablish/restore native prairies via all available conservation programs.
- Restore and Manage Longleaf Pine and Longleaf Pine Savanna: Partner with private landowners, NRCS, TNC, and other agencies to restore longleaf pine and longleaf pine savanna habitats, and encourage the implementation of regular prescribed burning to promote the development of native grasses and forbs in the understory.
- Control Invasive Species: Support the implementation of regular prescribed burning, and provide cost share for the removal of invasive species (i.e. Chinese tallow tree, cogon grass) by mechanical and/or chemical treatment in longleaf pine and prairie habitats.

* E – federally listed as endangered; T – federally listed as threatened; C – candidate species for federal listing; SOC – species of concern

Key Partners in Louisiana

The Services' PFW Program has working partnerships with numerous Federal and State agencies, non-governmental organizations, local conservation groups, corporations, families, farmers, ranchers and other individuals. Former and current cooperators within the Louisiana PFW Program include:

- Private Landowners (over 160)
- Louisiana Department of Wildlife and Fisheries
- Natural Resources Conservation Service
- Farm Services Agency
- The Nature Conservancy
- Baton Rouge Audubon Society
- Cajun Prairie Habitat Preservation Society
- Black Bear Conservation Coalition
- Ducks Unlimited
- Coushatta Tribe of Louisiana
- Cajun Electric Power Cooperative
- Mercury Electric Company
- Deltic Farm and Timber Company
- Allied Development, Inc.
- Hackberry Rod and Gun Club
- Flat River Farms
- River Road Plantation
- Inglewood Plantation
- Brown Land Corporation
- Reed Properties
- Bel-Kraus Properties
- Dixie Plantation
- Ophelia Land Company
- Red Delta Land Company

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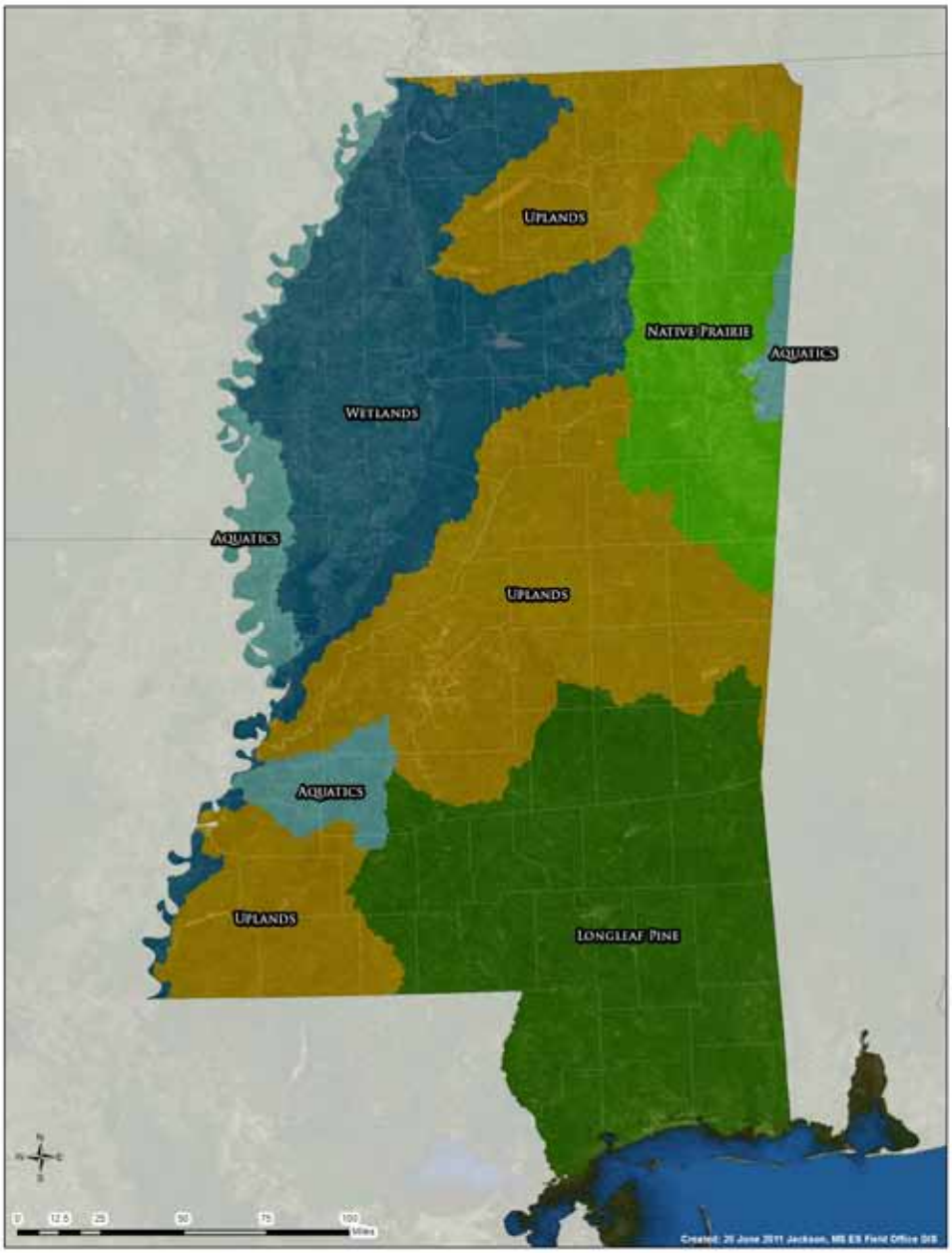
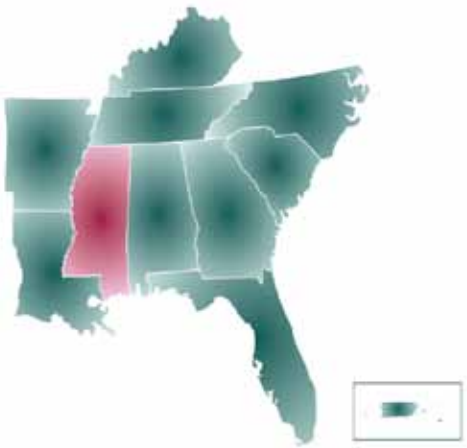
Appendix A: Mississippi



Mississippi Partners Program Focus Areas



Introduction and Overview

Mississippi is divided into six major land use areas including the Delta, Southern Coastal Plain, Southern Mississippi Valley Silty Uplands (Loess Bluffs), Blackland Prairie (Blackbelt and Jackson), Gulf Coast Wet Prairie and Marshlands, and the Eastern Gulf Coastal Plain Flatwoods.

The major river systems include the Mississippi River, Yazoo River, Big Black River, and the Pearl River. The State covers an area of 48,434 square miles, making it the 32nd largest of the 50 states. Approximately 1,520 square miles are covered with water. Major lakes include the Ross Barnett Reservoir, Arkabutla Lake, Sardis Lake, Enid Lake, and Grenada Lake.

Mississippi's generally hilly landscape reaches its highest point (806 ft) in the northeastern corner of the State along the Tennessee River. The most distinctive region in the State's varied topography is the Mississippi Delta, a flat alluvial plain between the Mississippi and the Yazoo rivers in the western part of the State. A wide belt of longleaf pine (the piney woods) covers most of southern Mississippi to within a few miles of the coastal-plain grasslands. Most of the State's rivers belong to either the Mississippi or the Alabama river systems. The climate of Mississippi is subtropical in the southern part of the state and temperate in the northern part; the average annual rainfall is more than 50 inches.

The State is in the path of waterfowl, shorebird, and wading bird migration routes down the Mississippi Valley and home to many other species of birds. Along the Gulf Coast, a favorite fishing area, are several resort cities and part of Gulf Islands National Seashore.

There are 30 animal species listed in Mississippi as threatened or endangered and that occur in the State. There are seven additional animal species listed as threatened or endangered in Mississippi that do not currently occur in the State. Also, there are four threatened or endangered plant species occurring in Mississippi.

The Mississippi Partners for Fish and Wildlife (MPFW) Partnership was organized five years ago and includes 21 Federal and state agencies, conservation organizations and private companies, working together to establish, restore, improve and protect fish and wildlife habitats on privately owned lands. This cooperative initiative is working well in Mississippi. The partnership helps to identify and develop conservation focus areas within the State, participates in the

ranking of potential projects on private lands, and helps implement approved projects. This Partnership has recognized five priority habitat types as the conservation focus areas for Mississippi. These habitat types include Wetlands, Uplands, Aquatics, Longleaf Pine, and Native Prairie. This group of partners provides input on general Partners for Fish and Wildlife (PFW) Program direction and future activities on a regular basis. There are established committees for each of the conservation focus areas that meet regularly to discuss potential projects, select projects for funding, and to address any other concerns.

Monitoring

Monitoring the effects of our habitat improvement projects on particular species is an arduous task for various reasons, including lack of adequate funding and lack of personnel. The Mississippi partnership intends to emphasize focus species within each of the five geographic focus areas to help monitor project success. For focus species within a geographic focus area that are threatened and/or endangered, the PFW Program biologists will work directly with Service Recovery biologists and other biologists outside the Service as may be involved to carry out limited species-level monitoring. Habitat-based monitoring and monitoring of other specific and recognized threats will likely be the most used monitoring strategy for most focus species within the focus areas.

Mississippi PFW Program Focus Areas

Wetlands Focus Area

The Wetlands Focus Area is located in and around the Delta region of the State. Historically, this area was predominantly covered with bottomland hardwood forests and other wetlands, but much of this habitat type has been lost, primarily to conversion to agriculture and flood-control measures. Typical projects that are funded in this area consist of bottomland hardwood tree planting and hydrology restoration or enhancement. These projects provide habitat for black bears and a variety of species of forest breeding birds as well as providing wintering habitat for migrating waterfowl, shorebirds, and wading birds.

Priority Habitats

Wetlands, including bottomland forests

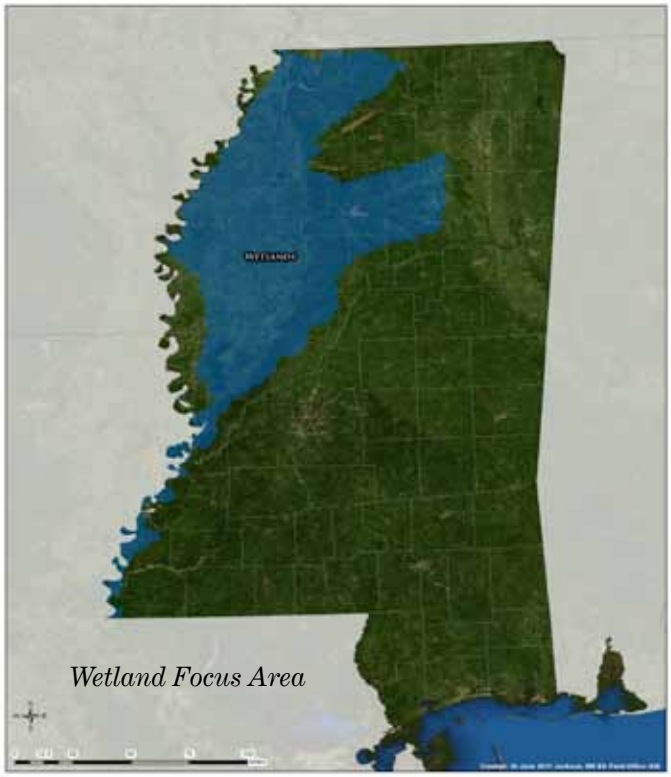
Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Wetland (Bottomland Trees and hydrology): 1,200 acres
- Riparian/Instream: 5.0 miles

*Focus Species**

- Louisiana black bear (T)
- American Woodcock (SOC)
- Northern Pintail (SOC)
- Mallard (SOC)
- Swainson's Warbler (SOC)

Service personnel inspecting tree planting, USFWS.



Wetland Focus Area

Threats

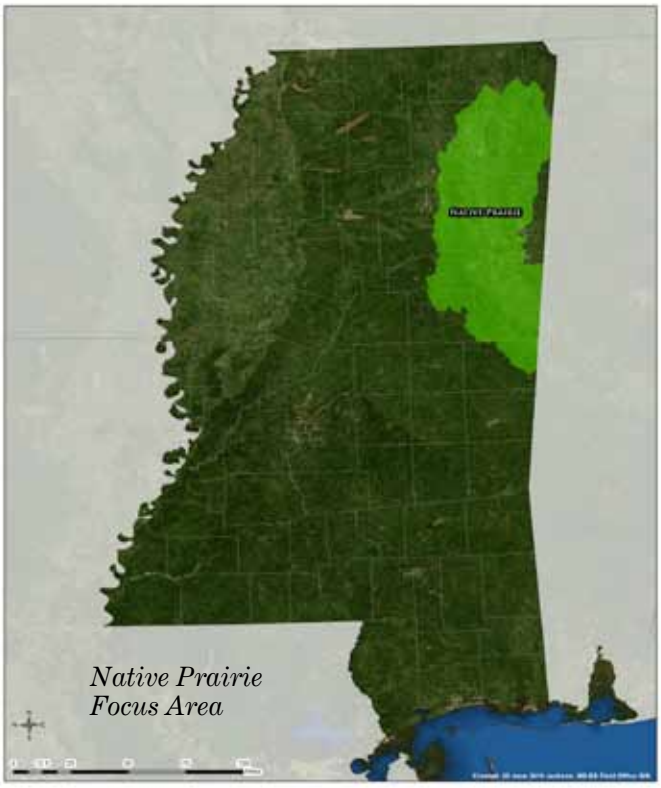
- The primary threat to this focus area is lack of suitable habitat due to conversion of wetlands to other land uses such as agriculture and urban development.

Action Strategies

- Working with partners and private landowners to restore or establish bottomland hardwood and hydrology on marginal agricultural sites. Also, projects to restore or enhance riparian habitat in selected watersheds will be implemented.

Native Prairie Focus Area

The Native Prairie Focus Area is located in northeastern Mississippi in the Blackland Prairie physiographic region of the State. Much of the area was converted to agricultural use during the late 1800's with cotton being the primary crop. The 1900's saw the conversion from cotton to soybeans, grazing lands, and other agricultural crops. This area has been listed as one of the critically endangered ecosystems in the Nation.



Priority Habitats
Native prairie and grasslands

Five-Year Accomplishment Targets (FY 2012- 2016)
- Upland (Native Prairie and Grasslands): 750 acres

*Focal Species**
- Price's potato bean (E)
- Bachman's sparrow (SOC)
- Henslow's sparrow (SOC)
- LeConte's sparrow (SOC)

Threats
- Loss of habitat through conversion to other land uses
- Excessive grazing and the exclusion of fire have allowed the expansion of Eastern Red Cedar and other noxious species.

Action Strategies
- Work with partners using multiple sources of funding to restore or enhance native warm season grass ecosystems.
- Noxious weed control measures, site preparation work, and planting native warm season grasses and forbs are the primary habitat improvement practices that will be used to restore this focus area.

Longleaf Pine Focus Area

The Longleaf Pine Focus Area is located in the southern part of the State. This area is about 69 percent woodland, 17 percent cropland, and 11 percent pastureland. About 3 percent of the area is used for rangeland, urban development, or other purposes. The woodland is 65 to 75 percent privately owned and 25 to 35 percent industry owned. A small percentage is federally owned, and includes the Mississippi Sandhill Crane National Wildlife Refuge. Timber production is important in this part of Mississippi.

Partner's biologist standing in restored prairie habitat, USFWS.

With over 90 percent of the historic longleaf pine ecosystem lost to other land uses, this ecosystem is recognized as a critically endangered ecosystem. Following the initial harvest of native longleaf pine, much of the area was reforested to fast growing short rotation pine including improved varieties of loblolly and slash pine. With the loss of the longleaf pine ecosystem, several wildlife species including the gopher tortoise, black pine snakes, gopher frogs, and red-cockaded woodpeckers also became imperiled.

Priority Habitat
The Longleaf pine ecosystem

Five-Year Accomplishment Target (FY 2012 – 2016)
- Upland (Longleaf pine): 1,200 acres

*Focal Species**
- Gopher tortoise (T)
- Black pine snake (SOC)
- Mississippi gopher frog (E)
- Red-cockaded woodpecker (E))

Threats

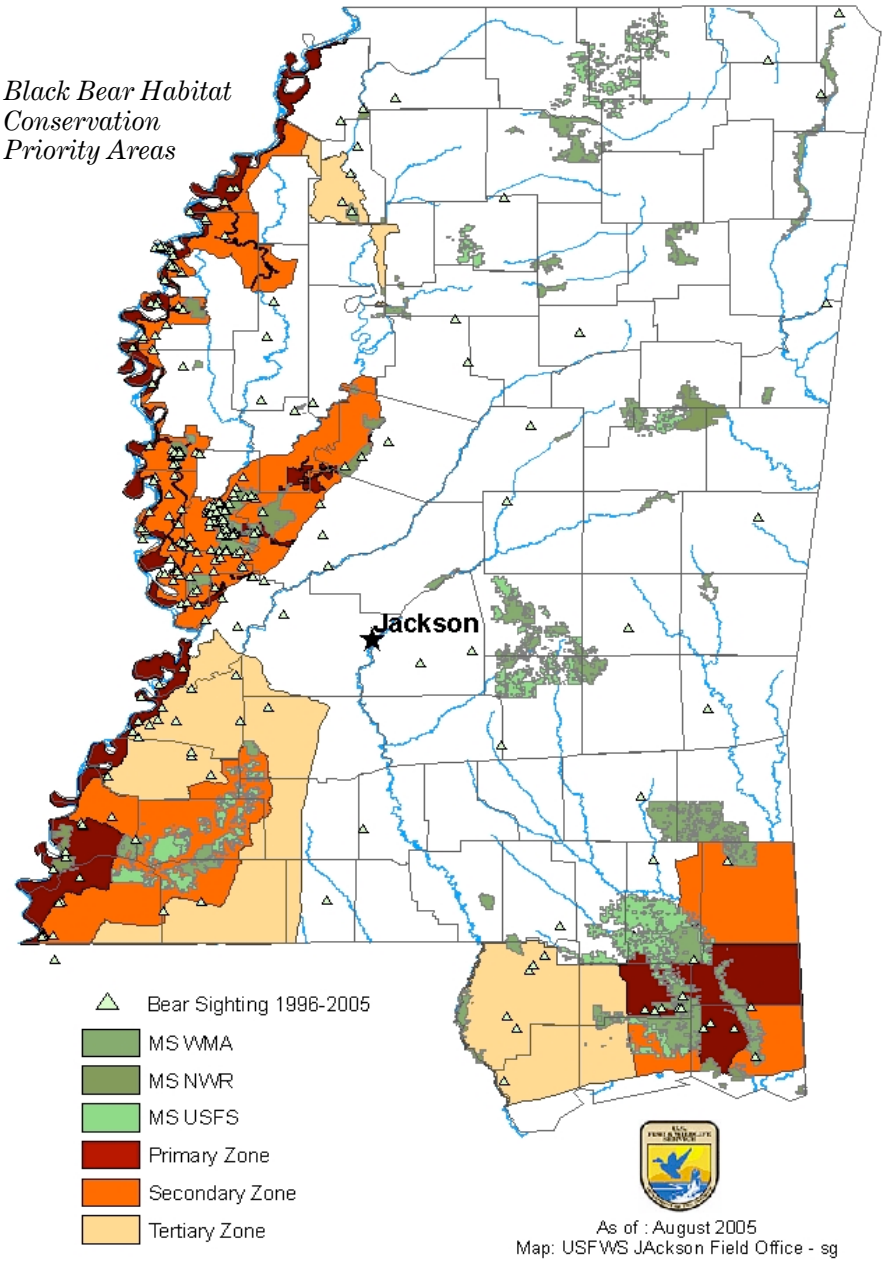
- Conversion to other land uses and pine types, and decline in the use of prescribed or natural fire in the management of the longleaf pine ecosystem
- Invasive species

Action Strategies

- Work with partners and existing conservation programs to restore native longleaf pine stands by converting short rotation pine stands and marginal pastureland to longleaf pine.
- To the extent possible, follow the recommendations in the America's Longleaf strategic planning document.
- Use best management Conservation practices to accomplish these goals, including the use of prescribed fire, which is an essential practice for the longleaf pine ecosystem.

Longleaf pine stand, USFWS

Black Bear Habitat Conservation Priority Areas



Uplands Focus Area

The Uplands Focus Area includes portions of northeastern, central, and southwestern Mississippi. Much of this area remains in mixed pine and hardwood forest (46 percent), and about 35 percent of the area is cropland. The proportion varies greatly from county to county, depending on the soils and, particularly, the topography which is mostly steep and dissected. Where agriculture is feasible, cotton, corn, soybeans, and wheat are major crops. Feed grains and forage are grown on dairy farms. About 16 percent of the area is in pasture or hay. Extensive agricultural practices did away with small "patch" type fields and fence rows that once provided food and shelter for upland birds. Many pastures over the years have been planted in exotic grass species that provided little or no habitat. Also, some cropland that once supported hardwood forest types has been planted back to short rotation pine instead of upland hardwood.

Priority Habitats

Mixed pine and hardwood forest patches

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Upland (Native grassland and Upland hardwoods): 1,000 acres

*Focal Species**

- Louisiana black bear (T)
- Northern bobwhite (SOC)
- Brown-headed nuthatch (SOC)
- Red-headed woodpecker (SOC)
- Logger head shrike (SOC)

Uplands Focus Area

Aquatics Focus Area

Threats
- Loss of habitat through land clearing and conversion of forest to other land uses
- Decline in habitat borders and interspersion of habitat types
- Invasive species

Action Strategies
- Work with partners and existing conservation programs to restore upland hardwood stands, restore native grasses and apply best management practices, including the use of prescribed fire.

Aquatics Focus Area

The Aquatics Focus Area is located within the Mississippi Delta and the Southern Coastal Plains physiographic regions. It includes portions of the Mississippi River, Deer Creek watershed, Bayou Pierre, and Buttahatchee River. The Bayou Pierre contains the protected bayou darter.

Priority Habitat
Specific aquatic watersheds

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian/Instream: 3.0 miles
- Structures: 3 (Removed or Installed)

*Focus Species**
- Bayou darter (T)
- Louisiana black bear (T)

Threats
- Erosion and sedimentation into aquatic systems from agricultural runoff and other sources
- Other water quality issues from contaminants from the use and run off of herbicides and pesticides, illegal dumping, and other contaminant sources
- Fish passage barriers
- Invasive aquatic species

Action Strategies
- The primary goal within this focus area is to restore and/or enhance selected aquatic systems.
- Conservation practices used to accomplish the goal include the removal of fish passage barriers, bank stabilization, establishment of buffer zones and riparian habitat restoration, and use of water-control or other structures as appropriate.
- Work will be accomplished by working with partners to implement these practices to improve water quality, and improve fish and other aquatic wildlife habitat.


Stream crossing following culvert removal, USFWS.

* E – federally listed as endangered; T – federally listed as threatened; C – candidate species for federal listing; SOC – species of concern

Key Partners in Mississippi

- Private Landowners (over 100)
- Audubon Mississippi
- Delta Wildlife Inc.
- Ducks Unlimited Inc.
- Farm Service Agency
- Mississippi Department of Agriculture and Commerce
- Mississippi Department of Environmental Quality
- Mississippi Department of Transportation
- Mississippi Department of Wildlife Fisheries and Parks
- Mississippi Farm Bureau Federation
- Mississippi Fish and Wildlife Foundation
- Mississippi Forestry Commission
- Mississippi Soil and Water Conservation Commission
- Mississippi State University Extension Service
- Mississippi Wildlife Federation
- Mississippi Wildlife Fisheries and Parks Foundation
- Mississippi Chapter - National Wild Turkey Federation
- Natural Resource Conservation Service
- Quail Unlimited
- Tara Wildlife
- The Nature Conservancy

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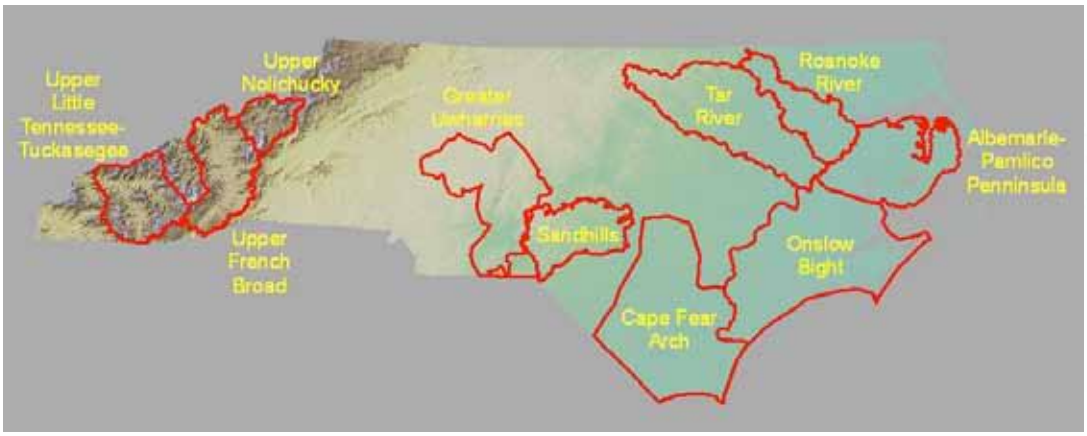
Appendix A: North Carolina



North Carolina Partners Program Focus Areas

Introduction and Overview

North Carolina prides itself on its rich ecological and cultural diversity. Its pristine beaches, wide seafood filled sounds and estuaries, sprawling floodplains, sweltering sandhills with swaying longleaf pines, rolling hills, winding rivers, crashing waterfalls, and awesome mountain peaks provide homes for such species as sea turtles, brown pelicans, Venus flytraps, blue crabs, ducks, red cockaded woodpeckers, bald eagles, freshwater mussels, and Indiana bats. Ironically, it is these types of Federal trust resources and their habitats that have attracted so many people and businesses to North Carolina. Today, the very resources that have made North Carolina so appealing and successful are threatened by urban sprawl, growing industry, and associated development.

The Coastal Plain, Piedmont, and Mountain regions of North Carolina house over 16,000 plant and animal species. Presently, 7,514 of these are considered rare, threatened, or endangered according to Federal and State agencies and private conservation organizations. Ten National Wildlife Refuges, covering 391,000 acres in the State, are protected and managed for many important species. Other government agencies, such as the Department of Defense, National Park Service, U.S. Forest Service, North Carolina Wildlife Resources Commission, and North Carolina Department of Parks and Recreation, manage and protect valuable conservation land. An active system of Land Trusts, the North Carolina Chapter of The Nature Conservancy, and many other nonprofit organizations also manage and protect many of North Carolina's valuable ecosystems.

The fact remains that 90 percent of the land in North Carolina is privately owned. Without conservation efforts on private land, our trust resources would simply not survive. Private landowners want to conserve and restore habitats, but they often lack the technical and financial support necessary to manage their land so that it can support wildlife and meet their needs financially. The U.S. Fish and Wildlife Service's (Service) Partners for Fish and Wildlife (PFW) Program helps satisfy this need.

Overview of Priority Habitats and Their Threats

Forested Wetlands - bottomland hardwoods, non-alluvial swamp forest, pocosins

Bottomland hardwoods, occurring along the streams, receive rich layers of soil during frequent over-bank flooding events and thus are some of our most productive forested wetlands. Important tree species are the many wetland oaks, sugarberry, elms, green ash, red maple, box elder, and sweetgum, with water tupelo and cypress in the lower, wetter zones.

Non alluvial swamp forests occur in broad "flats" with poorly defined drainage systems. They do not receive "over-bank" flooding, but are primarily flooded by rainfall. These forested wetlands, along with pocosins, once covered thousands of square miles of eastern North Carolina. Their dominant tree species are black gum, loblolly bay, red maple, sweet gum, cypress, and Atlantic white cedar. This assemblage of forested wetland types is important for high priority species such as cerulean warbler, Swainson's warbler, black-throated green warbler, American woodcock, wood thrush, rusty blackbird, red wolf, and black bear.

Large-scale land clearing has created many problems for wildlife and water quality, especially in the Coastal Plain region. These problems include the loss of forested wetlands (i.e., conversion to agriculture), drainage and conversion to loblolly pine plantations, drainage and destructive logging techniques, release of nutrients and mercury due to oxidation of organic soils, and habitat fragmentation. In a study of wetland losses prepared by the Service's National Wetland Inventory, North Carolina stood out among all southeastern states with the highest acreage of net wetland loss, an estimated 1.2 million acres. Nearly all the losses were from forested and scrub/shrub wetlands and were concentrated in the "Coastal Flats" region of the State (Hefner et. al. 1994).

More recently these habitats have become threatened by salt water intrusion and sea level rise.

Longleaf Pine

The longleaf pine ecosystem, which once covered 92 million acres of the southeastern United States from Texas to Maryland, included over nine million acres in central and eastern North Carolina. Remnants of the longleaf pine ecosystem in North Carolina still play a vital role for many wildlife species. Through the America's Longleaf Initiative this habitat has gained increased focus from our partnering agencies and organizations. The North Carolina Longleaf Coalition and the North Carolina Prescribed Fire Council are both working locally to restore and manage this naturally diverse ecosystem that supports several federally listed species including the red-cockaded woodpecker, Micheaux's sumac, and rough-leafed loosestrife. It is also an important habitat for migratory birds such as Bachman's sparrow, pine warbler, and brown-headed nuthatch.

Threats to the longleaf pine ecosystem are the exclusion of fire, urban sprawl, development, and conversion to loblolly pine plantations. Fire, an essential element in the management and maintenance of the longleaf pine ecosystem and native prairies, has often been eliminated due to a lack of understanding and education about its importance and difficulty of burning at the urban interface.

Streams and Riparian Areas

Streams and their surrounding riparian areas and floodplains contain rich and diverse habitat. They perform many ecological and hydrological functions such as regulating stormwater flow, moving sediment and woody debris, filtering pollutants from runoff, and providing habitat for aquatic and terrestrial plants and animals. Streams and riparian areas provide essential habitat for many imperiled species such as the federally listed Appalachian elktoe mussel, Tar River spinymussel, spotfin chub, and Virginia spiraea. Many other Federal species of concern depend on good water quality and habitat for their existence. Floodplain pools provide important habitat for amphibians. Streams also provide recreational opportunities for the public and serve as public water supplies.

The Uwharrie River, part of the Greater Uwharrie Focus Area, provides habitat for eight federal species of concern (six mussels and two fish) and two anadromous fish, credit K. Douglass.

Stream corridors have been abused for decades. Timbering, transportation and utility line development, and various agricultural practices have traditionally taken place within floodplains. Resulting negative effects on stream ecosystems include increased sedimentation, soil compaction, degraded instream habitat, and loss of vegetation. Without filtering floodplain buffers, fertilizers used in near-stream row cropping and stormwater runoff have impacted waters. Streams have also been impacted by the construction of dams, roads, and utility lines that have caused changes in flow patterns, fragmenting and eliminating access to habitat used by aquatic species, including anadromous fish such as American shad and eel, as well as resident fish such as brook trout.

Other Priority Habitats

Piedmont remnant grasslands, Carolina bays, bogs and fens, coastal dunes, and upland hardwood forests are also important and declining habitats, necessary for many rare species as well as migratory birds. Like other habitat types, alteration for development, forestry, and agriculture is their primary threat. Some of these may also be vulnerable to impacts from global climate change. Piedmont remnant grasslands, commonly called "Piedmont prairies," contain a whole suite of native bird and rare plant species including the federally endangered Schweinitz's sunflower and smooth coneflower. Also of concern are the mountain bogs and fens of the Southern Appalachians and the hillside seepage bogs of the Piedmont; these bogs and fens are a critically-endangered wetland ecosystems and home to many federally listed plants, such as bunched arrowhead and mountain sweet pitcher plant, as well as the bog turtle. Less than 500 acres of mountain bogs and fens are known to exist in North Carolina today, a 90 percent loss from the 5,000 acres originally estimated to have existed.

Mountain sweet pitcher plant, an endangered insectivorous plant, is endemic to a few mountain bogs and streambanks in western North Carolina, USFWS.

PFW Coordinator John Ann Shearer works with students from AB Combs Leadership Magnet Elementary School in Wake County, North Carolina to plant native plants in a newly constructed rain garden. The rain garden was built to improve water quality in the impaired Simmons Branch watershed by filtering runoff. It will also provide an outdoor learning lab for students and teachers, USFWS.

Connecting People with Nature Initiative

The PFW Program in North Carolina will continue to promote school-yard habitat and other outdoor education efforts with our partners, emphasizing "hands-on" education about wildlife and conservation to young people and providing them with outdoor educational opportunities.

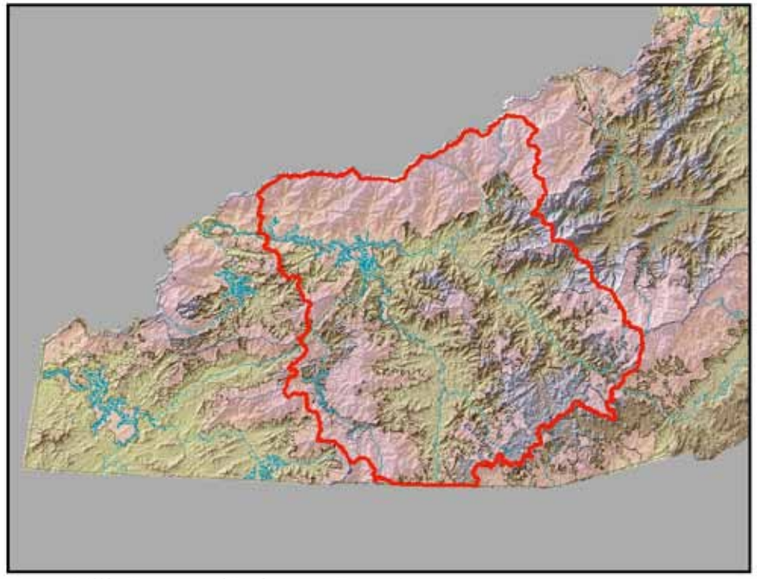
Monitoring

Monitoring the success of PFW projects is an important, but challenging task. Traditionally we have reported habitat improvements as acres and miles, and we will continue to tally this information. However, with the adoption of the Strategic Habitat Conservation framework we now work with our partners to help determine successful impacts to priority habitats and in some cases populations of focal species. In a few cases our biologists are able to collect data, but in many cases we must rely on the expertise of our partners to help with species status surveys. The PFW Program monitoring protocol for the Southeast Region is presented in Appendix E.

In the Sandhills Focus Area where red-cockaded woodpeckers are a focus species, many partners, including the Sandhills Ecological Institute, NC State University, and the North Carolina Wildlife Resources Commission work cooperatively with us to collect population data, including breeding data. From that information we are often able to assess the success of our PFW longleaf pine restoration projects on the species in that area.

In other focus areas, breeding birds are the focal species. Impacts to their populations are determined from breeding bird surveys conducted before and after habitat restoration work. Projects are often relatively small, making it difficult to know with certainty if changes in bird use are the results of our work.

In the watershed focus areas including the Upper Nolichucky, Upper Little Tennessee, and Upper Tar Rivers, PFW biologists and endangered species biologists cooperate with the North Carolina Wildlife Resources Commission and others to conduct mussel and native fish surveys both prior to and after restoration. Occasionally our projects are implemented in conjunction with university researchers, such as UNC-Asheville's study to monitor ecosystem response to dam removal in the North Toe River in western North Carolina.



Upper Little Tennessee/Tuckasegee Focus Area

North Carolina PFW Program Focus Areas

Ten geographic focus areas have been established for North Carolina. While some focus strictly on one priority habitat, others encompass several priority habitats. The focus areas, spanning from the mountains to the coast, were carefully selected by local private lands biologists who received guidance and recommendations from multiple conservation partners and plans including the North Carolina Wildlife Action Plan; Service Recovery Plans for federally listed species; the Service Raleigh and Asheville Field Office's Strategic Plans; Partners in Flight Bird Conservation Plans; conservation plans from National, regional, and local conservation partnerships and resource agencies; and input from agencies, organizations, and landowners. The occurrence of successful PFW projects and anticipated future successful projects also were taken into account.

Upper Little Tennessee/ Tuckasegee Focus Area

The Little Tennessee River Basin in North Carolina has over 150 designated Significant Natural Heritage Areas, according to the North Carolina Natural Heritage Program. The 25-mile reach of free-flowing Little Tennessee River downstream of Lake Emory Dam in Macon and Swain counties, and the Tuckasegee River, have been identified by the North Carolina Natural Heritage Program as Aquatic Significant Natural Heritage Areas of National importance. The Little Tennessee River supports the greatest diversity and abundance of aquatic species in western North Carolina, and has designated critical habitat for two federally listed species (Appalachian elktoe and spotfin chub). Because of its north-south orientation and large concentration of wetlands, the Little Tennessee River serves as a key migratory flyway for birds. The Qualla Boundary of the Eastern Band of the Cherokee Nation occupies a portion of the watershed.

Priority Habitats
Riparian, instream, and floodplains

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 10.0 miles
- Instream: 0.25 miles
- Structures (Removed or Installed): 2

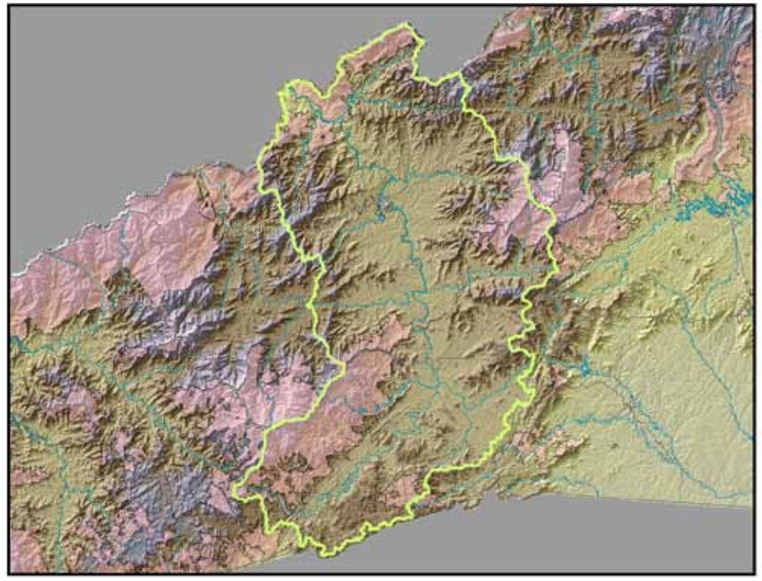
*Focus Species**
- Spotfin Chub (T)
- Littlewing pearly mussel (E)
- Virginia spiraea (T)
- Appalachian elktoe (E)
- Sicklefin redhorse (C)

Threats
- Erosion, sedimentation, and contaminants issues resulting from run-off from agricultural operations, urban expansion, other development activities, etc.
- Loss of riparian buffer zones
- Fish passage barriers
- Invasive species

Action Strategies
- Work with private landowners and other partners to improve aquatic habitat by reducing or eliminating threats through the implementation of best management practices and habitat restoration methods (e.g., protect and restore riparian zones, install fencing to exclude livestock from streams, provide alternate water sources for livestock, apply natural channel design techniques and other instream habitat techniques, remove fish barriers, apply water-control structures when appropriate, invasive species control).

Upper French Broad Focus Area

The Upper French Broad River Watershed is located in western North Carolina primarily in Madison, Buncombe, Henderson, and Transylvania Counties. This sub-basin contains some of the last remaining populations of several federally listed species that occur in North Carolina, including Appalachian elktoe, bog turtle, mountain sweet pitcher plant, and bunched arrowhead. The Little



Upper French Broad Focus Area

River has designated critical habitat for the endangered Appalachian elktoe. Brook trout are found in select streams at higher elevations, including the southern strain of Eastern Brook Trout, and this area is within the Eastern Brook Trout Joint Venture. In addition to restoration, enhancement, and protection practices along stream and river corridors, projects here will seek to restore and protect southern Appalachian mountain bogs and fens, and associated wetlands.

Priority Habitat
Riparian Corridor, wetlands

Five-Year Accomplishment Target (FY 2012 – FY 2016)
Riparian: 1.0 Mile

Wetland: 50 acres

*Focus Species**
- Appalachian elktoe (E)
- Mountain blotched chub (SOC)
- Brook trout (SOC)
- Hellbender (SOC)
- Bog turtle (T-S/A)
- Mountain sweet pitcher plant (E)

Threats
- Erosion, sedimentation, and contaminants issues resulting from run-off from agricultural operations, urban expansion, other development activities, etc.
- Loss of riparian buffer zones
- Fish passage barriers
- Loss of wetland habitat due to a variety of human-related actions, including development and other land use changes
- Invasive species

Action Strategies
- Work with private landowners and other partners to restore and enhance wetlands and improve aquatic habitat by reducing or eliminating threats through the implementation of best management practices and habitat restoration methods (e.g., protect and restore riparian zones, install fencing to exclude livestock from streams, provide alternate water sources for livestock, apply natural channel design techniques and other instream habitat techniques, remove fish barriers, apply water-control structures when appropriate, restore hydrology and natural vegetation in degraded wetlands, and invasive species control).

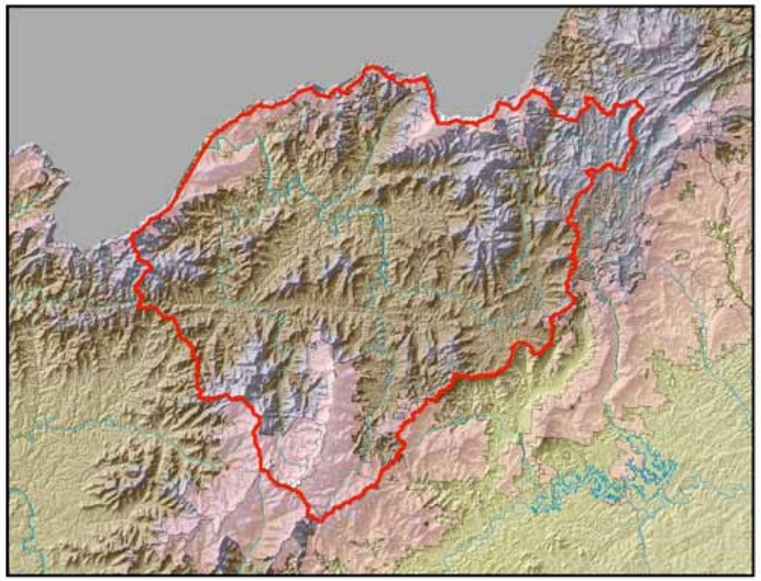
Upper Nolichucky Focus Area

The upper Nolichucky River Basin, just north of the Upper French Broad watershed, is one of the last strong holds in western North Carolina for the endangered Appalachian elktoe. This Basin includes the North and South Toe Rivers, the Cane River, as well as the mainstem of the Nolichucky River. Portions of the Toe and Cane rivers and the entire Nolichucky River are designated as critical habitat for the Appalachian elktoe. The Toe and Nolichucky Rivers are considered Aquatic Significant Natural Heritage Areas (ASNHA) of National Importance, while the Cane River is an ASNHA of State Importance. This watershed lies within the Eastern Brook Trout Joint Venture area, and the southern strain of Eastern Brook Trout is known to inhabit certain tributary streams. Projects here will focus on the restoration of instream, riparian, wetland, and floodplain habitats and will also include tributary streams and their floodplains. In addition, barriers to aquatic species will be inventoried and passage will be restored in priority areas at road crossings and dams.

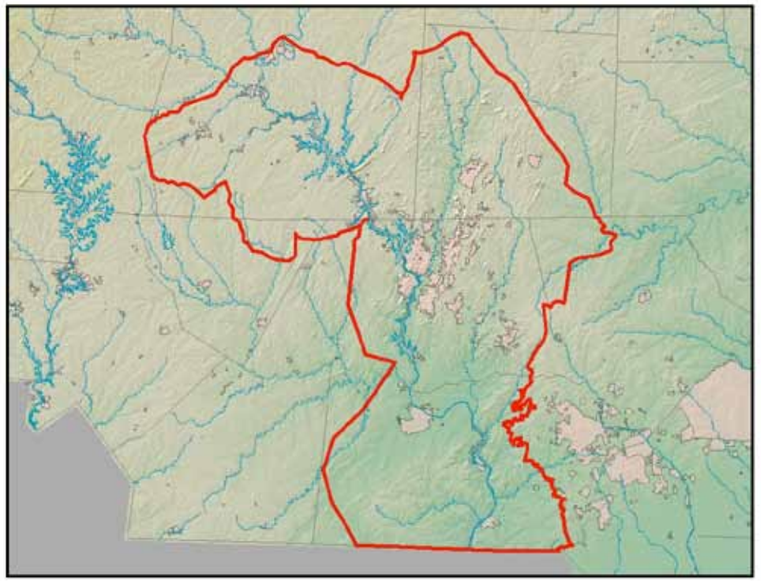
Priority Habitats
Riparian corridor, Instream

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
- Riparian: 40.0 miles
- Structures (removed): 4
- Instream: 0.25 mile

*Focus Species**
- Appalachian elktoe (E)
- Brook trout (SOC)
- Sharphead darter (SOC)
- Blotchside logperch (SOC)
- Hellbender (SOC)



Upper Nolichucky Focus Area



Greater Uwharrie Focus Area

Threats

- Erosion, sedimentation, and contaminants issues resulting from run-off from agricultural operations, urban expansion, other development activities, etc.
- Loss of riparian buffer zones
- Fish passage barriers
- Invasive species

Action Strategies

- Work with private landowners and other partners to improve aquatic habitat by reducing or eliminating threats through the implementation of best management practices and habitat restoration methods (e.g., protect and restore riparian zones, install fencing to exclude livestock from streams, provide alternate water sources for livestock, apply natural channel design techniques and other instream habitat techniques, remove fish barriers, apply water-control structures when appropriate, invasive species control).

Greater Uwharrie Focus Area

The Greater Uwharrie Focus Area is aligned with the Greater Uwharrie Conservation Partnership that formed in 2006 and is represented by 13 partner organizations. The mission of the Partnership is "to work for the long-term conservation and enhancement of biological diversity and ecosystem sustainability throughout the Greater Uwharries consistent with the conservation and management objectives of the participating organizations and agencies." Located in the southern, central Piedmont, the Greater Uwharrie Focus Area contains the ancient mountain range known as the Uwharries, a series of lakes along the Yadkin-Pee Dee watershed, and several State and Federal protected areas such as Morrow Mountain State Park, Uwharrie National Forest, and Pee Dee National Wildlife Refuge. The highest ranked significant natural heritage plant communities in this region include hillside seepage bogs, upland pools, Uwharrie boggy streamheads, Piedmont cliffs, granitic

Demolition of the Toe River (Spruce Pine) Dam in the Upper Nolichucky Focus Area. Local contractors use two excavators to remove the dam's right section. One is equiped with a hydraulic hammer to break up the dam, while another moves rubble out of the way to be disposed of at a later date. This project restored passage for fish and other aquatic species to over 40 miles of the river mainstem, and provided a safer passage for recreational users, USFWS.

A kayaker "goes with the flow" through the newly opened section of river, USFWS.

flatrocks, and Piedmont longleaf pine forests. The focus area encompasses eight ASNHA of National Importance with an array of federally and State listed species.

Priority Habitats

Riparian, wetlands, uplands

Five-Year Accomplishment Targets (FY 2012 – FY2016)

- Riparian: 189.0 miles
- Structures (removed): 1
- Wetland: 60 acres
- Upland: 400 acres

*Focus Species**

Riparian/Instream

- Brook floater (SOC)
- Roanoke slabshell (SOC)
- Carolina creekshell (SOC)
- American shad (SOC)
- Carolina Redhorse (SOC)

Wetland

- Mole salamander (SOC)
- Four-toed salamander (SOC)
- Pitcher plant moth (SOC)
- Yellow pitcher plant (SOC)

Upland

- Schweinitz's sunflower (E)
- Georgia aster (C)

Threats

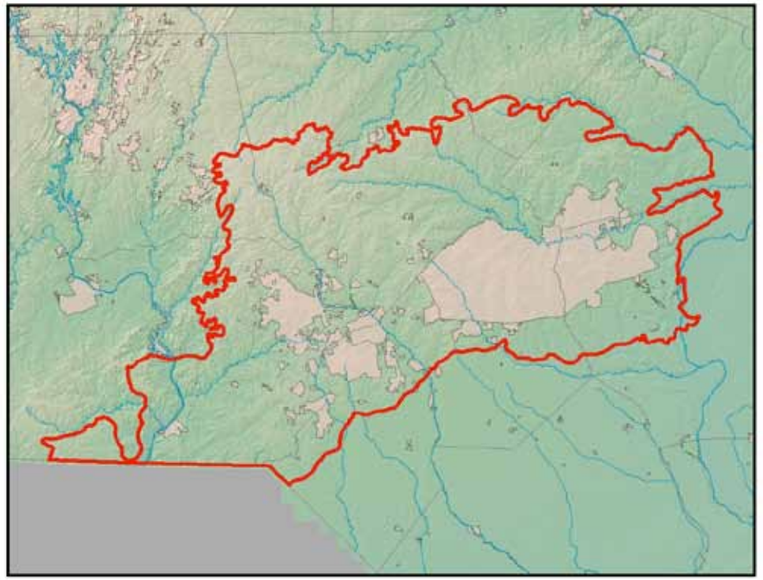
- Erosion, sedimentation, and contaminants issues resulting from run-off from agricultural operations, urban expansion, other development activities, etc.
- Loss of riparian buffer zones
- Fish passage barriers
- Loss of wetland and upland habitat due to a variety of human-related actions, including development and other land use changes
- Invasive species

Action Strategies

- Work with private landowners and other partners to restore and enhance priority wetlands and uplands and improve aquatic habitat by reducing or eliminating threats through the implementation of best management practices and habitat restoration methods (e.g., protect and restore riparian zones, install fencing to exclude livestock from streams, provide alternate water sources for livestock, apply natural channel design techniques and other instream habitat techniques, remove fish barriers, apply water-control structures when appropriate, restore hydrology and natural vegetation in degraded wetlands and uplands, and invasive species control).

North Carolina Sandhills Focus Area

The North Carolina Sandhills Focus Area is approximately a million acres, covering all or parts of eight counties in the south-central part of the State. It is best known for the longleaf pine ecosystem and associated species diversity. It also contains the second largest concentration of the endangered red-cockaded woodpecker in existence. In 1995, the Service and the U.S. Army collaborated to open a new project office in the heart of the Sandhills with staff dedicated to reach out to private landowners to encourage them to restore, manage, and protect longleaf pine habitat on their property. Today, through the North Carolina Sandhills Safe Harbor initiative and the PFW Program, the Service is working with more than 100 landowners on over 51,000 acres of land providing longleaf pine habitat that supports 56 groups of red-cockaded woodpeckers. A group called The North Carolina Sandhills Conservation Partnership was formed in 2000 with the specific intent to facilitate collaboration between various Federal, State, and nonprofit conservation groups for the purpose of conserving the vanishing longleaf pine ecosystem and recovering the endangered red-cockaded woodpecker in the North Carolina Sandhills.



North Carolina Sandhills Focus Area

This PFW project included removal of loblolly pine, herbicide treatment of oak species (note that oaks are standing dead), planting of longleaf pines, and use of prescribed fire, D. Halley.

Priority Habitat
Upland (Longleaf pine ecosystem, Native grasslands)

Five-Year Accomplishment Target (FY 2012 – FY 2016)

- Upland: 1,000 acres

*Focus Species**

- Red-cockaded woodpecker (E)
- Bachman's sparrow (SOC)

Threats

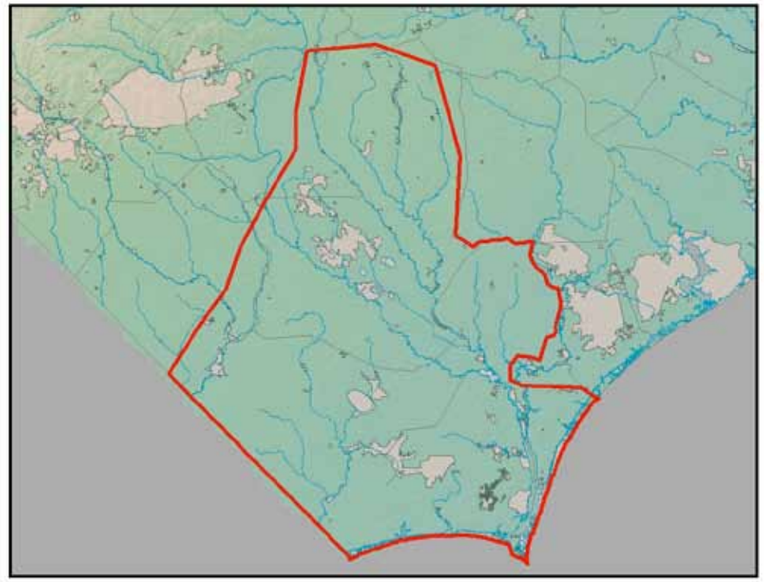
- Continuing loss of longleaf pine due to a variety of human-related factors, including agriculture, development, urban sprawl, failure to use prescribed fire, conversion to other pine types
- Invasive species

Action Strategies

- Work with private landowners and other partners to establish and improve longleaf pine and its associated native understory species, and control invasive and other undesirable species using prescribed fire, herbicides, and/or mechanical means.
- Remnant longleaf pine stands and native grassland habitats will also be restored or improved by removing loblolly pine or by thinning fire suppressed forests, by reintroducing prescribed fire, and by planting longleaf pine seedlings.
- Pastures where non-native grasses have been planted will be restored to native warm season grasses and native wildflowers to provide habitat for migratory birds and other species.

Cape Fear Arch Focus Area

The Cape Fear Arch Focus Area encompasses one of the most biologically diverse areas along the Atlantic Coast. In the southeast corner of North Carolina and the northeast corner of South Carolina, it includes the watersheds of the Lower Cape Fear and the Waccamaw rivers. The rivers themselves are important habitat for aquatic and estuarine species. Many habitat types around these rivers such as Carolina bays, maritime forests, and longleaf pine are critically important to rare and declining species, both plants and animals. This area, like so many others along our coast, is under great development pressure, creating an ever-increasing demand for supporting infrastructure, all of which replaces habitat for important wildlife species. Several interested conservation partners began collaborations in 2006 to develop a community conservation vision that provides protection and stewardship of the important natural resources and raises awareness of the importance of conservation of these resources in the focus area.



Cape Fear Arch Focus Area

Priority Habitats
Upland, Wetland

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Upland: 500 acres
- Wetland: 10 acres

*Focus Species**
Upland

- Red-cockaded woodpecker (E)
- Bachman's sparrow (SOC)

Wetland

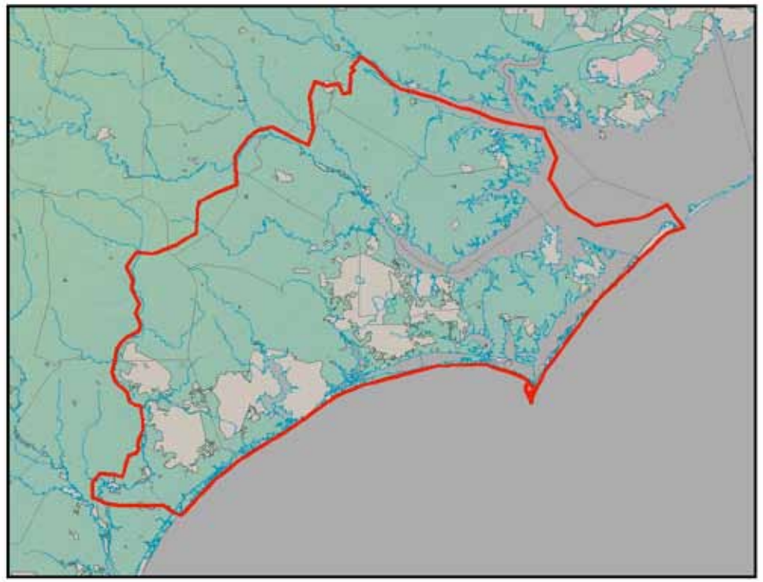
- Wood stork (E)
- Rough-leaved loosestrife (E)

Threats

- Loss of wetland and upland habitat due to a variety of human-related actions, including development and other land use changes
- Invasive species

Action Strategies

- Work with private landowners and other partners to restore and enhance priority uplands and wetlands through the implementation of best management practices and habitat restoration methods (e.g., restore hydrology and natural vegetation in degraded wetlands and uplands, and invasive species control).



Onslow Bight Focus Area

Onslow Bight Focus Area

The Onslow Bight Focus Area of eastern North Carolina, bounded on the North by Cape Lookout and to the South by Cape Fear, contains a unique landform of saltwater marshes, riverine wetlands, pocosins, longleaf pine savannahs, and other coastal ecosystems. The Onslow Bight includes several large protected areas including Camp Lejune, Hoffman State Forest, Croatan National Forest, Cedar Island National Wildlife Refuge, and Holly Shelter Gamelands, currently managed to support the natural communities of those areas. The area supports nationally significant occurrences of animal and plant communities. The threat of a rapid population growth was the impetus for eleven conservation organizations to develop a memorandum of understanding for the purpose of enhancing cooperation and communication regarding regional conservation issues within the Onslow Bight Focus Area by establishing the North Carolina Onslow Bight Conservation Forum.

Priority Habitat
Upland, Wetland

Five-Year Accomplishment Targets (FY 2012 – FY2016)
- Upland: 700 acres
- Wetland: 20 acres

*Focus Species**
Upland
- Red-cockaded woodpecker (E)
- Bachman's sparrow (SOC)
- Wood Thrush (SOC)
- Brown-headed Nuthatch (SOC)

Wetland
- Bald eagle (SOC)
- Wood Duck (SOC)
- Northern Pintail (SOC)

Threats
- Loss of wetland and upland habitat due to a variety of human-related actions, including development and other land use changes
- Invasive species

Action Strategies
- Work with private landowners and other partners to restore and enhance priority uplands and wetlands through the implementation of best management practices and habitat restoration methods (e.g., restore hydrology and natural vegetation in degraded wetlands and uplands, and invasive species).

Tar River Focus Area

The Tar River Focus Area encompasses three hydrologic units, Fishing Creek, Lower Tar, and Upper Tar and has two distinct habitat focuses. One is the river, its tributaries, and the associated riparian buffers; the other is the palustrine wetlands throughout the watershed. The Upper Tar River Basin is nationally recognized as one of the most important watersheds along the east coast. It harbors 14 federal and state rare and endangered species, including the federally endangered Tar River spiny mussel and dwarf wedge mussel. A diverse affiliation, known as the Upper Tar River Collaboration, works together and with landowners to protect, restore, and enhance riparian buffers and wetlands in the Upper Tar River Basin. As the Tar River widens into the Pamlico, the landscape includes many drained palustrine wetlands providing opportunities to restore hydrology and native vegetation within this basin to benefit many species of migratory birds including waterfowl and breeding land birds.

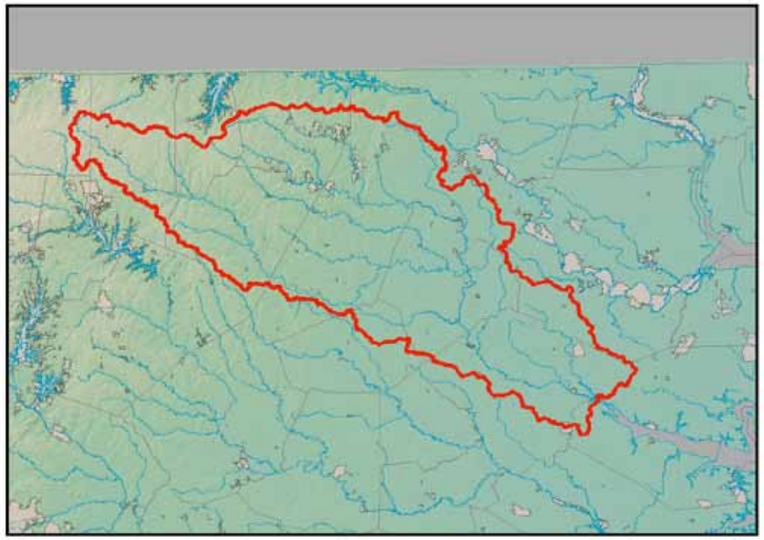
Priority Habitats
Riparian Corridor, Wetland

Five-year Accomplishment Targets (FY 2012 – FY 2016)
Riparian: 0.5 Mile

Wetland: 20 acres

*Focus Species**
Riparian
- Tar River spinymussel (E)
- Dwarf wedge mussel (E)

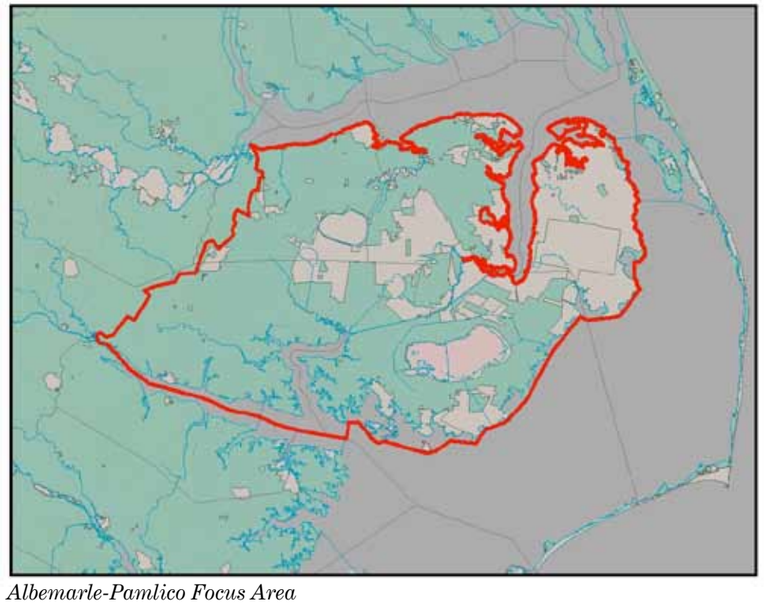
Wetland
- Bald eagle (SOC)
- Wood Duck (SOC)
- Prothonotary Warbler (SOC)



Tar River Focus Area

Threats
- Erosion, sedimentation, and contaminants issues resulting from run-off from agricultural operations, urban expansion, other development activities, etc.
- Loss of riparian buffer zones
- Fish passage barriers
- Loss of wetland habitat due to a variety of human-related actions, including development and other land use changes
- Invasive species

Action Strategies
- Work with private landowners and other partners to restore and enhance wetlands and improve aquatic habitat by reducing or eliminating threats through the implementation of best management practices and habitat restoration methods (e.g., protect and restore riparian zones, install fencing to exclude livestock from streams, provide alternate water sources for livestock, apply natural channel design techniques and other instream habitat techniques, remove fish barriers, apply water-control structures when appropriate, restore hydrology and natural vegetation in degraded wetlands, and invasive species control).



Albemarle-Pamlico Focus Area

Albemarle-Pamlico Focus Area

Surrounded on three sides by the coastal sounds of eastern North Carolina, the Albemarle-Pamlico Focus Area is made up of Washington, Tyrrell, mainland Dare, mainland Hyde, and the northern half of Beaufort counties. Once an expansive wetland complex of pocosins, marshes, canebrakes, and non-riverine hardwood swamps, the natural hydrology of the area has now been highly altered through ditching and draining of the natural wetlands. Sustainable populations of red wolves and red-cockaded woodpeckers, nesting bald eagles, as well as high densities of black bear are notable. With an abundance of cropland, rivers, natural lakes, marshes, and the

extensive sound waters, the peninsula also attracts thousands of migratory waterfowl each winter. These include numerous species of ducks as well as a significant percentage of the Atlantic populations of Canada geese, snow geese, and tundra swans. In addition, the non-riverine hardwood swamps and expansive pocosins support numerous migratory land bird species and a host of reptiles and amphibians.

Priority Habitat
Wetlands

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
Wetland: 150 acres

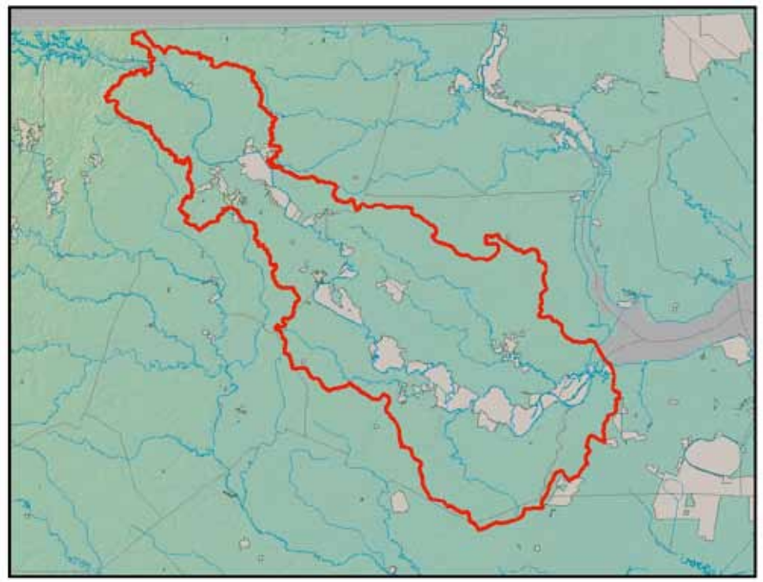
*Focus Species**
- Bald eagle (SOC)
- Wood Duck (SOC)
- Red Wolf (SOC--Experimental Population, Non-Essential)
- Northern Pintail (SOC)

Threats
- Development, urban expansion, loss of natural hydrology and vegetation due to draining and ditching

Action Strategies
- Work with private landowners and other partners to restore and enhance priority wetlands through the implementation of best management practices and habitat restoration methods (e.g., restore hydrology and natural vegetation in degraded wetlands, and invasive species).

Roanoke River Corridor Focus Area

Extending from Roanoke Rapids southeast to just beyond Plymouth, the Roanoke River Corridor Focus Area covers portions of five counties. The basin drains to the Roanoke River as the river flows unimpeded for 137 miles from the dam of Roanoke Rapids Lake to the Albemarle Sound. With a floodplain of up to five miles wide in places, this area is the most expansive bottomland hardwood forest east of the Mississippi and includes expansive cypress/tupelo swamps. Habitat here supports abundant populations of



Roanoke River Corridor Focus Area

wildlife and a high diversity of species including one of the highest densities of nesting land birds in the State, nesting bald eagles, and wading bird rookeries. Abundant wintering waterfowl include mallards, American black ducks, and wood ducks. The bottomlands also provide excellent nesting and brood-rearing habitat for wood ducks. The river itself supports several populations of anadromous fish. Blueback herring, alewife, hickory shad, American shad, and striped bass all rely on the river system for spawning habitat. The endangered shortnose sturgeon has been documented within the basin though its current status is not well known.

Priority Habitat
Wetlands

Five-Year Accomplishment Targets (FY 2012 – FY 2016)
Wetland: 20 acres

*Focus Species**
- Bald eagle (SOC)
- Wood Duck (SOC)
- Swainson's warbler (SOC)
- Kentucky warbler (SOC)
- Cerulean warbler (SOC)

Threats
- Development, urban expansion, loss of natural hydrology and vegetation due to draining and ditching

Action Strategies
- Work with private landowners and other partners to restore and enhance priority wetlands through the implementation of best management practices and habitat restoration methods (e.g., restore hydrology and natural vegetation in degraded wetlands, and invasive species).

* E – federally listed as endangered; T – federally listed as threatened; C – candidate species for federal listing; SOC – species of concern designated by the state or other

In North Carolina's hardwood forest, Kentucky warblers are a priority migratory bird species and a focal species of the Roanoke River Corridor, credit C. Moorman.

While some PFW projects simply involve the landowner and the PFW biologist, most include multiple stakeholders. This project, which accomplished habitat restoration benefiting migratory birds, included several family members, PFW biologists, the state game and fish agency, the state forest service, a consulting forester, and the local land trust, USFWS.

Stakeholders Involved

- Private Landowners (over 300)
- Atlanta Botanical Garden
- Audubon Society
- Cherokee Preservation Foundation
- Davidson College
- Ducks Unlimited
- Environmental Defense Fund
- Farm Service Agency
- Fish American Foundation
- Friends of the Greenway
- GEAR UP
- Hiwassee River Watershed Coalition
- Land Trusts and Land Conservancies in North Carolina (24)
- Local Governments
- Little Tennessee Watershed Association
- Mecklenburg County Parks and Recreation Department
- National Committee for the New River
- National Fish and Wildlife Foundation
- Natural Resources Conservation Service
- North Carolina Botanical Garden
- North Carolina Clean Water Management Trust Fund
- North Carolina Coastal Federation
- North Carolina Cooperative Extension Service
- North Carolina Department of Cultural Resources
- North Carolina Division of Forest Resources
- North Carolina Division of Land Resources
- North Carolina Division of Water Quality
- North Carolina Division of Water Resources
- North Carolina Ecosystem Enhancement Program
- North Carolina Natural Heritage Program
- North Carolina Parks and Recreation Department
- North Carolina Plant Conservation Program
- North Carolina Soil and Water Conservation Districts
- North Carolina State Museum of Natural Sciences
- North Carolina Stream Restoration Institute
- North Carolina Wildlife Resources Commission
- North Carolina Zoological Park
- Project Bog Turtle
- Public Schools
- Quail Unlimited
- Resource, Conservation and Development Councils throughout North Carolina (10)
- Roanoke River Partners
- The Conservation Fund
- The Nature Conservancy, NC Chapter
- Toe River Valley Watch
- Trout Unlimited
- University of North Carolina System
- U.S. Forest Service
- U.S. Environmental Protection Agency
- U.S. Geological Survey
- Watershed Association of the Tuckasegee River

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Appendix A: South Carolina

South Carolina Partners Program Focus Areas

Introduction and Overview

South Carolina is divided into four ecoregions: Blue Ridge, Piedmont, Sandhills and Coastal Plain. The Coastal Zone is often included as part of the Coastal Plain. Two major types of river systems traverse these provinces. Alluvial rivers originate in the Blue Ridge and Piedmont and include the Great Pee Dee, Savannah, Broad, Saluda, Congaree, Wateree, Catawba and Santee. Blackwater rivers originate in the Coastal Plain and include the Cooper, Ashley, Edisto, Salkahatchie, Combahee, Ashepoo, New, Four Holes, Little Pee Dee, Waccamaw, Black and Lumber. A considerable acreage of tidal freshwater swamp and marsh are associated with these major river systems. In addition, South Carolina has numerous palustrine wetlands that are isolated or contiguous with freshwater streams and river systems. The river basins drain into an extensive estuarine network of saltwater marsh with tidal creeks, inlets and sounds intermixed with barrier, sea and marsh islands. The estuarine system provides tremendous nursery grounds for commercially important fish and shellfish and fuels the base of the marine food chain.

South Carolina supports large populations of wading birds, shorebirds, waterfowl, land birds, game and non-game mammals, reptiles, amphibians and fish. Forage, refuge, cover and staging areas for a variety of migrating waterfowl, neotropical migrants, raptors and shorebirds are provided. The several species of flora and fauna listed as federally endangered or threatened in the state are indicative of the development pressures and habitat loss incurred.

Sixteen animal species and 19 plant species listed as federally endangered or threatened and 32 animal species listed as State endangered or threatened occur within South Carolina. Numerous species of plants and animals are of state and federal concern.

Monitoring

Monitoring the success of PFW projects is an important, but challenging task. Traditionally we have reported habitat improvements as acres and miles, and we will continue to tally this information. However, with the adoption of the Strategic Habitat Conservation framework we now work with our partners to help determine successful impacts to priority habitats and in some cases populations of focal species. In a few cases our biologists are able to collect data, but in many cases we must rely on the expertise of our partners to help with species status surveys. The PFW Program monitoring protocol for the Southeast Region is presented in Appendix E.

South Carolina PFW Focus Areas

South Atlantic Coastal Plain Focus Area

For this strategic plan, the Partners for Fish and Wildlife (PFW) Program has established a single priority geographic focus area in South Carolina: The South Atlantic Coastal Plain Focus Area. This area was chosen based on several factors: the presence of imperiled ecosystems, species of highest concern as listed in the South Carolina Comprehensive Wildlife Conservation Strategy and other plans, the presence of federally listed species, stakeholder interest, significant public land holdings and ongoing conservation efforts, potential for conservation corridors, expected likelihood of successful accomplishments, and areas in which past PFW Program work is concentrated. The South Atlantic Coastal Plain Focus Area comprises over half of the State, reaching from the northern boundary of the state's longleaf pine range to the coast. Some habitat types in this area are sandhills pine woodland, seepage slopes, grassland and early successional, river bottoms, mesic pine flatwoods and savannahs, ponds and depressions, blackwater stream systems, managed tidal wetlands, estuarine systems, and maritime forest. The quality of wildlife habitat has been reduced by land use changes such as development, short rotation timber production, agricultural practices, and invasive species.

Longleaf pine restoration on a private inholding of Carolina Sandhills National Wildlife Refuge, USFWS.

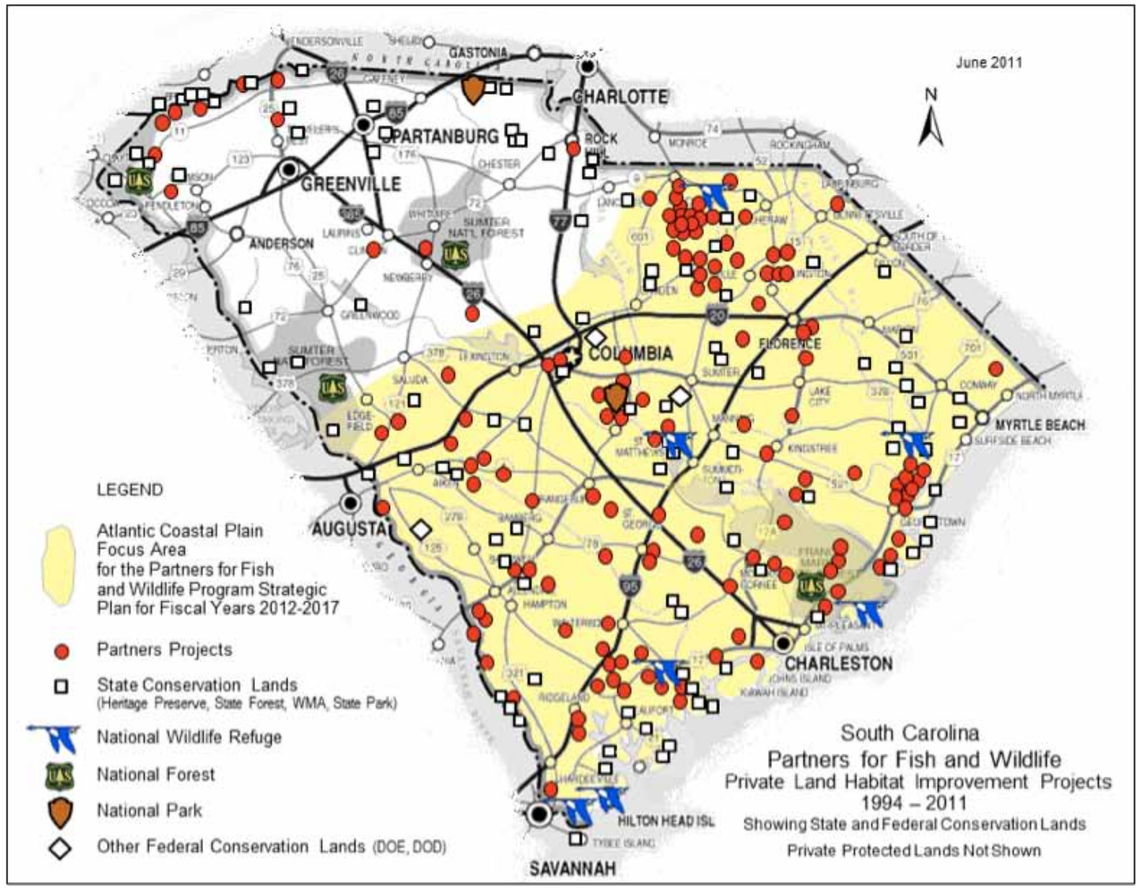
Much of the uplands were historically dominated by the longleaf pine ecosystem. Scattered tracts of private and public longleaf forest of varying size and quality remain throughout the focus area. Longleaf pine plant communities and associated isolated wetlands provide important habitat for many of South Carolina's priority species. Some obstacles and threats to maintaining, managing, and restoring this habitat are exclusion of prescribed fire, smoke management, lack of public information, management costs, and shortage of commercially available local ecotype ground layer seed. Early successional fields with cover provided by grasses and weeds with few trees occur throughout the focus area, but more extensively in the inner "agricultural belt" providing important diversity and habitat for declining disturbance-dependent bird species. This habitat is limited partly by economic conditions that favor clean field farming practices.

Managed tidal wetlands are impounded marshlands that are generally relict ricefields located in or near the estuaries of coastal plain rivers. Most historic ricefields along the coast are breached or broken and are reverting to tidal marshland. The remaining managed wetlands provide important habitat not only for waterfowl, but also for wading birds, shorebirds, and secretive marsh birds. Often it is difficult for landowners to keep up with the costly maintenance of dikes, ditches, and specialized water control structures in these managed wetlands.

Landowner restoring a bottomland hardwood floodplain on his former cropland adjacent to Congaree National Park, S.A. Brady.

Various invasive or exotic pest plant species are a growing problem and threat to the area's terrestrial, coastal, and freshwater ecosystems. For example, Chinese tallow trees in low, wet areas of the coast are highly reproductive and displace native vegetation important to wildlife. Feral hogs are a serious problem that is negatively impacting habitat throughout the focus area and the Southeast.

Within the focus area much of our efforts are concentrated on three Sub-Focus Areas where special initiatives are in progress or are planned: Sandhills, ACE Basin, and Winyah Bay. In the Sandhills Sub-Focus Area, the newly fledged Sandhills Longleaf Pine Conservation Partnership works with private landowners to restore the longleaf pine ecosystem and promote conservation in the vicinity of Carolina Sandhills National Wildlife Refuge, Carolina Sandhills State Forest, and Cheraw State Park through interagency and private landowner cooperation, partnerships, and land protection programs. In the ACE basin, an area recognized internationally as a model for conservation, PFW biologists and landowners are working to restore pine savannah habitat on protected land in preparation for reintroduction



of red-cockaded woodpeckers. In the Winyah Bay Sub-Focus area we hope to build on past work in the lower end of the area and develop new partnerships with private landowners around Waccamaw National Wildlife Refuge and various state conservation lands to improve upland and wetland habitat for focal species.

Priority Habitats

- Longleaf pine forest
- Carolina bays / isolated wetlands
- Bottomland hardwood forest
- Early successional habitat
- Managed tidal wetlands

Five-Year Accomplishment Targets FY2012-2016

- Upland (mostly longleaf pine): 6,000 acres
- Wetland: 2,000 acres
- Riparian/Stream/Shoreline: 5 miles

*Focus Species**

- American Kestrel (SOC)
- Bachman's Sparrow (SOC)
- Black Rail (SOC)
- Black-throated Green Warbler (SOC)
- Brown-headed Nuthatch (SOC)
- Henslow's Sparrow (SOC)
- Northern Bobwhite (SOC)
- Painted Bunting (SOC)
- Prairie Warbler (SOC)
- Red-cockaded Woodpecker (E)
- Swainson's Warbler (SOC)
- Swallow-tailed Kite(SOC)
- Wood Stork (E)
- Carolina Gopher Frog (SOC)
- Flatwoods Salamander (T)
- Gopher tortoise (SOC)
- American Chaffseed (E)
- Canby's Dropwort (E)
- Pondberry (E)

* E – federally listed as endangered; T – federally listed as threatened; C – candidate species for federal listing; SOC – species of concern

Threats

- Land use changes such as development, fragmentation, short rotation timber production, agricultural practices, and invasive species
- Longleaf Pine Ecosystem-- exclusion of prescribed fire, smoke management, lack of public information, management costs, and shortage of commercially available local ecotype ground layer seed

Action Strategies

- Service staff will continue to build relationships with landowners and other partners to identify sites with degraded habitat, to develop project plans, to assist with implementing projects, and to monitor projects. All available conservation programs and funding sources will be considered to leverage resources and to assist with the substantial financial challenge to landowners and organizations interested in habitat restoration. Opportunities to form new longleaf partnerships in the western sandhills will be explored.
- We will actively support the objectives of America's Longleaf Range-Wide Conservation Plan, the State Technical Committee, the South Carolina Prescribed Fire Council, and local task groups concerned with native ground cover and invasive species.

Key Partners in South Carolina

Private landowners are the primary stakeholders involved in the PFW Program in South Carolina. Other stakeholders currently or recently involved are listed below. The stakeholders are involved in carrying out program activities in varying degrees; however, to some extent all participate in supporting the program. Support is by carrying out project work, providing technical assistance, locating potential projects, managing finances, and general promotion of the program.

- Private Landowners (over 200)
- Charleston Natural History Society
- Chesterfield Soil & Water Conservation District
- Clemson University Cooperative Extension
- Dewees Island Property Owners Association
- Heathwood Hall School
- James Island Elementary School
- Jones Ecological Research Center
- National Audubon Society, Audubon South Carolina
- National Wild Turkey Federation
- Natural Resources Conservation Service
- Nemours Wildlife Foundation
- Pee Dee Land Trust
- Pee Dee RC&D Council
- South Carolina Department of Natural Resources
- South Carolina Department of Parks, Recreation, and Tourism
- South Carolina Forestry Commission
- South Carolina Native Plant Society
- South Carolina Wildlife Federation
- St. James-Santee Elementary School
- The American Chestnut Foundation, Carolinas Chapter
- The Nature Conservancy, South Carolina Chapter

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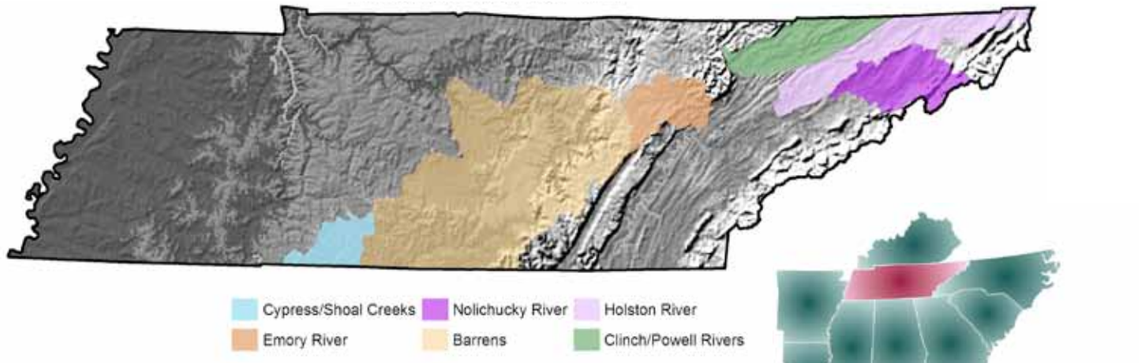
Appendix A: Tennessee



Tennessee Partners Program Focus Areas

Introduction and Overview

The State of Tennessee extends from the Blue Ridge Mountains in the East to the Mississippi River Alluvial Plain in the West, encompassing parts of ten physiographic provinces within its borders. Historically, hardwood forests dominated the landscape across Tennessee. Bottomland hardwood forests predominately occurred in the Coastal Plain and Mississippi River Alluvial Plain regions in west Tennessee.

Tennessee has over 60,000 miles of streams that occur within 13 major basins. The state's streams support over 300 species of fish. Additionally, over 40 percent of the 300 species of freshwater mussels known to occur within the United States occur (or occurred) within the state. The large number of aquatic species in the state's waters results in the most diverse assemblage of aquatic fauna in the country. Human population growth and associated development, along with changes in land use practices, have resulted in significant changes in the state's natural resources. Over 50 percent of the state's wetlands have been lost, most streams in west Tennessee have been channelized, and 20 percent of the streams across the State have been impounded. Also, over 30 percent of the river miles within the state are either partially or not supporting their designated uses, with only 50 percent having been assessed. In addition, approximately 155 miles of rivers are posted due to high bacterial levels hazardous to humans, and 120 miles are posted due to contaminated fish. Aquatic resources are a very important though somewhat degraded resource in Tennessee.

Monitoring

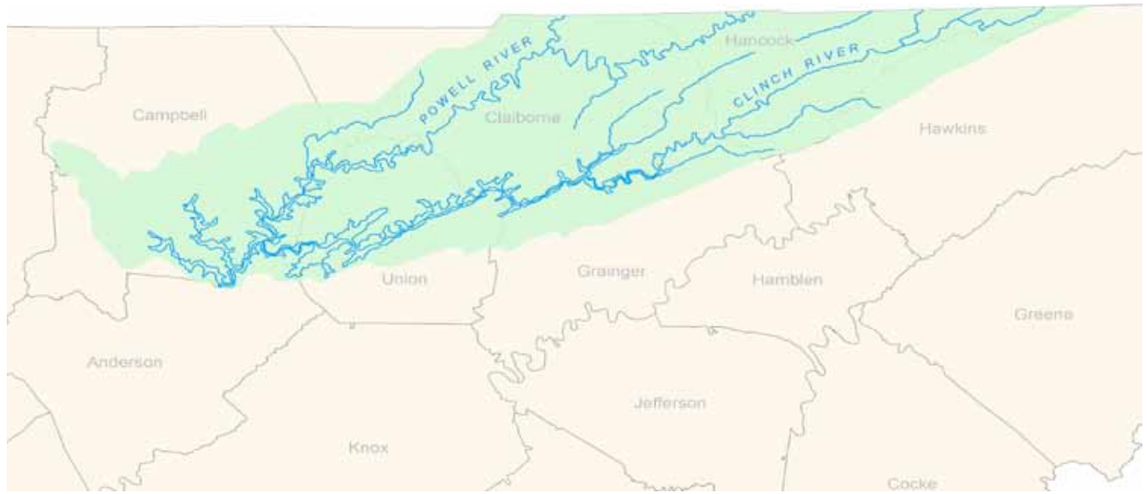
Partners for Fish and Wildlife (PFW) Program projects in Tennessee will be monitored throughout the life of the landowner agreement according to PFW Program Project Monitoring Guidelines (Appendix E). Working with our partners, habitat and/or species-level monitoring may be conducted when feasible. Habitat-based monitoring that focuses on successful establishment of the target environmental features such as seedling survival, streambank stability and development of a functioning riparian zone, etc., will likely be the most feasible option to accomplish in the short term.

Tennessee PFW Program Focus Areas

For this strategic plan, we have established six priority habitat geographic focus areas in Tennessee. These are the Clinch River/Powell River watershed, the Barrens, the Nolichucky River watershed, the Holston River watershed, the Emory River watershed, and the Cypress Creek/Shoal Creek watershed. These areas were chosen based on stakeholder interest, species of greatest concern as listed in the Tennessee Comprehensive Wildlife Conservation Strategy (State Wildlife Action Plan), and the presence of federally listed species. Program efforts have been concentrated in the Clinch River/Powell River watershed, Emory River watershed, Holston River watershed, Nolichucky River watershed, and the Barrens region, in recent years and significant stakeholder interest is present. We plan on continuing to move forward with our partners based on our current success in these areas to improve degraded habitats for rare species. As for the Cypress Creek/Shoal Creek watershed, we anticipate increasing our efforts to address degraded habitat issues currently effecting rare species present there.

Clinch River/Powell River Watershed Focus Area

This focus area is composed of the Clinch River and Powell River and their tributaries. Many natural resource agencies and organizations have identified the Clinch-Powell River System of northeast Tennessee and southwest Virginia as one of the most ecologically important freshwater systems in North America. The river system's globally rare biodiversity is largely due to its unique assemblages of freshwater mussels and fish. Unfortunately, due to various threats, many of the aquatic species are now imperiled and declining precipitously. As a result, in FY 2001 the Partners for Fish and Wildlife (PFW) Program began to improve water quality and



Clinch River/Powell River Watershed Focus Area

address environmental stressors affecting aquatic habitat for the numerous aquatic species both rare and common, inhabiting this uniquely diverse watershed.

Priority Habitats

Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Riparian/Instream: 7.5 miles
- Upland: 75 acres

*Focus Species**

- 18 Federally-listed mussels
- 4 Federally–listed fish
- 2 Federally-listed bats

Birdwing pearlymussel (E), Spectaclecase (C), Fanshell (E), Dromedary pearlymussel (E), Cumberlandian combshell (E), Oyster mussel (E), Spotfin chub (T), Slender chub (T), Shiny pigtoe (E), Finerayed pigtoe (E), Cracking pearlymussel (E), Pink mucket pearlymussel (E), Slabside pearlymussel (C), Gray bat (E), Yellowfin madtom (T), Pygmy madtom (E), Sheepnose mussel (C), Rough pigtoe (E), Fluted kidneyshell (C), Rough rabbitsfoot (E), Cumberland monkeyface pearlymussel (E), Appalachian monkeyface pearlymussel (E), Purple bean (E), Indiana bat (E)

Numerous fish inhabit the Clinch/Powell rivers watershed, USFWS.

Threats

- The major threat is degraded water quality as a result of poor sediment control practices associated with urban development, timber harvest and agricultural practices. Runoff associated with mining operations in the upper portion of the watershed also negatively affect habitat for aquatic species.
- Issues associated with invasive species displacing and out competing native flora and fauna are also a concern. Early successional habitat for migratory birds is also limited in this area.

Action Strategies

- Addressing the on-going problem of erosion and bank failure is a high priority. Areas with degraded riparian habitat will be identified and targeted for improvement by the PFW Program biologist and The Nature Conservancy which has dedicated a staff member to the area.
- By utilizing available funding and working with partners and landowners, activities such as excluding livestock from streams, providing alternative water sources, hardening heavy-use feeding areas and travel lanes, and revegetating riparian areas with native trees, shrubs and grasses will be implemented as needed throughout the watershed.

A diverse mussel community is present in the Clinch/Powell Rivers watershed, USFWS.

Early successional plantings provide much needed habitat for various pollinators such as the humming moth above, USFWS.

- Bioengineering methods, which require the use of naturally occurring material (e.g., root wads, logs, etc.), will be utilized to stabilize eroding banks. The reestablishment of riparian zones will provide nesting and resting habitat for neotropical migratory birds and small game species such as bobwhite quail and cottontail rabbits.

The Barrens Focus Area

The Barrens Focus Area encompasses the headwaters of the Elk, Duck, Collins, and Caney Fork rivers and is generally referred to as the "Barrens." The entire area is incredibly diverse in terrestrial species and communities, ranging from oak barrens and prairie wetlands in the upper portions of the watersheds, cedar glades and limestone barrens in the mid-region, to rich calcareous seeps and forests in the lower portion of the Elk and Duck rivers. This region of Tennessee remains one of the most biologically diverse areas in North America. The Duck River alone supports over 650 species which includes 146 species of fish, 53 species of freshwater mussels, and 22 freshwater snail species (Ahlstedt et al. 2004). Over 20 federally listed species occur within this focus area, in addition to many other rare species.

In addition to the extraordinary aquatic and terrestrial fauna located here, this area also has a thriving karst system. The landscape is dotted with sinkholes and cave openings which

Areas of high livestock use tend to erode quickly, USFWS.

are home to numerous species of bats, salamanders, crayfish, beetles, and other invertebrates.

Priority Habitats

Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Riparian/Instream: 5.0 miles
- Upland: 50 acres

*Focus Species**

- 15 Federally-listed mussels
- 5 Federally–listed fish
- 2 Federally-listed bats
- 2 Federally-listed plants

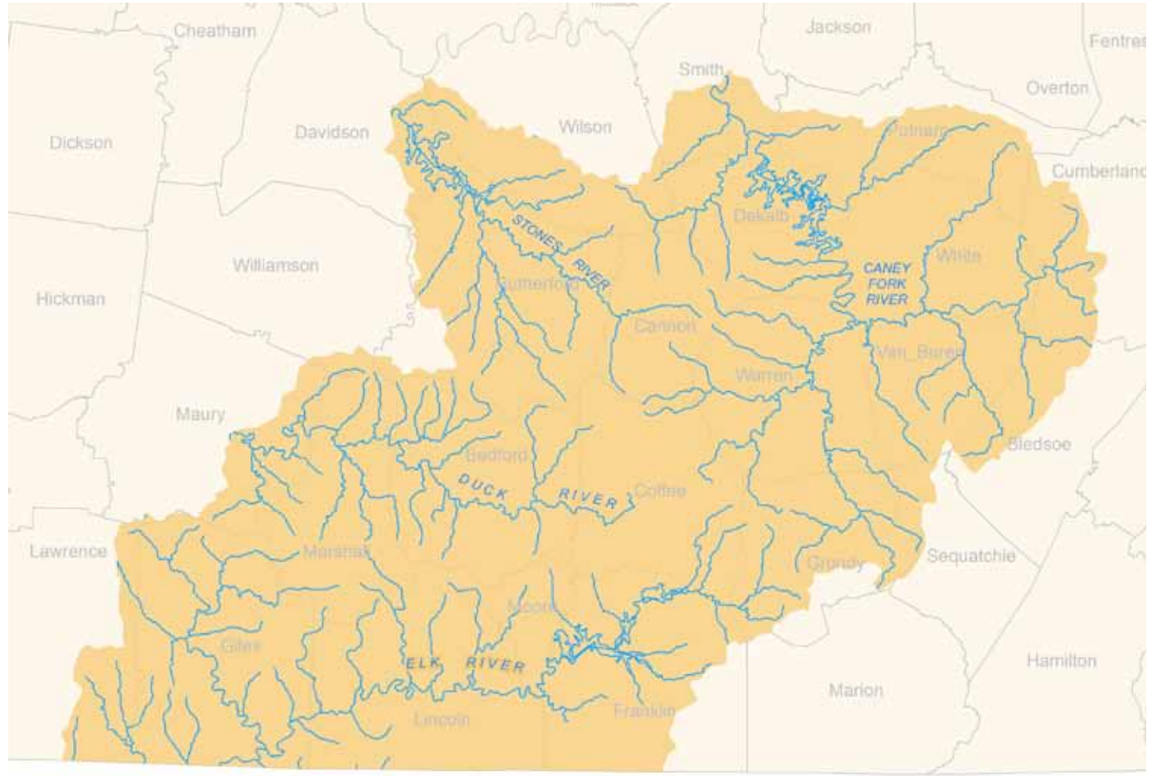
Birdwing pearlymussel (E), Cumberland rosemary (T), Spectaclecase (C), Fanshell (E), Cumberlandian combshell (E), Oyster mussel (E), Tan riffleshell (E), Bluemask darter (E), Barrens darter (SOC), Boulder darter (E), Barrens topminnow (SOC), Fine-rayed pigtoe (E), Flame chub (SOC), Barrens heelsplitter (SOC), Slabside pearlymussel (C), Gray bat (E), Indiana bat (E), Littlewing pearlymussel (E), Cumberland pigtoe (E), Fluted kidneyshell (C), Cumberland monkeyface pearlymussel (E), Virginia spiraea (T), Pale lilliput pearlymussel (E), Rayed bean (C)

Threats

- Urbanization and incompatible agricultural and silviculture practices have been identified as the most pressing threats. Water quality degradation resulting from suspended sediments and nutrient enrichment have negatively affected aquatic species habitat.
- The introduction of invasive species into certain portions of the Barrens Area continues to be a grave threat.

Action Strategies

- Improve degraded spring, stream, and riparian habitat for the suite of rare species occurring within these watersheds.
- Restore native vegetation occurring around streams, sinkholes, and cave openings which will reduce the amount of sediment from entering these systems.
- Local landowners will be solicited and problem areas identified. The Tennessee Department of Agriculture, local soil conservation districts, and the Natural Resources Conservation Service currently are active partners and will continue to assist the Service with our efforts.



Barrens Focus Area

- Degraded sites will be addressed by installing practices such as stream bank restoration, livestock exclusion fencing, providing alternative water sources, developing hardened heavy-use areas, and revegetating riparian areas with native trees, shrubs and grasses which will improve water quality and wildlife habitat.
- Work with our partners to deliver conservation practices on the ground and carry out reasonable monitoring within our capacity to determine success

Cypress Creek/Shoal Creek Focus Area

This focus area is composed of Cypress Creek, Shoal Creek, and their tributaries in Lawrence, Wayne, and Hardin counties. Our goal is to develop partnerships with government agencies and local landowners to restore, improve, and protect riparian and instream habitat for rare species, specifically the federally listed slackwater darter, spotfin chub, and boulder darter within the Cypress/ Shoal Creek watersheds.

The slackwater darter and its habitat is the primary focal species that we will target in this watershed. It lives in small streams near low lying fields or wetlands. During the winter months of late January and February surrounding inundated lands are accessible for adult darters to breed and lay eggs (McGregor, 1995). These low lying areas need to stay flooded until the eggs hatch and the fry are able to return to the stream.

All permanent and intermittent streams with flowing water from December to June that are within the Cypress and Middle Cypress Creek watersheds in Wayne County are identified as critical habitat for the slackwater darter.

Priority Habitats

Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Riparian/Instream: 2.5 miles
- Upland: 25 acres

*Focus Species**

- 3 Federally-listed fish
- 2 Federally-listed bats

Daily usage by livestock can have a severe impact on vegetation within a riparian zone, USFWS.

slackwater darter (T), gray bat (E), Indiana bat (E), spotfin chub (T), boulder darter (E)

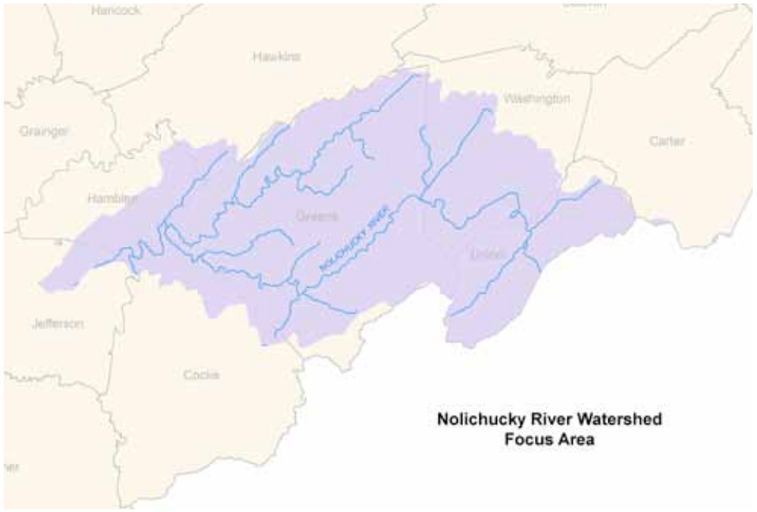
Threats

- Fish passage is an issue related to the slackwater darter as well as other small fish species. Many of the numerous culverts throughout the watershed have perched outlets preventing most fish species, including the slackwater darter, from migrating to the headwater reaches to spawn.
- Suspended sediments and nutrient enrichment from agriculture, silviculture, and urban expansion are problems affecting this watershed. Poor agricultural practices and loss of riparian zones are major contributing factors toward degraded water quality. In addition, bank erosion typically associated with livestock usage, or in-stream scour continue to contribute to the on-going sedimentation problem.

One of many head-water springs in the Barrens area, USFWS.

The federally endangered bluemask darter occurs in the Collins River System, Conservation Fisheries Inc.

Portions of Cypress Creek have an intact riparian zone (top) while other acres are heavily impacted by livestock usage (below), USFWS.



Culverts like the one above prevent slackwater darters from migrating up stream to small headwater reaches where they spawn during late winter, USFWS.

The PFW Program supplies funding to replace existing barrel culverts with concrete box culverts in situations where they form a barrier to slackwater darters returning to their historic spawning areas, USFWS.

Nolichucky River Watershed Focus Area

This focus area is made up of the Nolichucky River and its tributaries as they enter eastern Tennessee from western North Carolina. It cuts through the mountainous region of eastern Tennessee and meanders its way toward an intersection with the French Broad River. This watershed is approximately 1,128 square miles and includes parts of seven Tennessee counties. A part of the Tennessee River drainage basin, this watershed has 2,854 stream miles and 383 lake acres. It also contains five State Wildlife Management Areas, one National Forest, and one stream listed in the National Rivers Inventory (TDEC, 2008). One hundred twenty-eight rare plant and animal species have been documented in the watershed, including seven rare fish species and ten rare mussel species (TDEC, 2008).

Priority Habitats

Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – FY 2016)

- Riparian/Instream: 4.0 miles

*Focal Species**

- 1 Federally-listed mussel
- 2 Federally-listed fish
- 2 Federally-listed bats

gray bat (E), Indiana bat (E), spotfin chub (T), chucky madtom (C), Cumberland bean pearlymussel (E)

Threats

- Degraded water quality as a result of poor sediment control practices associated with urban development, timber harvest and agricultural practices negatively affect habitat for aquatic species.
- Issues associated with invasive species displacing and out competing native flora and fauna are also a concern.
- The lack of early successional habitat is a limiting factor for various migratory bird species in the area.

Poor silvaculture practices can contribute greatly to the sediment load entering into nearby steams, USFWS.

Action Strategies

- Addressing the on-going problem of erosion and bank failure is a high priority. Areas with degraded riparian habitat will be identified and targeted for restoration by the PFW Program biologist, the Middle Nolichucky Watershed Alliance, and other partners that have dedicated staff assigned to the area.
- By utilizing available funding and working with partners and landowners, activities such as excluding livestock from streams, providing alternative water sources, hardening heavy-use feeding areas and travel lanes, and revegetating riparian areas with native trees, shrubs and grasses will be implemented in needed areas throughout the watershed. Bioengineering methods, which require the use of naturally occurring material (e.g., root wads, logs, etc.), will be utilized to stabilize eroding banks.
- The reestablishment of riparian zones will provide nesting and resting habitat for neotropical migratory birds and small game species such as bobwhite quail and cottontail rabbits in addition to the natural sediment filter it provides.

Holston River Watershed Focus Area

The Holston River Watershed Focus Area is located in the mountainous region in the northeastern corner of Tennessee and is made up of the Holston River and its tributaries. This focus area encompasses all or parts of Knox, Union, Jefferson, Grainger, Hamblen, Hawkins, Greene, Washington, Sullivan, Carter, and Johnson counties. The Holston River and the French Broad River and their tributaries once supported a diverse fish, snail, and mussel fauna, possibly as many as 85 mussel species and subspecies (Ahlstedt 2004). Of this once-rich mussel fauna, seven species are extinct and 16 mussels, one aquatic snail, and five fishes are federally listed but extirpated from these river reaches. The only federally listed mussel still occurring in the watershed is the endangered pink mucket.

Priority Habitats
Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – 2016)

- Riparian/Instream: 5.0 miles
- Upland: 50 acres

*Focal Species **

- 1 Federally-listed mussel
- 2 Federally-listed fish
- 2 Federally-listed bats

The Holston River is a large river with long sweeping bends that moves through the mountainous regions of upper East Tennessee, USFWS.

gray bat (E), Indiana bat (E), spotfin chub) (T), chucky madtom (C),

Threats

- Like most large rivers in Tennessee, dams have been installed and natural hydrologic regimes have been severely manipulated impacting numerous species greatly. Stable flow rates have been replaced with cyclic water releases that range from very low flows to extremely high flows within a 24 hour period. This results in streambed incision due to scour and bank erosion.
- Livestock usage is very abundant as well as row cropping within its floodplain. A product of these two agricultural mainstays is loss of riparian zones which greatly contributes to the stream bank instability and high levels erosion.

Action Strategies

- The Service in coordination with agricultural agencies and organizations will work with private landowners to restore and protect riparian zones throughout this watershed.

Agreements are currently in place with the local soil conservation districts to make funding available to assist landowners with the installation of livestock exclusion fencing, native vegetative plantings along bodies of water, and hardening heavy-use areas near streams all in an effort to reduce erosion from entering the Holston River watershed.

- In addition, the Service is currently in negotiations with Tennessee Valley Authority to lessen impacts related to water releases from existing hydroelectric dams.
- With these activities currently on-going, efforts to return many of the aquatic species that once lived in this watershed began to take shape. Although many mussels and some of the fish species have been eliminated from this watershed, suitable habitat still remains and many groups both Federal, State and private have done much to improve water quality over the past few years. Consequently, fish fauna are recovering and aquatic snail and mussel populations are expanding and doing well. In addition, these river reaches appear to provide potential habitat for the reintroduction of their historical aquatic fauna. As part of a broad effort to restore threatened and endangered species in the Tennessee River System, the Service is planning to reintroduce 21 federally listed aquatic species – 15 mussels, one snail and five fishes into the French Broad and Holston rivers in Tennessee.

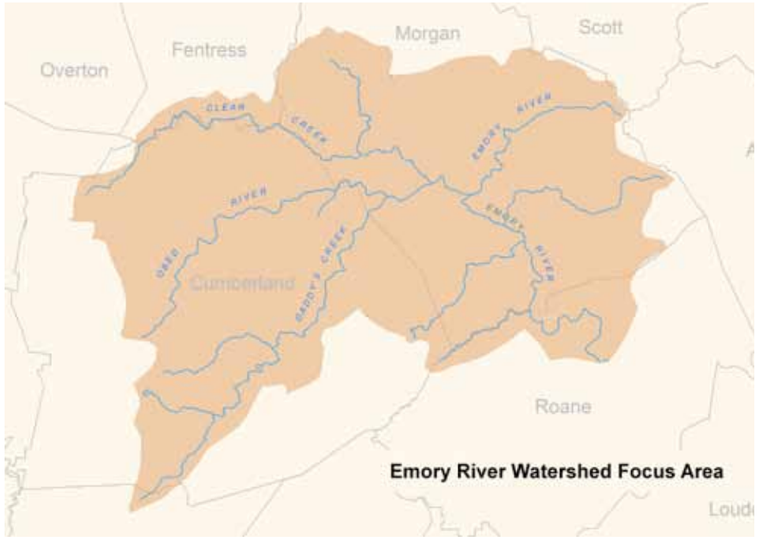
Emory River Watershed Focus Area

The Emory River Watershed Focus Area is located on the Cumberland Plateau in East Central Tennessee and rests primarily in Cumberland and Morgan counties with small areas in Fentress and Roane counties. The watershed is a headwaters section of the Tennessee River complex, and the northern edge of the Emory River borders the crest of the Cumberland River watershed.

Six significant streams flow in the watershed, including the Emory River, Obed River, Clear Creek, Daddy's Creek, White Creek and Crab Orchard Creek. These are all seasonally swift moving streams and are the primary water supply for the area as well as popular destinations for white-water enthusiasts.

The Emory River watershed is rich with diverse flora and fauna and habitat for five federally listed threatened and endangered species; the spotfin chub, turgid blossom, fine-rayed pigtoe, and the purple bean mussel. The Alabama lamp mussel which had not been seen since the 1920's and was thought to be extirpated from the system was recently rediscovered. Endemic to the Tennessee River drainage, the spotfin chub, is among the most rare and extraordinary minnows in the Emory River watershed. Portions of the Emory River watershed were designated as critical habitat for the spotfin chub in 1977, and they include the following areas:

- Emory and Obed Rivers and Clear and Daddy's Creeks in Morgan County,



- Clear Creak in Fentress County, and
- Obed River upstream to U.S. Interstate Highway 40, Clear Creek upstream to U.S. Interstate 40, and Daddy's Creek upstream to U.S. Highway 127 in Cumberland County. In addition, portions of the Obed River, with its population of purple bean mussels, are also designated as critical habitat.

Priority Habitats

Riparian/Instream, Early successional

Five-Year Accomplishment Targets (FY 2012 – FY2016)

- Riparian/Instream: 2.5 miles
- Upland: 25 acres

*Focal Species **

- Federally-listed mussel
- Federally-listed fish
- Federally-listed bats

gray bat (E), Indiana bat (E), spotfin chub (T), purple bean (E), Alabama lamp mussel (E) , Virginia spiraea (T), and Cumberland rosemary (T)

Threats

- Demographic stresses continue to advance in the Emory with fast growing municipalities such as Crossville and Wartburg which have been designated as "ideal" retirement areas. Increased human populations issues as they relate to water supply have been encountered in recent years. Industries such as two large ceramic tile factories in Crossville contribute to the creep of urban development and the strain being placed on the natural resources. These land use changes are negatively impacting habitat and water quality in nearby streams.
- Portions of the mostly forested watershed are encountering pressures associated with timber harvest and poor silvaculture practices which are ever increasing. These activities along with poor implementation of best management practices contribute to degraded water quality within the Emory System.

Action Strategies

- Addressing the on-going problem of erosion and bank failure is a high priority. Areas with degraded riparian habitat will be identified and targeted for restoration by the PFW Program biologists and other partners.
- By utilizing available funding and working with partners and landowners, activities such as excluding livestock from streams, providing alternative water sources, hardening heavy-use feeding areas and travel lanes, and revegetating riparian areas with native trees, shrubs and grasses will be implemented in needed areas throughout the watershed.
- Bioengineering methods, which require the use of naturally occurring material (e.g., root wads, logs, etc.), will be utilized to stabilize eroding banks. The reestablishment of riparian zones will provide nesting and resting habitat for neotropical migratory birds and small game species.

* E=Endangered
T=Threatened
C=Candidate
SOC=Species of Concern

Key Partners in Tennessee

The following is a list of stakeholders involved, or has been involved, in the PFW Program in Tennessee. The stakeholders have helped to carrying out program activities in varying degrees; however, to some extent all participants support the program. Support is by providing technical assistance, locating potential projects, managing finances, and general promotion of the program.

- Private Landowners (approximately 250)
- Tennessee Wildlife Resources Agency
- Tennessee Department of Agriculture
- Tennessee Department of Environment and Conservation
- Tennessee Chapter of The Nature Conservancy
- Tennessee Valley Authority
- Tennessee Tech University
- The Tennessee Aquarium
- National Fish and Wildlife Foundation
- Virginia Chapter of The Nature Conservancy
- Georgia Chapter of The Nature Conservancy
- Southeast Aquatic Research Institute
- Coffee County Soil Conservation District
- The Friends of the Clinch-Powell Rivers
- Clinch Valley Program
- Clinch-Powell Resources Conservation and Development Council
- Five Rivers Resource Conservation and Development Council
- Southern Middle Tennessee Resource Conservation and Development Council
- Duck/Buffalo Resource Conservation and Development Council
- Duck River Initiative
- Hiawassee River Coalition
- The National Wild Turkey Federation
- Quail Unlimited
- Farm Services Agency
- Blount County Soil Conservation District
- Nashville Metropolitan Board of Parks and Recreation
- City of Columbia
- City of Pulaski
- City of Smithville
- City of Manchester
- City of Tullahoma
- City of Chattanooga, Department of Parks and Recreation
- Natural Resources Conservation Service
- Department of Defense, Arnold Air Force Base
- U.S. Forest Service
- U.S. Geological Survey
- Environmental Protection Agency
- Greene County Soil Conservation District
- Moore County Soil Conservation District
- Warren County Soil Conservation District
- Van Buren County Soil Conservation District
- Central Basin Resource Conservation and Development Council
- Smoky Mountain Resource Conservation and Development Council
- Conservation Fisheries Incorporated
- World Wildlife Fund
- International Paper
- Tennessee Wildlife Federation
- North Chickamauga Creek Conservancy

Support from private landowners translates into success for the PFW Program, USFWS.

- Middle Nolichucky Watershed Alliance
- Hull, York, Lakeland Resource Conservation and Development Council
- Morgan County Soil Conservation District
- Cumberland County Soil Conservation District
- Hawkins County Soil Conservation District
- Wayne County Highway Department
- Cumberland River Compact

Intact and functioning riparian habitats play a crucial role in the continued existence of many of Tennessee's rare species, USFWS.

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Appendix B: Partners for Fish and Wildlife Program Staff and Organizational Structure, Southeast Region

The Partners Program has (FY 2011) 32 full time staff located in various offices across the Region (Table B1 and Fig. B1). Program staff consists of a Regional Coordinator (1), a Caribbean Coordinator (1), State Coordinators (10), and Partners Program biologists (20). In addition to providing technical assistance to private landowners and other partners and developing, implementing and managing habitat improvement projects, State Coordinators are responsible for coordinating and reporting all Partners Program activities across all Service Program areas, and with all other agencies and partners within their State. The primary responsibility of a Partners biologist is to develop partnerships and deliver the Program on the ground.

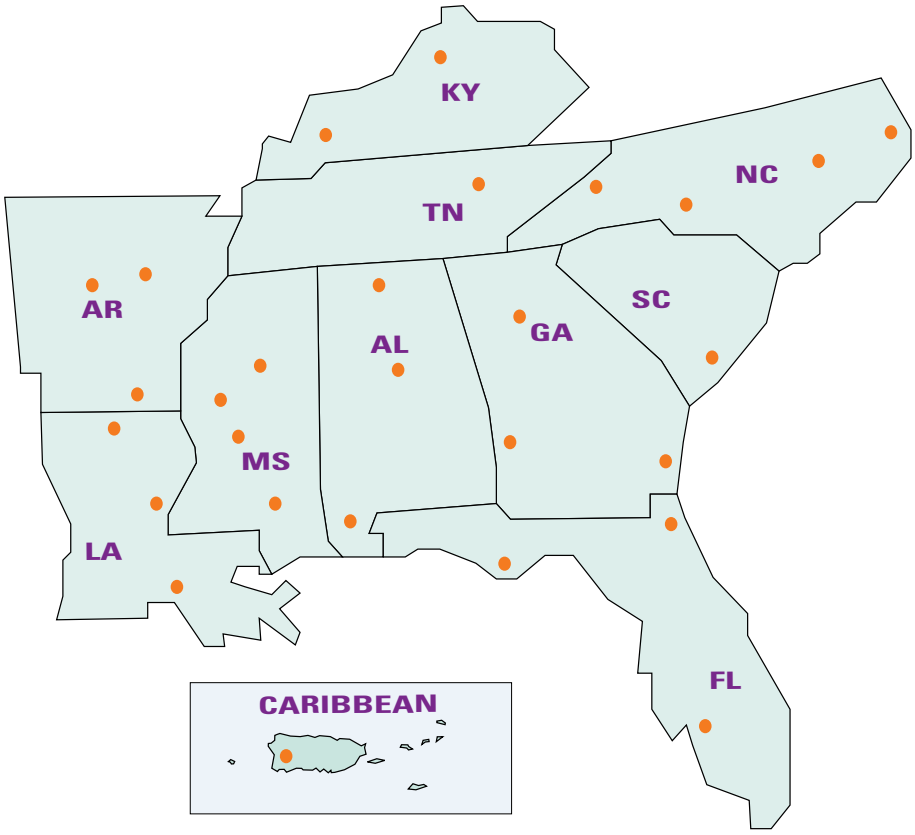

FIG. B.1. Approximate location of Partners Program staff: Southeast Region

All Regional Program staff are officially assigned within Ecological Services (ES), Division of Conservation Partnerships (DCP). The Regional Coordinator is supervised by the Chief, DCP, while the Chief, DCP is supervised by the Assistant Regional Director, ES. All of the field staff are supervised by the Service Project Leader at the station where they are assigned. Therefore, those positions stationed at a Refuge office are supervised by the Refuge Manager, those at a Migratory Bird office by the Project Leader of that office, etc. At the national level the Partners Program is part of the Division of Fish and Wildlife Management and Habitat Restoration. The Division Chief supervises the national program staff.

Program responsibilities for Partners Program positions are described in Appendix C (Partners Program National Policy and Guidance).

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Appendix C: Partners for Fish and Wildlife Program National Policy

1.1 What is the purpose of this chapter?
This chapter and 504 FW 1, 2, 3, 4, and 5 prescribe the policies and procedures for implementation of the Partners for Fish and Wildlife Program. As used in this chapter, the terms "we," "our," and "Service" refer to the Fish and Wildlife Service.

1.2 To what does this chapter apply?
This chapter applies to Partners for Fish and Wildlife Program projects implemented with Partners for Fish and Wildlife Habitat Restoration (1121-HR) and Technical Assistance (1121-TA) funds.

1.3 What is the Partners for Fish and Wildlife Program?
The Partners for Fish and Wildlife Program is our primary mechanism for delivering voluntary on-the-ground habitat improvement projects on private lands for the benefit of Federal trust species. We provide technical and financial assistance to landowners to help meet the habitat needs of Federal trust species on private lands. Program projects may include improving habitat for any or all of the following: migratory bird species; anadromous fish species of special concern to the Service; endangered, threatened, or candidate species; species proposed for listing; and other declining or imperiled species.

1.4 What are the authorities for this chapter?
A. Fish and Wildlife Coordination Act (16 U.S.C. 661).

B. Fish and Wildlife Act of 1956 (16 U.S.C. 742a-j).

C. Partners for Fish and Wildlife Act of 2006 (Public Law 109-294-120 STAT.1351).

1.5 Who is responsible for implementing the Partners for Fish and Wildlife Program?
A. Assistant Director - Fisheries and Habitat Conservation administers the Partners for Fish and Wildlife Program in consultation with the Assistant Director - National Wildlife Refuge System.

B. Assistant Director - National Wildlife Refuge System will advise the Assistant Director - Fisheries and Habitat Conservation on Partners for Fish and Wildlife issues related to management of the National Wildlife Refuge System.

C. Chief, Division of Fish and Wildlife Management and Habitat Restoration:

(1) Develops Partners for Fish and Wildlife Program policy and monitors its implementation.

(2) Provides guidance and training on Partners for Fish and Wildlife Program procedures to Regional, State/Ecoregion, and local Partners for Fish and Wildlife coordinators.

(3) Prepares guidance, policy, procedures, and directives, as needed, for the Regions on issues that have national implications.

(4) Prepares materials and coordinates input for the budget process, including, but not limited to, budget estimate and justification language, capability statements, effect statements, initiatives, and allocation methodology.

(5) Represents the Service when dealing with the U.S. Department of Agriculture (USDA) and other agencies at the National level on Partners for Fish and Wildlife Program activities.

(6) Collects, analyzes, and reports data on the accomplishments, costs, and benefits of Service activities related to the Partners for Fish and Wildlife Program.

(7) Coordinates Partners for Fish and Wildlife Program activities and opportunities with entities inside and outside of the Service.

(8) Coordinates resolution of issues elevated to the Washington Office from the Regions.

(9) Establishes and maintains partnerships at the National level.

D. Regional Directors will implement the Partners for Fish and Wildlife Program within their Region. Each Regional Director will designate a Regional Partners for Fish and Wildlife coordinator who will:

(1) Provide guidance to the field regarding all current policies, procedures, or national directives issued by the Washington Office regarding the Partners for Fish and Wildlife Program.

(2) Collect data on the accomplishments, costs, and benefits of the Region's activities related to the Partners for Fish and Wildlife Program and report that data to the Chief, Division of Fish and Wildlife Management and Habitat Restoration.

(3) Establish and implement monitoring protocols to ensure that habitat improvement projects have met their biological and structural intent, and that landowners are satisfied.

(4) Develop, administer, and monitor multi-State partnership agreements.

(5) Provide technical assistance across all Service program areas.

(6) Conduct Partners for Fish and Wildlife Program oversight reviews of field stations to help ensure compliance, recognition, and resolution of problems or issues, and effectively communicate helpful information to all parties.

(7) Identify training needs and assist and coordinate activities to fulfill training needs.

(8) Develop Regional Partners for Fish and Wildlife Program budget allocation recommendations for all Partners for Fish and Wildlife Program activities and stations.

(9) Track budget allocations and accomplishments and report to the Division of Fish and Wildlife Management and Habitat Restoration.

(10) Carry out all Regional education and outreach activities associated with the Partners for Fish and Wildlife Program.

E. State/Ecoregion Partners for Fish and Wildlife Coordinators will coordinate and implement the program at the field level and will:

(1) Evaluate opportunities for habitat improvement.

(2) Provide technical assistance to private landowners and USDA on restoring habitat.

(3) Provide financial assistance to private landowners who voluntarily wish to improve Federal trust species habitat on their lands.

(4) Design and implement habitat improvement projects under formal Partners for Fish and Wildlife Program agreements with private landowners consistent with national guidance, policies, and directives.

(5) Design and implement habitat restoration projects on USDA's Farm Service Agency (FSA) easement property; on property transferred in fee title to the Service or to a State agency; and on property that is covered by an FSA debt cancellation conservation contract, when appropriate.

(6) Direct outreach efforts for the Partners for Fish and Wildlife Program to those geographic areas where there are opportunities to benefit priority resources.

(7) Collect data on the accomplishments, costs, and benefits of activities related to the Partners for Fish and Wildlife Program in the coordinators' geographic areas of responsibility and report this data to the appropriate Regional Partners for Fish and Wildlife coordinator.

(8) Monitor established projects to ensure that the intended results are fully achieved and that the landowners are satisfied.

(9) Establish and monitor coordination efforts with State fish and wildlife agencies to ensure that all activities are effectively coordinated in advance of field implementation.

(10) Develop annual work plans for each State and coordinate the same with the State fish and wildlife agency.

1.6 What terms do I need to know?
Definitions for some of the terms used in this chapter are as follows. Other definitions may be found in the Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act.

A. Candidate Conservation Agreement with Assurances (CCAA). Authorized by the Endangered Species Act, a CCAA is a formal agreement between the Service and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before the species become listed as threatened or endangered. Property owners voluntarily commit to implementing specific actions that will reduce or remove threats to these species, thereby contributing to stabilizing or restoring the species so that listing is no longer necessary. In return, property owners receive assurances that their conservation efforts will not result in future regulatory obligations in excess of those they agreed to at the time they entered into the CCAA. In addition, the Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) provide take authorization under section 10 of the Endangered Species Act, allowing participants to take individuals or modify habitat to return population levels and habitat conditions to those specified in the CCAA.

B. Contract definitions. We utilize the U.S. Department of Labor definitions in Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act) as contained in 29 CFR 5.

C. Cooperative agreement. A legal instrument reflecting a relationship between the Federal Government and a State government, a local government, or other recipient when (1) the principal purpose of the relationship is the transfer of money, property (real or personal), services, or anything of value to the recipient to carry out a public purpose of support or stimulation authorized by Federal statute, and (2) substantial involvement between the parties is anticipated during performance of the project. Except for Economy Act agreements, all agreements (e.g., landowner, assistance, etc.) mentioned in this chapter are types of cooperative agreements.

D. Federal trust species. For purposes of this chapter, Federal trust species include migratory birds, threatened and endangered species, anadromous fish of special concern to the Service, and marine mammals.

E. Incidental take. A term used in the Endangered Species Act, incidental take is the taking of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity by a Federal agency or by a person who requires formal approval or authorization from a Federal agency prior to conducting the activity.

F. Landowner agreement. A written document between the Service and a private landowner detailing the requirements of a Partners for Fish and Wildlife Program project or habitat improvement project (paragraph 1.12). A Wildlife Cooperative Extension Agreement is a type of landowner agreement.

G. Person. For purposes of contracting, a person includes an individual, corporation, partnership, trust, association, or any other private entity; any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political

subdivision of a State, or of any foreign government; and any State, municipality, or political subdivision of a State; or any other entity subject to the jurisdiction of the United States.

H. Private lands. Private lands include tribal and Hawaiian Homelands and lands or waters owned by non-Federal or non-State entities.

I. Take. As defined in the Endangered Species Act, take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct, with regard to threatened and endangered species.

J. Section 10 Safe Harbor Agreement (SHA). A voluntary agreement between the Service or the National Marine Fisheries Service and cooperating non-Federal landowners, for the benefit of endangered and threatened species. Like a CCAA, an SHA gives landowners assurances that their conservation actions will not result in future regulatory obligations in excess of those they agreed to at the time they entered into the agreement. The Safe Harbor regulations are set forth in 50 CFR 17.22(c) and 17.32(c).

K. Volunteer services. Any activity that is undertaken by private landowners or partners that benefits Federal trust species and that is not an activity that is required by a permit or other legal instrument. We apply the definition at 40 U.S.C. 276d-1 to determine what constitutes "volunteer services" for purposes of waiving the Davis-Bacon minimum wage requirements and related labor standards on Federally authorized and financed construction projects.

1.7 What are the objectives of the Partners for Fish and Wildlife Program?

A. Promote and implement habitat improvement projects that benefit Federal trust species.

(1) Promoting and implementing habitat conservation and stewardship by providing technical and financial assistance to private landowners and other partners for proactive, voluntary, ecologically sound, on-the-ground native habitat improvement projects on private lands, for the benefit of Federal trust species (program projects).

(2) Supporting the objectives of Service plans and programs, including, but not limited to, the National Wildlife Refuge System; the North American Waterfowl Management Plan; the North American Bird Conservation Initiative; the National Invasive Species Management Plan; threatened and endangered species recovery plans; Coastal Program management plans; Partners in Flight plans; fisheries management and restoration plans; ecosystem management plans; and other habitat plans.

B. Provide conservation leadership and promote partnerships.

(1) Providing leadership and technical expertise to other Federal, State, tribal, and local government agencies administering nonregulatory habitat programs that benefit Federal trust species and their habitats on private lands.

(2) Promoting partnerships in order to encourage participation by potential new partners.

(3) Developing and maintaining partnerships and contributing financial and technical assistance to partners, for native habitat improvement projects that benefit Federal trust species.

(4) Publicizing the benefits of, and providing recognition to, effective ongoing partnerships in order to encourage participation by potential new partners and to maintain existing partnerships.

C. Encourage public understanding and participation.

(1) Broadening public understanding of fish and wildlife, habitat functions, and restoration techniques, and of the benefits derived from improved wildlife habitat; e.g., improved water quality associated with an increase in wetland acreage and function.

(2) Encouraging public participation in on-the-ground conservation efforts by demonstrating restoration techniques for habitat improvement projects on private lands in a variety of ecosystems.

(3) Informing the public and others of fish and wildlife conservation techniques through development and distribution of educational materials that illustrate our habitat improvement accomplishments and that demonstrate the importance of proper land use and management practices to Federal trust species as well as human populations.

D. Work with USDA to implement USDA's conservation programs. USDA conservation programs have broad-based natural resource conservation objectives, including air and water quality and conservation, soil conservation, wildlife habitat, grazing land conservation, and other agricultural conservation objectives. The Partners for Fish and Wildlife Program projects focus specifically on the conservation of Federal trust species and their habitats. Our role in USDA conservation programs is to provide guidance and technical assistance in order to maximize benefits to Federal trust species. For further information about USDA conservation programs, see 504 FW 1, 2, 3, 4, and 5.

1.8 What do habitat improvement practices include?

We undertake habitat improvement practices to restore or artificially provide physiographic, hydrological, or disturbance conditions necessary to establish or maintain native plant and animal communities. Habitat improvement practices may also include periodic manipulations to maintain intended habitat conditions on completed program projects. The term "habitat improvement" includes habitat restoration, enhancement, and establishment (singularly or in any combination), as those terms are defined below:

A. Habitat restoration is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning full (natural/historic) functions to lost or degraded native habitat. Habitat restoration includes:

(1) Practices conducted with the goal of returning a site, to the extent practicable, to the ecological condition that likely existed prior to loss or degradation. Examples include removal of tile drains or plugging drainage ditches in former or degraded wetlands; returning meanders and sustainable profiles to straightened streams; burning grass communities heavily invaded by exotic species to reestablish native grass/plant communities; and planting native plant communities that likely existed previously on the site.

(2) Practices conducted when the restoration of a site to its original ecological condition is not practicable, but will repair one or more of the original habitat functions and involve the use of native vegetation. Examples include installation of a water control structure in a swale on lands isolated from overbank flooding by a major levee in order to simulate natural hydrological processes and placement of streambank or instream habitat diversity structures in streams that cannot be restored to original conditions or profile.

(3) Removal of the disturbing/degrading element to enable the native habitat to reestablish or become fully functional. Examples include fencing livestock out of a riparian area; removing constructed barriers to promote movement of aquatic species; and gating a bat cave.

B. Habitat enhancement is the manipulation of the physical, chemical, or biological characteristics of a native habitat to change (heighten, intensify, or improve) specific function(s) or the seral stage present. Habitat enhancement includes:

(1) Practices conducted to increase or decrease a specific function or functions for the purpose of benefitting Federal trust species. Examples include increasing the hydroperiod and water depth of a wetland beyond what would naturally occur, to improve waterfowl habitat conditions; establishing water level management capabilities (moist soil management) for native plant communities or to create mud-flat conditions important for shorebirds; and cross-fencing and establishment of a rotational grazing system on native range to improve grassland nesting bird habitat conditions.

(2) Practices conducted for the purpose of shifting a native plant community successional stage. Examples include burning an established native grass community to reduce or eliminate invading brush or exotic species; brush shearing to set back early successional plant communities; and forest management that promotes a particular seral stage. This definition does not encompass regularly scheduled and routine maintenance and management activities such as annual mowing or spraying of unwanted vegetation.

C. Habitat establishment is the manipulation of the physical, chemical, or biological characteristics present to create and maintain habitat that did not previously exist on the site. Examples include construction of shallow water impoundments on non-hydric soils and construction of side channel spawning and rearing habitat where none previously existed.

1.9 How does the Service determine habitat improvement priorities?

Partners for Fish and Wildlife Program projects must advance our mission, promote biological diversity, and be based upon sound biological principles. Each year, we receive more requests from private landowners for financial assistance than we can fund; therefore, we must use a priority system to make selections. For the purpose of providing the greatest benefits to Federal trust species, use the following priority factors to focus project selections geographically or ecologically:

A. Priority ranking factors. We will give highest funding priority status to proposed projects that meet the following conditions (sequence of listing does not imply order of preference):

(1) National Wildlife Refuge System. The purpose of a proposed project on private lands will complement activities on National Wildlife Refuge System lands or contribute to the resolution of problems on refuges that are caused by off-refuge land use practices. Examples include: enhancing the quality of water that enters a refuge, facilitating wildlife dispersal, and establishing corridors between refuges and other protected habitats. High priority status will be afforded to the initial restoration of habitats on lands with FSA conservation easements or that FSA has transferred in fee title to the Service, when the purpose of the conservation instrument is to restore the ecological integrity of the site for the benefit of Federal trust species.

(2) Species at risk. The proposed project must improve habitat for migratory bird species of management concern; anadromous fish of special concern to the Service; endangered, threatened, or candidate species or species proposed for listing; and/or other declining species.

B. Secondary ranking factors. Give special consideration to proposed projects that meet the following conditions (sequence of listing does not imply order of preference):

(1) Ecoteam priorities. Projects identified by Service ecosystem teams or in collaboration with State fish and wildlife agencies, conservation districts, and other partners.

(2) Links and augmentation. Projects that reduce habitat fragmentation.

(3) Globally or nationally imperiled. Projects that conserve or restore

a natural community that a State Natural Heritage Program or Heritage Database has designated as globally or nationally imperiled.

(4) Self-sustaining. Projects that result in self-sustaining systems that are not dependent on artificial structures. If such structures are necessary for project success, they must be designed to blend with the natural landscape and to minimize future operational and maintenance costs.

(5) Buffers. Projects that serve as buffers for other important State or Federal conservation lands.

C. General ranking factors. If other considerations are roughly equal, we will give priority to funding projects that have agreements that are longer in duration; that involve greater non-Service partnerships and cost-sharing; and/or that have the greatest cost effectiveness.

1.10 How does the Service implement the Partners for Fish and Wildlife Program?

A. Coordination with others. Whenever possible and appropriate, we will coordinate the Partners for Fish and Wildlife Program with other Federal, State, tribal, and local government agencies as well as nongovernmental organizations that share our objectives of benefitting Federal trust species and their habitats.

B. Federal lands and waters. Generally, habitat improvement projects on Federal lands and waters are deemed to be for the direct benefit or use of the Federal Government, and are implemented by Service employees, volunteers, or by contractors hired in accordance with the Federal Acquisition Regulation (FAR).

C. Private lands. For each of the following methods of implementing habitat improvement projects on private lands, any landowner cost-sharing requirements may be met with funds, labor, materials, or other valuable contributions. In addition, the following general rules apply:

(1) Federal contractors. As a general rule, when we arrange for a contractor to perform work on private lands, we award a Federal procurement contract to the contractor, in accordance with the FAR.

(2) Other agencies and organizations. When other Federal, State, or local government agencies or private organizations act as intermediaries for the Service in arranging and carrying out habitat improvement projects on private lands, we will use a cooperative agreement, except that interagency agreements under the Economy Act (31 U.S.C. 1535) must be used with other Federal agencies. Cooperative agreements must include a mechanism for the recovery of Federal funds if the terms and conditions of the agreement are not met. A clause similar to the one in paragraph 1.12F fulfills this requirement.

(3) Landowner labor and/or contracts. Federal assistance agreements similar to the Wildlife Cooperative Extension Agreement (FWS Form 3-2257) and FWS Forms 3-2255 (Project Plan) and 3-2256 (Findings and Determination to Support Habitat Development on Private Lands), or comparable supporting documentation, must be used when landowners will either do the habitat improvement work themselves (with some guidance from Service employees) or will hire their own contractors.

1.11 What are the requirements for program projects?

The following requirements apply to all Partners for Fish and Wildlife Program-funded habitat improvement projects:

A. Regions must focus on projects in those ecosystems or watersheds where efforts will achieve the greatest benefits for Federal trust species. The objective of habitat improvement projects on private lands must be improving the habitat of Federal trust species for the principal benefit of the Federal Government. Program projects must be biologically sound and cost-effective, and must reflect the application of the most effective techniques based on state-of-the-art methodologies and adaptive management. We may measure or ensure program project quality through the establishment of project selection protocols; monitoring success criteria; program reviews; and/or employee training.

B. The costs of the proposed habitat improvement projects must be reasonable; i.e., the value of what is to be achieved by a project must be at least equal to (and preferably greater than) the Federal expenditures.

C. Habitat improvement projects must comply with all applicable environmental laws such as the National Environmental Policy Act and the Endangered Species Act,as well as other statutes that protect historic and cultural resources.

D. Prior to implementing habitat improvement projects on private lands, the Service and the landowner(s) must sign an agreement that secures the Federal investment. When a third party acts as an intermediary for us, we will use agreements as specified in paragraph 1.12B.

E. Habitat restoration projects must, to the extent technically feasible, attempt to reestablish the original (predisturbance) ecological community, or a successional sequence of natural communities that will lead to the reestablishment of the original ecological community, on at least 70 percent of the project site.

F. Habitat establishment projects must, to the extent technically feasible and economically practical, establish self-sustaining natural communities, including native vegetation.

G. The goal of habitat establishment projects is to provide the same habitat functions and general landscape appearances as are exhibited by similar naturally occurring and restored habitat.

H. Habitat establishment practices must not be conducted on areas of existing native habitats important to Federal trust species; those habitats supporting other rare or declining species; or on other unique habitats, unless it can be demonstrated that the practices will not negatively affect the imperiled plant or animal species dependent upon or utilizing the affected native habitats.

I. All planting or seeding must consist of native species adapted to local site conditions. Exceptions may be made to achieve rapid soil stabilization; where weed control considerations are preeminent; or when site conditions require specific solutions not attainable with native species. Projects will be avoided where domination of the site by exotic plants cannot be prevented.

J. Agricultural activities on a project site that involve plowing or other disturbance of the soil are permitted where they would directly contribute to site preparation associated with habitat improvement; where they would help control the spread of invasive plant species; or as emergency measures within a specified time frame that would contribute to the solution of an immediate and urgent problem (e.g., disease outbreak) that is having a severe effect on a Federal trust species.

K. Installation of water control structures to allow flooding of annually tilled cropland to benefit migratory birds will be permitted, provided that the site is flooded annually while under a landowner agreement; that no more than a total of 15 percent of a State's on-the-ground annual allocation will be used to fund projects on active cropland under the 15 Percent Pilot Program (paragraph 1.16B); and that no 1121-HR funds will be used to pay for the costs of water, water pumps, or equipment such as electricity or pipes needed or used to deliver water to these cropland areas.

L. Habitat improvement projects targeting fisheries and other instream aquatic communities must focus on areas that will show a marked improvement in water quality and habitat values in both the project area and in downstream reaches. High priority should be given to projects that restore stream courses, restore riparian buffers, and remove constructed barriers. Consideration should also be given to installation of fish passage structures at sites where migration to historic spawning and rearing sites has been permanently obstructed. Projects must be avoided where upstream disturbances that are outside the influence of the proposed project area are likely to continually affect the project area via streamflow (e.g., a project downstream of a gravel mining operation with frequent silt releases) and where the threat from passage of undesirable exotic species outweighs the benefits to native species.

1.12 What are the requirements for landowner and other types of agreements?

We have broad authority to enter into assistance agreements and acquisition contracts with landowners, State and local governments, private organizations, and other cooperators, to improve the habitat of Federal trust species on private lands, provided that all of the following conditions are fulfilled and documented for every habitat improvement project:

A. Prior to implementing habitat improvement projects on private lands, the Service and the landowner(s) must sign an agreement that secures the Federal investment. The duration of the agreement must be commensurate with the technical and financial assistance provided by the Service and must not be less than 10 years. Agreements must conform to the requirements contained in the opinion of the Assistant Solicitor, Division of Conservation and Wildlife and Environmental Enforcement, May 3, 1996, subject: Authority for the Fish and Wildlife Service to Obligate Public Funds for Private Land Habitat Projects.

B. We may enter into cooperative agreements with conservation partners who will act as agents of the Service to implement multiple program projects. The agreement or contract must be for a minimum of 10 years in duration and must include a mechanism for the recovery of Federal funds if the terms and conditions are not met by the other parties (subparagraph F below).

C. If project work beyond the scope of the original agreement is needed, the agreement must be amended, in writing, to reflect such work, prior to the work being done.

D. If ownership of the land described in the original agreement changes, we must contact the new landowner to explain the purpose and benefits of the program project and to request that the new landowner enter into an agreement that honors the terms and duration of the previous landowner's agreement.

E. We must enter into formal written agreements with landowners before proceeding to restore degraded habitats on lands subject to FSA debt cancellation conservation contracts. See 504 FW 2 for guidance on the FSA Debt Cancellation Conservation Contract Program.

F. To secure the Federal investment, each agreement or contract must include the following (or similar) clause: "This agreement [or contract] starts when fully signed and continues for _____ years. [This first sentence may be separated from the remainder of the clause.] This agreement may be modified at any time by the mutual written consent of the parties. It may be terminated by either party upon 30 days advance written notice to the other party. However, if _____ [a party other than the U.S. Fish and Wildlife Service] terminates the agreement before its expiration or materially defaults on its commitments, then_____ agrees to reimburse the U.S. Fish and Wildlife Service for the prorated cost to the United States of all habitat improvements placed on the land through this

agreement. For this purpose, the total cost to the United States is agreed to be $_____."

G. All applicants for Federal grants or cooperative agreements under discretionary and mandatory grant programs or activities must include a Dun and Bradstreet Data Universal Numbering System (DUNS) number on their applications. Only individuals (such as private landowners) who personally receive a grant or cooperative agreement award from the Federal Government apart from any business or nonprofit organization and others exempted by the Office of Management and Budget are not subject to this requirement. In other words, a private landowner who receives a direct payment from the Partners for Fish and Wildlife Program is not subject to this requirement. For further information, see the memorandum from the Deputy Director, August 29, 2003, subject: Financial Assistance Policy: Dun and Bradstreet Universal Numbering System Requirements for Federal Assistance, and attachments thereto.

1.13 Do projects have to comply with Federal, State, and local laws and regulations?

All Service program projects must comply with all Federal laws and regulations, such as the National Environmental Policy Act; the Endangered Species Act; the National Historic Preservation Act; the Federal Insecticide, Fungicide, and Rodenticide Act; and the Clean Water Act. Program projects must also comply with any applicable State, local, and tribal laws and regulations that do not conflict with, or are not preempted by, Federal laws and regulations.

A. Endangered Species Act intra-Service section 7 consultation. Partners for Fish and Wildlife Program coordinators will conduct an Endangered Species Act intra-Service section 7 consultation on each habitat improvement project prior to implementation, to consider the effects of the proposed project, including the conversion of the property to pre-project conditions, on listed, proposed, and candidate species and on any designated or proposed critical habitat. Programmatic consultations, both formal and informal, are acceptable methods for meeting intra-Service section 7 consultation requirements. Specific guidance for conducting intra-Service section 7 consultations and a blank intra-Service section 7 consultation form are included in the Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act.

B. Endangered Species Act programmatic section 7 consultation.

(1) Purpose. In general, the purpose of an Endangered Species Act programmatic consultation is to evaluate the potential for a group of related agency actions (for example, all the Partners for Fish and Wildlife wetland restoration projects in Yuma County, Arizona) to affect listed, proposed, and candidate species and their critical habitats. Established standards, guidelines, and criteria guide the implementation of these actions. Partners for Fish and Wildlife coordinators work with Service endangered species biologists to develop the standards, guidelines, and criteria necessary to establish parameters within which a project could be covered under a programmatic section 7 consultation, and also work closely with endangered species personnel to facilitate completion of these consultations, including proper environmental baseline documentation. Partners coordinators should consult with the NMFS when species under NMFS jurisdiction may be affected.

(2) Effect. Programmatic section 7 consultations have the greatest potential to streamline the section 7 consultation process. A programmatic consultation completes the analysis of effects once, rather than repeatedly each time a similar project is proposed. Individual landowners can then be covered under the consultation through a stepped-down documentation that the project meets the eligibility requirements. This approach may shorten the process for completing consultation for proposed actions that were not included in the original programmatic consultation. Programmatic section 7 consultations also facilitate the timely completion of habitat improvement activities and the potential reversal of conditions if a landowner wishes to return his or her property to baseline conditions after the expiration of a Partners for Fish and Wildlife agreement.

C. Endangered Species Act safeguards for private landowners. We encourage Partners for Fish and Wildlife biologists to pursue safeguards for private landowners in the event that a listed, proposed, or candidate species colonizes on their property or increases in numbers as a result of a habitat improvement project. These safeguards, typically a section 7 incidental take permit, a SHA, or a CCAA, can increase the chances of preventing future land use restrictions on project sites due to listed, proposed, or candidate species issues. Partners for Fish and Wildlife Program staff will (1) ensure that all private landowners are made aware of the risks and benefits associated with these permits and agreements, (2) help private landowners to better understand the Partners for Fish and Wildlife Program, and (3) fully disclose all requirements of the Endangered Species Act when discussing these options.

D. Endangered Species Act incidental take authorization. We recommend an Endangered Species Act section 7 consultation as the most efficient method for providing incidental take authorization. However, landowners may elect to obtain their own incidental take permit or other assurances against further restrictions by entering into either an SHA or a CCAA. We developed both of these agreements to slow the decline and promote the recovery of listed, proposed, and candidate species by creating incentives for landowners and land managers to voluntarily contribute to the conservation of these species. Both SHA's and CCAA's can be developed for either an individual landowner or structured programmatically where we will enter into an agreement with a single entity that will then enroll other participants under separate permits or certificates of inclusion. Both SHA's and CCAA's can be time consuming (7 to 12 months) to develop, and there may be circumstances where these types of permits and agreements are not appropriate for the species of concern.

E. Cultural resources. We must obtain the written concurrence of the State Historic Preservation Office that consultation as required by Section 106 of the National Historic Preservation Act has been completed.

F. National Environmental Policy Act (NEPA). We will complete a NEPA Compliance Checklist (FWS Form 3-2185) as required by Director's Order No. 127.

G. Clean Water Act and Rivers and Harbors Act. We will determine the need for any permits required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

H. Hazardous materials. We will assess the presence and impact of hazardous substances and other contaminants on the project site. Project sites must be free of hazardous substances. When pesticides will be used during habitat improvement, the Partners for Fish and Wildlife coordinator must follow 30 AM 12, which may include the development and review of a pesticide use proposal. See also the Director's memorandum, December 9, 1993, subject: Pesticide Use Proposals.

I. Service fire management policy. We recognize that prescribed fire is an important and acceptable tool to reduce hazardous fuels, restore habitat, remove exotic species, and reintroduce natural disturbance regimes to benefit Federal trust species. When 1121-HR funds are used for, or when Service personnel are conducting, a prescribed fire, Partners for Fish and Wildlife coordinators will follow 621 FW 1. The Director's memorandum, March 12, 2003, subject: Service Fire Management Policy Clarification, states that Service fire management policy and implementation guidance apply to all Service fire management activities regardless of land ownership, including prescribed fires on private lands.

1.14 How does the Service monitor program projects?

Within 6 months of the date of this chapter, each Region must develop project followup and monitoring protocols. Design these protocols to show how a project has met its biological and structural intent as well as the landowner's goals, and demonstrate the project's viability throughout the duration of the applicable agreement. Regions will submit the protocols to the Division of Fish and Wildlife Management and Habitat Restoration for review and approval. The Partners for Fish and Wildlife State coordinators must keep protocol and monitoring results in their files. Regions desiring rigorous assessments of completed projects are encouraged to explore partnerships with universities or other organizations.

1.15 How are program accomplishments tracked?

Regional Offices and field offices must use the Habitat Information Tracking System (HabITS) to report habitat improvement accomplishments and program-specific technical assistance workloads associated with the Partners for Fish and Wildlife Program, as described in the Director's memorandum, June 28, 2001, subject: The Habitat Information Tracking System for Partners for Fish and Wildlife Program and the Coastal Program is Operational.

1.16 How are Partners for Fish and Wildlife - Habitat Restoration (1121-HR) funds used?

A. Priority use of funds. Give priority use of Partners for Fish and Wildlife - Habitat Restoration (1121-HR) funds to habitat improvement projects that strive to return full functions to native habitats. Although the primary goal of the Partners for Fish and Wildlife Program is ecological restoration, habitat establishment practices may be appropriate when necessary to respond to high priority Service habitat objectives that cannot be achieved through habitat restoration or enhancement. The cost of habitat establishment practices should be comparable to the costs of restoration practices on similar habitats in the general area.

B. 15 Percent Pilot Program. Beginning in FY 2004, a 3-year pilot initiative allows up to 15 percent of an individual State's annual allocation of 1121-HR on-the-ground funds to be used for providing cost share assistance to the following types of projects either alone or in combination:

(1) Projects on private lands that are protected by Federal easements that limit the landowner's rights to transfer, control access, quiet enjoyment, passive recreation, and extract subsurface minerals, provided they are reached laterally.

(2) Projects designed to annually flood active cropland for the purpose of providing temporary seasonal habitat for migratory birds. Installation of water control structures to allow flooding of annually tilled cropland to benefit migratory birds will be permitted, provided that the site is flooded annually while under a Partners for Fish and Wildlife agreement; that no more than a total of 15 percent of a State's on-the-ground annual allocation will be used to fund projects on active cropland under this Pilot Program; and that no 1121-HR funds will be used to pay for the costs of water, water pumps, or equipment (such as electricity

or pipes) needed or used to deliver water to these cropland areas.

C. Project support. At least 70 percent of 1121-HR funds allocated to the Regions must be used for actual on-the-ground project design and implementation. Expenditures of the 1121-HR on-the-ground funds are appropriate for the following actions and activities:

(1) Biologists' time; e.g., directing project activities (e.g., earthwork, fence installation); conducting site assessment; designing projects; traveling to and from the project; conducting project monitoring.

(2) Equipment; e.g., earth moving equipment; surveying equipment; laboratory equipment.

(3) Earthwork; e.g., contracts for earth moving, planting, structure installation, or other site preparation; materials (e.g., fencing, plants and planting supplies, water control structures); cooperative agreement funds.

D. Administrative purposes. The remainder (30 percent) of the 1121-HR funds and all of the 1121-Technical Assistance funds (1121-TA) may be used for administrative purposes such as:

(1) Biologists' time; e.g., training, serving on committees, annual leave and sick leave, miscellaneous technical assistance, outreach, entering data into HabITS.

(2) Office support costs in proportion to time spent on 1121 activities; e.g., budget, accounting, and processing agreements; data entry; supervision; vehicles, vehicle upkeep, and maintenance; reasonable office expenses.

E. State properties. The Partners for Fish and Wildlife Program encourages participation with States and advocates leveraging funds with other conservation groups such as State fish and wildlife agencies. The expenditure of 1121-HR funds on State-owned lands is outside the mission of the Partners for Fish and Wildlife Program to assist private landowners to restore Federal trust species' habitats; however, 1121-HR funds may be expended on State-owned lands for the following purposes:

(1) The initial restoration of habitats on lands with FSA conservation easements granted to a State for management.

(2) The initial restoration of habitats on lands that have been transferred in fee title by the FSA to a State.

(3) When the purpose of the FSA conservation easement or fee title transfer is to restore the ecological integrity of the site for the benefit of Federal trust species.

F. FSA inventory properties. Partners for Fish and Wildlife 1121-HR funds may be used without restriction to improve FSA inventory properties where the Service has obtained either an easement or fee title to such properties.

G. Payment limitation. Generally, 1121-HR funding is limited to $25,000 or less per project. However, the Director or his or her designee may approve Service funding of projects involving more than $25,000. Such approval must be based on the predicted biological significance and cost effectiveness of the project.

H. Mitigation. 1121-HR funds may not be used on habitat improvement projects being implemented for compensatory mitigation under any Federal or State regulatory program. After expiration of a Partners for Fish and Wildlife Program agreement, Service mitigation policy will apply to the use of the property for mitigation credits. See National Policy Issuance #89-02 and Notice, "Final Policy on the National Wildlife Refuge System and Compensatory Mitigation under the Section 10/404 Program," 64 FR 49229, September 10, 1999. 1121-HR funds may not be used to support Service staff delivery of compensatory mitigation to meet any Federal or State regulatory program requirements, regardless of compensatory mitigation funding source. Service staff are encouraged, however, to provide Swampbuster technical assistance when requested, to assist USDA in meeting its responsibilities under the Food Security Act of 1985 (504 FW 4). Service staff may deliver projects funded through administrative penalty payments or other settlement funds not directly associated with compensation for specific adverse impacts/injuries to natural resources.

I. Cost-share and in-kind services. The goal of the Partners for Fish and Wildlife Program is to secure at least 50 percent of project costs, including cash and in-kind services, from non-Service sources. This goal applies to the Partners for Fish and Wildlife Program overall, and does not have to be achieved on a project-by-project basis. We recognize and appreciate the contributions made by landowners when they voluntarily withdraw lands from agricultural production. However, we do not consider income foregone or other opportunities lost as a result of Partners for Fish and Wildlife Program participation as cost-sharing for the purpose of determining project costs.

J. Land use payments. 1121-HR funds will not be used to lease or purchase interests in real property or to make rental or other land use incentive payments to landowners.

K. Program delivery integrity. Regional Directors are accountable for ensuring that 1121-HR funds are spent only on the delivery of Partners for Fish and Wildlife Program projects. The Regions will adopt Work Activity Guidance documents, program reviews of field stations, and other methods to reinforce this requirement, to ensure the integrity of program delivery.

L. USDA. USDA agencies are among our strongest partners in achieving fish and wildlife habitat objectives on private lands. In these partnerships, we seek to complement USDA conservation programs by providing

Partners for Fish and Wildlife funds and technical assistance. These funds and technical assistance must be dedicated to meeting Service objectives and must result in demonstrable benefits to Federal trust species. When there will be a direct benefit to a Federal trust species that would not otherwise occur from the implementation of a USDA conservation program plan, 1121-HR funds may be used to benefit the Federal trust species. For example, we could contribute 1121-HR funds for plantings of specific vegetation that would not be necessary for a successful restoration but would add value to the site for a unique, declining, or listed species.

M. FSA inventory properties. 1121-HR funding is the primary source of money for the initial restoration of habitats on FSA easement and fee title transfer properties; however, the use of 1121-HR funds for ongoing operation and maintenance expenses beyond such initial habitat restoration associated with FSA inventory properties in the National Wildlife Refuge System is not authorized. See 504 FW 1 through 5 for specific information about conducting projects in association with USDA conservation programs.

N. Other funding sources. We encourage Service field offices to partner with and leverage the limited 1121-HR monies with other conservation funding initiatives such as those provided by State game and fish agencies, conservation districts, and private conservation groups. Various obstacles, including funding cycles and program objectives/eligibility requirements, are expected to present challenges that should be evaluated carefully to ensure compatibility with the Partners for Fish and Wildlife Program. Field offices will use existing, or develop new, Memoranda of Understanding/Agreement or cooperative agreements to facilitate partnerships with other agencies; e.g., Memorandum of Understanding between the National Association of Conservation Districts and the United States Department of the Interior, Fish and Wildlife Service, January 28, 1999.

1.17 Are there any limitations on the use of 1121-HR monies?

One of the principal goals of the use of 1121-HR monies is to leverage project funds with funds from other partners to achieve greater benefits for the conservation of Federal trust species and their habitats. We require that 70 percent of 1121-HR funds be directed to on-the-ground projects to maximize the benefits of leveraging those funds (known as the 70 percent rule). However, in certain circumstances and in order to fully utilize certain monies received through grants, we may need to vary from this funding limitation. Such requests will be the exception rather than the rule.

1.18 When are waivers from the 70 percent limitation on the use of 1121-HR funds appropriate?

Waivers from the 70 percent rule funding limitation on the use of 1121-HR funds are appropriate when additional funds, leveraged through grants and the funding partner(s), do not provide any administrative or technical assistance or do not authorize use of a portion of the funds provided for those purposes. For example, a Service field office receives a $50,000 grant from the Ruddy Duck Foundation. As a grant condition, all grant dollars must be used for on-the-ground habitat improvement. The Ruddy Duck Foundation is supplying money but is not providing any form of administrative or technical assistance, and is prohibiting the use of grant funds for project support services. The Regional Office could request authority to use up to an additional $15,000 of its 1121-HR on-the-ground funds for project support activities. The $15,000 is equal to 30 percent of the $50,000 grant.

1.19 How do Regional Directors request a waiver?

Regional Directors will send a written request for waiver from the 1121-HR 70 percent funding limitation to the Chief, Division of Fish and Wildlife Management and Habitat Restoration, Washington Office. Requests for waivers must be made in advance of project implementation; must include copies of all grants and agreements; and must specify the amount of 1121-HR funds in excess of the authorized 30 percent to be spent on project support.

1.20 How does the Service provide technical assistance?

We use the full range of biological and habitat improvement expertise and resources available through the Partners for Fish and Wildlife Program to provide conservation partners with technical assistance regarding fish and wildlife resources; habitat requirements; cost-effective habitat improvement techniques; management options; impacts of compatible and incompatible uses; and any other information that will enable partners to acquire, restore, and manage sites to maximize benefits to fish and wildlife. There are two general categories of technical assistance:

A. Partnerships with USDA. The Service utilizes 1121-TA funds each fiscal year to provide technical assistance to Federal and non-Federal agencies, private organizations, and individuals on a wide variety of habitat improvement/protection programs or interests. We provide much of this assistance to USDA agencies implementing conservation programs in order to maximize the benefits of those programs to Federal trust species and the Nation's wetland resources. The Service provides assistance on USDA policy development as well as delivery of programs in the field. Specific guidance on the Service's role in USDA conservation programs is provided in Part 504 of the Service Manual.

B. Private landowners and other conservation partners. We provide technical information to private landowners and other conservation partners; orchestrates the application of on-the-ground habitat restoration funds; develops cooperative agreements to leverage available technical and financial

resources; identifies priority habitat improvement projects and opportunities; transfers information regarding state-of-the-art restoration techniques; and encourages additional partnerships. We also provide technical assistance to conservation partners at the National, Regional, State, and field office level to maximize benefits to Federal trust species and their habitats.

1.21 How are Partners for Fish and Wildlife - Technical Assistance (1121-TA) funds used?

A. Authorized use of funds. Partners for Fish and Wildlife - Technical Assistance (1121-TA) funds are used for fish and wildlife technical support to USDA agencies implementing Farm Bill conservation programs; to other agencies and entities implementing nonregulatory habitat improvement programs; and to private landowners who voluntarily implement habitat improvement projects on their lands. Partners for Fish and Wildlife - Technical Assistance (1121-TA) funds may not be used for any other purpose.

B. Program delivery integrity. Regional Directors are accountable for ensuring that 1121-TA funds are spent only in support of nonregulatory habitat improvement activities. The Regions must adopt Regional Work Activity Guidance documents, program reviews of selected field stations, and other methods to ensure program delivery integrity.

1.22. What forms are used for program projects? Use the following forms, or similar forms that accomplish the same objective, in connection with all habitat improvement projects:

A. FWS Form 3-2185 (NEPA Compliance Checklist).

B. FWS Form 3-2255 (Project Plan). Use this form to record the initial understandings with landowners and to begin the process of documenting the file.

C. FWS Form 3-2256 (Findings and Determination to Support Habitat Development on Private Lands). Use this form to ensure that mandatory certifications of compliance regarding conditions in paragraph 1.11A, B, and C have been met. Other documentation methods that provide the same information as this recommended form are acceptable.

D. FWS Form 3-2257 (Wildlife Cooperative Extension Agreement). Use this form in habitat improvement projects with private landowners. Regions will use the title of this form as the preferred name for such agreements.

1.23 What are the documentation and recordkeeping requirements for program projects?

Partners for Fish and Wildlife coordinators must keep adequate documentation regarding Partners for Fish and Wildlife program projects and 1121-HR fund expenditures. The use of 15 Percent Pilot Program funds will be tracked in HabITS, and the effectiveness of the 15 Percent Pilot Program will be evaluated at the end of Fiscal Year 2006 to determine if continuation of the program is warranted. The following is a list of basic items that must be kept with every project file:

A. Signed landowner agreement and any cooperative agreements.

B. Written description of the project, showing in detail: the work to be completed; a breakdown of project costs; matching funds and in-kind contributions; and appropriate maps of the project site.

C. A completed FWS Form 3-2185 (NEPA Compliance Checklist).

D. Written concurrence of the State Historic Preservation Office that consultation as required by section 106 of the National Historic Preservation Act has been completed.

E. Written evidence that the Endangered Species Act Intra-Service section 7 consultation has been completed.

F. A completed section 404 Clean Water Act permit or section 10 Rivers and Harbors Act permit, if necessary.

G. Hazardous Materials Review (paragraph 1.13H).

H. Pesticide Use Proposal, if applicable (30 AM 12).

I. Any required State or local permits.

J. Copies of purchase orders; receipts for labor, materials, and supplies; and any additional information necessary to accurately account for expenditures made to complete the habitat improvement work for each project.

K. A breakout of expenditures by funding source, if a project is funded in part by other than 1121-HR funds.

For information on the specific content of this chapter, contact the Division of Fish and Wildlife Management and Habitat Restoration. For additional information regarding this Web page, contact Hope Grey, in the Division of Policy and Directives Management, at Hope_Grey@fws.gov.

Appendix D: Landscape Conservation Cooperatives Fact Sheet

Conservation in Action — **March 2011**

Landscape Conservation Cooperatives

Shared Science for a Sustainable Future

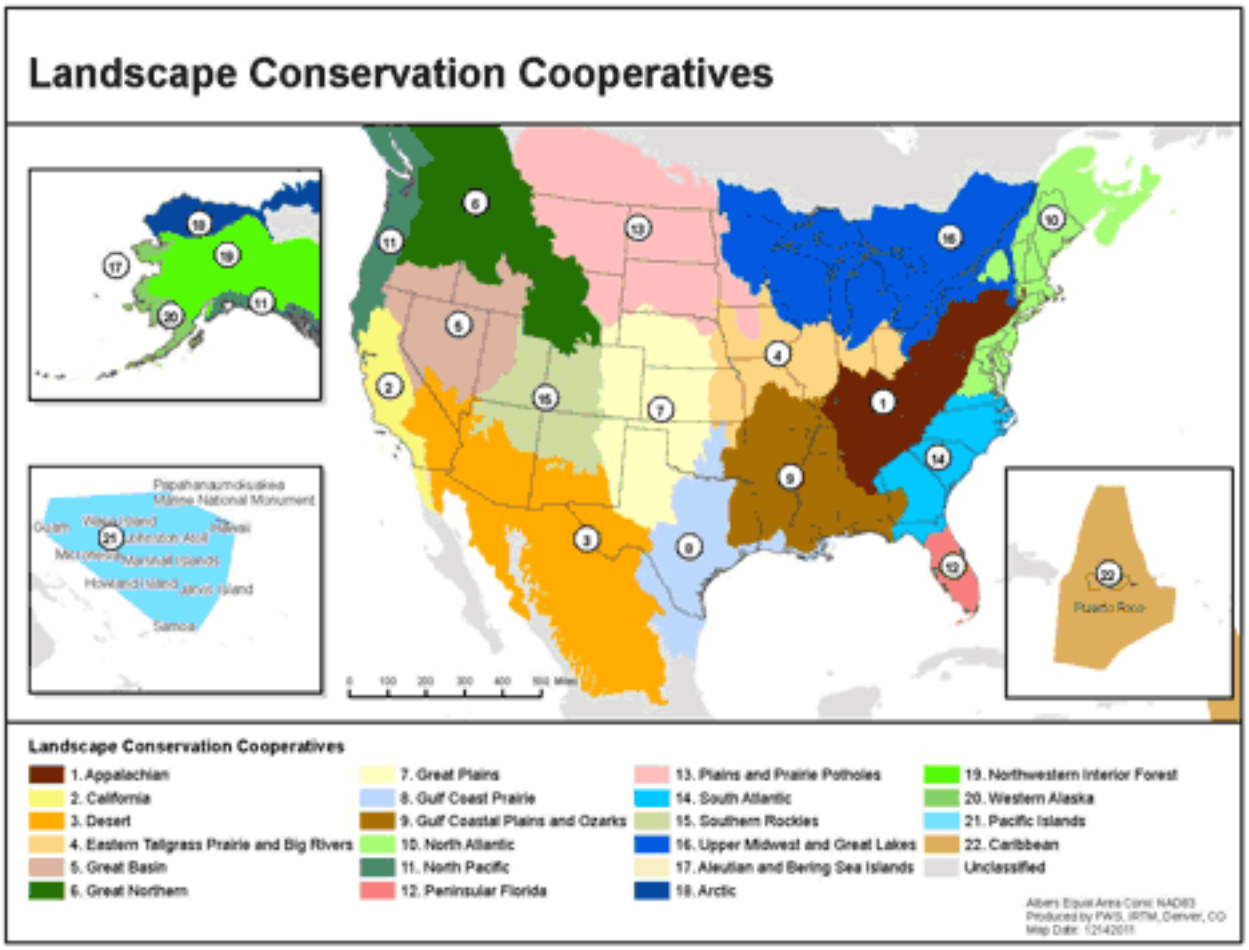
America's natural systems and landscapes are impacted by increasing land use pressures and widespread resource threats such as habitat fragmentation, invasive species, and water scarcity. These changes are occurring at an unprecedented pace and scale and are amplified by a rapidly changing climate. By leveraging resources and strategically targeting science to inform conservation decisions and actions, Landscape Conservation Cooperatives (LCCs) are a network of partnerships working in unison to ensure the sustainability of America's land, water, wildlife and cultural resources.

Facilitated by the Department of the Interior (DOI) as part of its collaborative, science-based response to climate change, LCCs complement and build upon existing science and conservation efforts—such as fish habitat partnerships and migratory bird joint ventures—as well as water resources, land, and cultural partnerships.

Each LCC operates within a specific landscape—21 geographic areas in total. Partners include federal, state, and local governments, tribes, universities, nongovernmental organizations, landowners, and other stakeholders.

Collectively, LCCs form a network of land, water, wildlife and cultural resource managers, scientists, and interested public and private organizations—within the U.S. and across our international borders—that share a common need for scientific information and interest in conservation.

By functioning as a network of interdependent units rather than independent entities, LCC partnerships can accomplish more together than any single agency or organization can alone.



Appendix E: Partners for Fish and Wildlife Program Project Monitoring Guidelines, Southeast Region

This policy guidance establishes a requirement that all habitat improvement projects carried out through the Partners Program shall include a monitoring component to be included in our Habitat Information Tracking System (HabITS), and in compliance with the following guidelines and definitions.

Overview

Monitoring of Partners Program habitat improvement projects in the Southeast Region will focus on achieving the following goals:

- Improve Program delivery, customer satisfaction and overall Program accountability;
- Improve project implementation and to assess whether projects were carried out according to the habitat improvement plan;
- Document and demonstrate success of PFW projects based on defined habitat factors that have been described as necessary for conservation of focal species;
- Evaluate the effectiveness of specific habitat improvement practices, and enable Program staff to learn from each project relative to implementing changes in future projects; and,
- Identify long-term information and research needs.

This monitoring process is designed to meet these goals with minimal staff time and cost. As such, this process focuses on working with our partners to develop and pursue specific monitoring efforts, and using the information found in existing studies and published reports and other literature to help test and support our assumptions that specific habitat improvement efforts provide benefits to targeted fish and wildlife species.

To help us ensure that we are delivering the right conservation actions in the right places on the landscape, we are directed to work closely through our Landscape Conservation Cooperatives (LCCs) and Climate Service Centers (CSCs) as they become operational, as well as our many external partners as we apply the strategic habitat conservation process. We must continue to address and strive to improve our project accountability if we expect to continue to receive funding support for our conservation delivery efforts. We must continue to work with all of our partners to document and demonstrate that our conservation delivery efforts are successful in meeting stated species and habitat goals and objectives. We must also strive to document and clarify our shortcomings and information needs through an adaptive management approach, and collaborate and work closely with our partners to help us address these needs.

Most of us that are actively involved with conservation delivery recognize that our current internal capacity to develop and carry out the level of monitoring and research that is needed is lacking. We currently lack the capacity to address and answer many of the specific questions that address future climate change impacts and species and habitat biological information needs and outcomes that are positively affected by our conservation delivery efforts. The future implementation of the LCCs and CSCs, and a comprehensive monitoring strategy for the National Wildlife Refuge System, are intended to help address this shortcoming, and it will be essential that everyone in the PFW Program become actively engaged in an effective and appropriate manner with the establishment and operation of the LCCs, CSCs, and Refuge monitoring protocols.

Developing and implementing a scientifically sound monitoring plan that addresses the biological outcome questions that need to be answered is a challenging and difficult task. We should consider the following information in developing a monitoring plan, realizing that our lack of capacity and other environmental factors that we cannot control must be considered. We should view the information below from the viewpoint of combining approaches to best meet our needs in the most cost-effective and efficient way possible.

- **Species-level monitoring—**seeks to detect changes in the status and/or trend in the presence, abundance, or occupancy of selected priority or focal species linked to our specific on-the-ground conservation actions. Although this type of monitoring may be the most desirable, it may not always be appropriate due to the many environmental factors that cause variability (potential interpretation errors) in species population data, the costs associated with this type of monitoring, and the long periods of study time that are typically needed to address the variation errors in the data.

  Species monitoring may be more feasible and cost effective in the following situations:

  - Plant species or other species that are rare, but are known to be restricted to just a few sites within the geographic area of interest.
  - Conspicuous species that can be easily monitored.
  - Species that are not found in the study area, but are intentionally introduced.
  - Species that have been or have ongoing monitoring efforts being carried out by one or more of our partners.
  - An imperiled species that is determined to be of such a high priority due to pending extinction issues that it must be intensively monitored.

- **Habitat-based monitoring—**the focus is on monitoring environmental features that are thought to control the distribution and abundance of the target or focal species. This approach is based on assumptions that are supported by the use of habitat suitability or other habitat models and the existing scientific literature. Thus, habitat-based monitoring assumes that changes in the configuration or quality of habitat relative to the life needs of the designated target or focal species would be reflected in changes in the species. Although specific assumptions may not be validated for specific species, this approach can provide information that helps us understand the link between our management actions and improvements to the habitat that should benefit certain species or groups of species.

- **Threats-based monitoring—**This approach also depends on assumptions that may use models and are supported by scientific information found in the literature or other sources. Attention is focused on the possible underlying causes of potential decline of species and/or habitat components. For example, the specific threats that are documented in a species recovery plan would be addressed and monitored, with an assumption that if the threat or threats are removed, the species would benefit. Climate change is a type of threat. Species vulnerability assessments that document and provide scientific information regarding the specific vulnerability of species and groups of species to climate change would provide us with useful examples of specific criteria that should be included in a monitoring plan.

- **Ecosystem-based monitoring—**This involves parameters related to the spatial configuration of major community types that are important indicators of changes to the distribution of species. Parameters include land cover and land use types and fragmentation information. Models and GIS data sets at the landscape-scale being developed to address climate change issues and impacts should be helpful in making decisions about what to include in our monitoring plans.

There are numerous factors that must be considered when developing and carrying out a monitoring plan. Further, there is no model or suite of criteria that will meet our needs in every situation. The overarching goal of our monitoring approach and partnerships is to design and carry out monitoring that will detect changes in the status and trend for selected focal species and habitats, and provide us with a documented measure of accountability and success of our habitat improvement conservation delivery practices and will also provide us with scientifically sound information for adaptive management. Development and implementation of monitoring plans will be a work in progress, and we should apply adaptive management in continuing to refine our approach as we move forward.

All Partners Program monitoring plans should include the following information:

- Address the four categories of monitoring (i.e., Baseline, Implementation, Effectiveness, and Validation monitoring).
- For each monitoring category, identify and define the specific tasks to be completed and the estimated time frames for completion of each task.
- Identify and discuss the role of the Service and our partners in developing and implementing the specific tasks identified in the Plan.
- Identify the target or focal species and related population, habitat, or other criteria that will be monitored. Baseline monitoring should include those monitoring criteria that you expect to follow throughout the scope of the monitoring plan. Only monitoring criteria that are feasible to obtain and can be reasonably measured should be used.
- Provide rationale as to why the selected species and monitoring criteria were chosen.
- Identify any information gaps or anticipated obstacles that would preclude or limit our ability to carry out the Plan at the desired level.
- Provide ideas or recommendations as to how noted limitations can be effectively reduced or eliminated.

Definitions

The following definitions are applicable to this process:

Monitoring: The collection and assessment of repeated observations and measurements over time to evaluate the effectiveness of specific habitat improvement actions.

Types of Monitoring

- **Baseline:** Characterizes existing conditions before a project begins. Baseline monitoring establishes the benchmark against which the success of a project can be measured and evaluated. (Applicable to all Partners projects)
- **Implementation or Compliance:** Assesses whether project activities were carried out according to the habitat improvement plan. (Applicable to all Partners projects)
- **Effectiveness:** Evaluates whether the project had the desired effect on the selected resource indicators. For example, a post-survey review documents that changes from the baseline condition in the stream pool depth occurred after placement of large, woody debris in the stream.
- **Validation:** Attempts to establish a cause-and-effect relationship between the implementation of the project and specific habitat practices, and the selected biological responses and indicators. For example, did the planting of trees and shrubs lead to an increase in the population of black bears; or, did a specific mussel population increase following specific in-stream restoration actions?

Validation monitoring can be the most costly and involved, as it tends to move into the realm of "research," and may require long periods of data

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collection and analysis to address cause-and-effect relationships. Also, such validation efforts often result in additional questions and the need for additional studies. For the Partners Program, validation monitoring that would involve extensive and long-term data collection and analysis will not be conducted in most situations.

To fully address our monitoring needs, we will need to work closely with our partners, but will also rely on site-visit observations and references to other published scientific studies and reports to support our assumptions regarding cause-and-effect relationships and biological responses related to the success and benefits of projects to specific species or groups of species.

In some situations, the Service and our partners may collectively agree to share funding and technical assistance resources to evaluate the benefits of specific habitat improvement practices or groups of similar projects and practices within a specific watershed (e.g., specific populations of protected mussels and fishes within a specific watershed). To monitor and scientifically evaluate/validate such information would require data collections, analyses and evaluations on both the study sites and designated reference areas, and would require data from multiple years to address any real changes in biological responses and population status.

The Partners Program may choose to be a partner in a limited number of such efforts, thereby providing technical assistance and/or financial assistance to the effort. However, it is important for us to weigh the costs and benefits to be obtained from such efforts with our goals of assisting private landowners in carrying out on-the-ground habitat improvement practices that are typically recognized as being beneficial to fish and wildlife resources.

The information that may be gained from these partnership approaches to validation monitoring, or from the published results of other studies not directly supported by the Service, should be used in our adaptive management approach (i.e., revise our practices as new information becomes available to us), and to support or modify our assumptions regarding the fish and wildlife benefits of our projects and specific habitat improvement practices.

General Monitoring Schedule (record dates for all visits):

Over the duration of a Partners project agreement, staff should visit each project site a minimum of five times according to the general monitoring schedule listed below, and prepare a narrative monitoring report for that project following each site visit.

- Pre-project visit
- Mid-project visit
- Post-project visit
- Mid-agreement visit
- End of agreement visit

Effective monitoring requires thinking ahead with a clear identification of the goals and objectives of each project. Project goals should focus on the desired habitat and ecological changes, and benefits for Federal trust and other species of concern.

- **Pre-project:** This site visit and narrative report should scope out any specific baseline project information that has not already been included in the HabITS project narrative, and is identified as being needed to evaluate the project during later visits. It is during this visit that the Partners biologist should formulate the specific variables that will be monitored during future visits; for example, any success criteria, weather conditions such as drought that may affect the survival of planted vegetation, soil types, the number of gopher tortoise burrows on site prior to the projects, and/or the documentation of the presence or absence of target species, etc. Specific information to be documented is dependent upon the determination of those pertinent factors that can be reasonably measured and are needed to address the project goals and objectives found in the HabITS project narrative.

  Photographic Documentation (to be completed for all monitoring visits):

  - Establish permanent photographic locations at the project site and take appropriate photographs during each site visit.
  - Take sufficient photographs to document and highlight the before and after habitat conditions, and any other unique or special features of the project.
  - Electronically scan the best photographs and transfer into the HabITS Monitoring Module.

- **Mid-project:** This visit and narrative report should address primarily project implementation issues.

  - Check and document the status (e.g., active, on schedule, complete, of all project activities described in the scope of work in project agreement.
  - Have the landowner and other partners carried out their responsibilities (technical or financial) as stated in the agreement? Describe.
  - Do the landowner and/or contractor(s) have technical or other issues that need resolving? Document and track resolution of each.
  - Continue photographic documentation.

- **Post-project (immediately following scheduled completion of project activities or shortly thereafter):** Monitoring information collected during this visit and the narrative report should address the following issues:

  - Project Implementation: A continuation of mid-project review issues; e.g., were all of the planned habitat improvement activities (e.g., a prescribed burn, three water-control structures installed, etc.) as noted in the project agreement completed as planned? Were all of the planned technical and financial assistance contributions met by all partners as identified in the plan?
  - Project Effectiveness and Validation: Collect monitoring information for any specific factors previously selected to help determine the success of a project activity. Address whether or not the desired or expected ecological or biological conditions were achieved, based on the success criteria previously identified? For example, if the agreement plan called for the successful reestablishment of at least 200 trees per acres, and at least five species of trees, begin to collect the information needed to document this accomplishment. Summarize known or expected benefits to target species or other Federal trust resources. Is the project site being used by a target species? Use appropriate references from other published literature as needed. Summarize any research studies and partnerships associated with the project. Begin to document any recognized research needs and information gaps.
  - Photographic Documentation: Continue at previously established photographic sites.
  - Landowner Satisfaction Survey: Complete a landowner satisfaction survey and report to answer at least the following questions:

    Are the landowner(s) and other partners satisfied with the project results to date?

    Are the landowner(s) and other partners satisfied with the performance of the Service?

    What does the landowner(s) and other partners like or dislike about this project?

    Do the landowner(s) and other partners have recommendations for improvement? List and discuss.

- **Mid-agreement:** For a project under the minimum 10-year agreement, the project should be visited approximately half way through the length of the agreement. If the project is of longer duration (e.g., 25 years), we recommend visiting the site at approximately 5-year intervals.

  Monitoring information collected and the narrative reports should continue to evaluate all of the issues identified in the Post-Project visit, above. Also, if the agreement included specific habitat maintenance responsibilities for the landowner and/or the Service, determine if these responsibilities are being carried out as specified in the agreement. Also, evaluate and document your thoughts as to whether the maintenance practices are achieving the desired results, and offer appropriate recommendations.

- **End-Of-Agreement:** Monitoring information collected and the narrative report should continue to evaluate all of the issues identified in the Post-Project and subsequent visits, above. Also, in this final narrative report, the Service biologist should develop project conclusions, based on all of the project information collected and evaluated throughout the life of the project. For example, what went well with this project, and what did not go well, and why? What are the documented benefits of this project to Federal trust resources? Additional data needs? What should be avoided in future projects, and recommendations?

Annual Reports

For each monitoring plan that is developed, an annual monitoring report should be prepared and entered into the HabITS data base by no later than August 15th of each fiscal year. The monitoring report should summarize what was monitored, what was learned from the monitoring relative to the needs of the target or focal species and benefits linked to our conservation delivery actions, any modifications to the monitoring plan, any adaptive management changes, and the prospectus.

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Appendix F: Example Ranking Criteria for Habitat Improvement Project Proposals FY-2011

Total Ranking Points = 220

Conservation Planning and Design Factors (Maximum=130 pts*):
*Unless otherwise noted, rankings can fall on a scale between 0 and the maximum points for that criterion.

1. The proposed initiative benefits the conservation of an imperiled habitat type identified in the PFW Strategic Plan, other Service strategic plan, or State Wildlife Action Plan: **(10 pts)**
2. The proposed project is part of an ongoing, previously funded project: **(5 pts; All or None)**
3. The proposed project documents a planned expansion of a recognized core habitat area (including National Wildlife Refuges, State Wildlife Management Areas National Forests, Wetland Reserve Program permanent easements, or other) or contributes to the reduction of habitat fragmentation: **(20 pts Maximum):**
   - The proposed project area is adjacent to, nearby (within 2 miles), or buffers NWRS lands **(20 pts)**
   - The proposed project area expands upon the core area of existing state protected lands, other Federal lands, Federal, state, or NGO conservation easement sites **(10-15 pts)**
   - The proposal clearly demonstrates that the proposed project area will reduce fragmentation or have habitat connectivity benefits **(10-15 pts)**
4. The proposed project initiative falls within the following size criteria **(20 pts Maximum):**
   - 100 acres and/or >1 mile **(15-20 pts)**
   - project is between 51 and 100 acres, and/or > 0.5 mile **(10 pts)**
   - < 50 acres and/or < 0.5 mile **(5-9 pts)**
5. The proposed initiative concisely documents the use of available GIS technology and habitat models in helping to rank and demonstrate the value of the conservation activities: **(5 pts)**
6. The proposed initiative will benefit Federal trust species or Species of Concern in the following ways **(20 pts. Maximum)**:
   - Located within an area known to support one or more ESA candidates or listed species as noted in the proposal: **(20 pts)**
   - Located within an area know to support one or more Species of Concern as identified in Service strategic plans, State Wildlife Action Plans, or plans developed by other conservation partnerships (e.g., North American Waterfowl Management Plan) as noted in the proposal: **(15 pts)**
   - After project completion, the area would likely support one or more of the ESA candidate or listed species noted in the project proposal: **(10-15 pts)**
   - After project completion, the area would likely support one or more Species of Concern (e.g., interjurisdictional fish species, waterfowl and other migratory birds, as noted in the proposal: **(10 pts)**
7. The project proposal clearly identifies known threats to each umbrella or focus species identified in the proposal, and links specific conservation actions to the reduction or elimination of such threats: **(10-20 pts)**
8. The proposal links specific population objectives and biological outcomes for Species of Concern or focal species identified in the proposal from known information as documented in appropriate conservation plans **(10 pts)**
9. The proposed project includes one of the following protection mechanisms and fulfills the eligibility requirements as defined in PFW Program policy (**http://www.fws.gov/policy/640fw1.html**) and the Partners for Fish and Wildlife Act (**http://www.fws.gov/partners**) of 2006 (e.g., eligible projects must be located on private lands; projects cannot be part of a compensatory mitigation effort tied to a Federal or State regulatory program or action; conservation agreement must be for a minimum of 10 years). Note: Since PFW policy mandates a minimum 10-year agreement, points are only awarded for proposals that stipulate agreements of greater than 10 years. **(20 pts. Maximum)**:
   - Permanent conservation easement **(20 pts)**
   - Conservation agreement of more than 25 years **(10 pts)**
   - Conservation agreement between 25 and 11 years **(5 pts)**

II. Conservation Delivery and Partnership Factors (Maximum=50 pts*):
*Unless otherwise noted, rankings can fall on a scale between 0 and the maximum points for that criterion.

1. The initiative will fulfill one of the following habitat improvement practices as defined in PFW policy (see Internet link above) **(5 pts. Maximum)**:
   - Restoration: **(10 pts)**
   - Enhancement: **(5 pts)**
   - Establishment: **(5-10 pts)**
   - Management: **(5-10 pts)** (when it applies specifically to achieving benefits to one or more of the life needs of a focal species identified in the proposal, or contains management features to control or eliminate invasive or exotic species)

2. The initiative identifies and will provide an outreach or educational component as that will increase public awareness and interest in fish and wildlife conservation, and contribute to the Director's "Connecting PeopleWith Nature" initiative. **(10 pts)**
3. In addition to the private landowners, other key partners will contribute to the effort **(20 pts. Maximum)**:
   - 5 additional partners: **(20 pts)**
   - 3-5 additional partners: **(10-15 pts)**
   - 1-2 additional partners: **(5-10 pts)**
4. The initiative demonstrates leveraging of Service funds with either cash or in-kind contributions from partners **(10 pts. Maximum)**:

Note: The policy goal of the PFW Program is to achieve at least a 1:1 cost share. Thus, points will be awarded for proposals that exceed this goal.

Leverage:

- >2:1: **(10 pts)**
- 2:1: **(5 pts)**
- <2:1: **(2 pts)**

III. Monitoring Factors (Maximum=25 pts*):
*Unless otherwise noted, rankings can fall on a scale between 0 and the maximum points for that criterion.

A working outline for a monitoring plan is provided as an attachment to this proposal. Within the first year after funding, a Monitoring Plan should be developed and placed into the HabITS Data Base for all Landscape-level projects funded through the Regional Office Review Team process.

1. The initiative should provide a concise working outline summary (No more than 2 pages) of the anticipated components of the monitoring plan, and should include:
   - Time lines for the various aspects of the monitoring plan: **(0-5 pts)**
   - List the specific criteria and/or categories of criteria that should be monitored and an explanation of why each measurement criteria is believed to be important in helping to clarify "success" and specific biological outcomes: **(0-15 pts)**
   - An overview of the capacity of the Service and our partners to carry out the monitoring plan, including a summary of those monitoring needs that cannot be carried out due to various constraints as noted. Note the expected contributions of our partners in helping to achieve the goals/objectives of the monitoring plan. **(0-5 pts)**

IV. Link to Climate Change Issues (0-10 pts):
The narrative summary information should discuss potential threats from future climate change scenarios and how this initiative addresses those threats.

Intangibles (0-5 PTS): Reviewers may provide up to 5 additional points for various intangible facts that they specifically note in their comments.

Total score _____

Appendix G: Glossary of Terms

Accomplishment Targets:
Estimated accomplishment targets have been set for each focus area identified in Goal One and for each of the other four goals identified in this Plan. Accomplishment targets may be expressed as outputs (i.e., acres, miles, number, percent); or, as biological response outcomes (real or estimated changes in the population status of a target or focal species if sufficient information is available). Biological outcome estimates may be based on assumptions linked to habitat improvement and the removal of specific threats to the focal species. Most of the accomplishment targets established for this five-year Plan are output targets.

Adaptive Management:
A systematic approach for improving resource management by learning from management outcomes (i.e., learning by doing).

Biological Diversity:
The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

Biological Response:
The reaction of fish, wildlife, plants and other living indicators to the project or series of projects.

Candidate Species:
Any species for which the U. S. Fish and Wildlife Service has enough information to propose the species for listing under the Endangered Species Act.

Connecting People with Nature:
A Service education and outreach initiative that strives to ensure the future of conservation by promoting public awareness, changing attitudes, and altering behavior by helping the public to better understand that they have a stake in conservation of our nation's fish and wildlife resources.

Conservation:
Any single or group of actions or decisions that are made to support the fish and wildlife values of a habitat. For the purposes of this document, it is intended to be an all-inclusive term including (but not limited to) restoration, enhancement, establishment, maintenance, protection, preservation, monitoring, outreach, coordination, assessment, and education for fish and wildlife habitat values.

Ecosystem:
A dynamic and interrelating complex of plant and animal communities and their associated non-living environment.

Endangered Species:
Any species which is in danger of extinction throughout all or a significant portion of its range, and is listed under the Endangered Species Act.

Exotic Species:
A species that is introduced or not native to the area.

Enhancement:
The manipulation of physical, chemical, or biological characteristics of existing habitat to change specific functions.

Establishment:
The manipulation of physical, chemical, or biological characteristics of a habitat to create and maintain habitat that did not previously exist.

Farm Bill:
As used in this document, Farm Bill refers to the conservation provisions of the Food, Conservation, and Energy Act of 2008, which includes such conservation provisions as the Conservation Reserve Program, the Wetland Reserve Program, the Grassland Reserve Program, the Wildlife Habitat Incentives Program, the Environmental Quality Incentives Program, and others. The Farm Bill is the primary agricultural and food policy tool of the federal government.

Federal Trust Resources:
The group of species including migratory birds, threatened and endangered species, inter-jurisdictional fish, marine mammals, and species of international concern, for which the Service has a specific legal mandate.

Federally Listed Species:
A species that has been given federal protection in accordance with Section 4 of the Endangered Species Act.

Focal Species:
A species that is selected to represent a larger group of species because that species is believed to be the most sensitive to a specific threat or group of threats that have been identified. Because the most demanding species is selected, a landscape designed and managed to meet the needs of the focus species should encompass the requirements of a larger group of species that reside in or use the ecosystem.

Geographic Focus Area:
For the purpose of this document, priority private land habitat areas within the Southeast Region where the Partners Program will direct most of its program activities over the next five years (2012-2016).

***G1 Species:**
Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction.

***G2 Species:**
Imperiled globally because of rarity or factor(s) making it vulnerable.

***G3 Species:**
Vulnerable or at moderate risk of extinction due to restricted range, few populations, recent and widespread declines, or other factors.

(*G1, G2, and G3 categories are definitions from the NatureServe global data set and status ranks.)

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Goal:
A descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units.

Habitat:
Suite of existing environmental conditions required by an organism for survival and reproduction. The place where an organism typically lives.

Habitat Fragmentation:
The breaking up of large blocks of habitat into smaller, disconnected blocks of habitat due to a variety of land conversion activities.

Habitat Improvement:
Any habitat restoration, enhancement, or establishment intended to increase the suitability of an area for a species or community.

Habitat Information Tracking System (HabITS):
Service's internet based information tracking and reporting system for the Partners and Coastal programs. The System also has mapping capabilities, allows for uploading and downloading of supporting documents and photographs, and links to other internet data bases.

Imperiled:
Any species that is at high risk for extinction due to a very restricted range, few populations, steep declines, or other factors.

Incentive-based:
The provision of goods or services, such as financial or technical assistance, for the purpose of motivating the entity to make a favorable decision that might not be made otherwise.

Invasive Species:
A species that grows and spreads rapidly, establishes over large areas, and persists in areas where it is not wanted. A nonnative (alien, exotic) invasive species is one that has been introduced to a location outside its native or natural range.

Landscape Conservation Cooperatives (LCCs):
Large geographic areas designated by the Service Directorate and our partners where shared conservation priorities are defined by the partnership with focus on population and habitat objectives. LCCs are envisioned as multi-state and multi-agency partnerships that provide state-of-the-art biological planning and conservation design support that will inform conservation delivery, while helping to coordinate outcome-based monitoring and assumption-driven research.

Maintenance:
The periodic additional work involving the manipulation of the physical, chemical, or biological characteristics present that is critical for the continuing success of a restoration process.

Migration:
The seasonal movement from one area to another and back.

Monitoring:
The collection and assessment of repeated observations or measurements over time to evaluate the effectiveness of actions. The following types of monitoring are recognized:

Baseline: Characterizes existing conditions before an action begins. Establishes a benchmark against which the success of the activity or project can be measured.

Implementation or Compliance: Assesses whether the activity or project was carried out in accordance to the contract, plan, or guidance.

Effectiveness: Determines whether the activity or project has had the desired effect on selected indicators or performance criteria.

Validation: Establishes a cause and effect relationship between the project or activity and one or more selected biological indicators (e.g. the population size of the targeted species the project was intended to benefit).

Marginal Farm Land:
Generally refers to land that is currently in agricultural production, but still retains some wetlands criteria such as a hydric soil type and some hydrologic function (e.g., may flood or pond for 15 or more days during the growing season.

Objective:
A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies and monitoring the success of strategies. Objectives should be attainable, time-specific, and measurable.

Partnership:
A group of people and/or organizations that have formed a relationship to promote an activity or idea.

Prescribed Fire:
The application of fire to wildland fuels to achieve identified land use objectives. May occur from natural ignition or intentional ignition.

Priority Species:
Fish and wildlife species that require protective measures and/or management guidelines to ensure their perpetuation. Priority species include the following: (1) State-listed and candidate species; (2) species or groups of species susceptible to significant population declines within a specific area or statewide by virtue of their inclination to aggregate (e.g., shorebird colonies); and, (3) species of recreation, commercial, and/or tribal importance.

Protection:
A long-term action to safeguard habitats of significant importance to fish and wildlife species.

Restoration:
The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning the natural functions to lost or degraded landscapes.

Science-based:
Founded in information that has been subject to the application of an objective scientific methodology, generally assumed to include rules for concept formation, observation, experimentation, and the validation of hypotheses, and enhanced by review of peers with expertise in the subject matter.

Species of Concern:
A species listed for conservation action in state wildlife action plans or other referenced strategic planning documents.

Stakeholder:
An individual, group of people, and/or organization that have an interest in an activity or idea.

Strategy:
A specific action, tool, technique, or combination of actions, tools, and techniques used to meet specific objectives.

Strategic Habitat Conservation:
A structured conservation approach that incorporates planning, design, delivery, monitoring, research, and adaptive management to help us better ensure that we are putting the right conservation in the right places.

Target Species:
A species that has been selected for more intensive conservation delivery actions, including greater emphasis on evaluation, monitoring, and research due to its priority status (i.e., a federally protected or species of special interest identified in one or more strategic plans).

Technical Assistance:
Collaboration, facilitation, or consultation that relates to a habitat conservation, restoration, or enhancement initiative.

Threatened Species:
Any species which is likely to become and endangered species within the foreseeable future throughout all or a significant portion of its range.

Umbrella Species:
A species whose life needs are believed to be similar to a larger group of species residing in our using a particular habitat type.

Vegetation Type, Habitat Type, Forest Cover Type:
A land classification system based upon the concept of distinct plant associations.

Vulnerability Assessments:
As used in this document, refers to the preparation of information intended to identify those species or ecosystems that are most likely to be strongly affected by climate change, and to help decision makers better understand why fish and wildlife resources are likely to be vulnerable so that effective strategic conservation deliver can be carried out.

Appendix H: Data Sharing Protocol for PFW Program

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

In Reply Refer to:
FWS/AFHC/HRC/047519

Memorandum

To: Assistant Regional Directors

From: Assistant Director – Fisheries and Habitat Conservation

Subject: Habitat Information Tracking System (HabITS) Data Sharing Protocol for the Coastal Program and the Partners for Fish and Wildlife Program

The Privacy Act of 1974 established a code of fair information practice that governs the collection, maintenance, use, and dissemination of personal information, contained in Federal agency records. Historically, all responses to data requests pertaining to Partners for Fish and Wildlife Program and Coastal Program projects have adhered to Privacy Act guidelines by excluding any personal identifiable information.

However, recent system improvements in HabITS version 4.0 have incorporated spatial information that could change the status of HabITS to a system of record upon the next review of the Environmental Conservation Online System (ECOS).

In light of these recent developments, numerous requests for data sharing, and the likelihood of Congress revising and expanding the Privacy Act to include geospatial data, it is in the best interest of the programs and our cooperators to be proactive on this issue. We need to protect the private and personal information of our cooperators and our staff from privacy violation related liability claims.

Therefore, the Branch of Habitat Restoration developed the attached data sharing protocol. The protocol requires that landowners be informed and provide consent before the Service shares any potentially sensitive geospatial information with our conservation cooperators. Further, it provides guidance to staff on how to respond appropriately to data requests from within the Service, the public, and conservation cooperators.

If you have questions, please contact Tamara McCandless, Chief - Branch of Habitat Restoration, at 703-358-2011 or Dave Stout, Division Chief - Division of Habitat and Resource Conservation, at 703-358-2161.

Habitat Information Tracking System
Spatial Data Sharing Protocol for the
Partners for Fish and Wildlife Program and the
Coastal Program

1.0 BACKGROUND:

The Privacy Act of 1974 established a code of fair information practice that governs the collection, maintenance, use, and dissemination of personal information, contained in Federal agency records, about individuals without the prior written consent of the individual. Historically, all responses to data requests pertaining to Partners for Fish and Wildlife Program and Coastal Program projects have adhered to Privacy Act guidelines. However, the Habitat Information Tracking System (HabITS) version 4.0 introduces new possibilities and challenges when responding to data requests because the data is now spatial. Specifically, HabITS now includes geocoded spatial data associated with personal property that can be used to retrieve additional information about a cooperator, thereby arguably functioning as a personal identifier. Although the Privacy Act does not specifically address geospatial information, the Federal Geographic Data Committee Policy on Access to Public Information and the Protection of Personal Information Privacy in Federal Geospatial Databases states that "digital geospatial data creates a powerful new personal identifier that when linked to tabular databases that include personal information may be subject to the provision of the Privacy Act and/or Freedom of Information Act".

Program staff and our cooperators demand "due diligence" with regard to privacy issues. In light of these recent developments and the likelihood of Congress revising and expanding the Privacy Act to include geospatial data, it is in the best interest of the programs and our cooperators to be proactive on this issue. We need to protect the private and personal information of our cooperators beginning with privacy policies and disclosures that are clear and transparent.

2.0 PURPOSE:

The purpose of the protocol is to:

1. Protect private landowner identification and inform landowners of how and when any data collected may be used with conservation cooperators;
2. Provide guidance to field staff on how to respond to HabITS data inquiries;
3. Develop a process by which limited data can be shared safely with conservation cooperators.

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3.0 PROVIDING FULL DISCLOSURE TO LANDOWNERS:

It is in the best interest of our mission to share spatial data about our treatments with conservation cooperators that share our objective of enhancing and restoring habitat for trust species when it can better inform conservation planning. However, private landowners must be informed and consent to sharing such information about their property.

In order to provide full disclosure to landowners, the following language will be incorporated into all landowner and cooperative agreements from this point forward:

"Spatial Information Sharing: In accordance with the Privacy Act of 1974, permission must be obtained from the cooperator before any personal information can be released. The only information that can be shared is payment information is that is otherwise authorized by law. Therefore, your consent is requested to allow for sharing of spatial information about this project solely with conservation cooperators providing technical or financial assistance with the restoration, enhancement or management of fish and wildlife habitat.

☐ *I consent to having spatial information about this project shared with other conservation cooperators*

☐ *I do not wish to have any spatial information about this project shared with other conservation cooperators"*

If a private landowner chooses not to participate in spatial data sharing with conservation cooperators then that should be recorded in Habits by checking the box marked: "Not Available for Data Sharing". For 2011 and beyond, the default will be that data is "Available for Data Sharing" unless the box is checked. State, corporate and non-profit organizations are not protected under the Privacy Act, therefore, this provision only applies to private landowners.

Historic spatial data entered into HabITS prior to this policy will automatically be marked as unavailable for spatial data sharing. To share spatial data associated with those projects landowner must be asked to sign a statement of understanding that includes the above data sharing clause at which point that box can be unchecked in HabITS.

4.0 RESPONDING TO REQUESTS FOR DATA:

How staff should appropriately respond to data requests depends on what information is being requested, by whom and for what purpose. HabITS data requests fall into two categories: a request for data that could contain personally identifiable information, such as a request for spatial data; or, a request for non-sensitive data, such as acres of wetland restored in a congressional district.

4.1 Requests for Data Available to the Public:

To accommodate simple inquiries, HabITS will have a public query capability with limited fields. The goal of the public query tool is to allow the public and interested government officials to learn more about program delivery without compromising the privacy of private landowners or disclosing specific location information about sensitive species. Attachment 1 includes a list of fields that will be accessible through the public website query tool. The System Administrator has determined that these fields do not contain personally identifiable information and that the scale of geographically defined queries is large enough to protect sensitive species information and landowner privacy. The public query tool does not include any information that can be linked to a particular landowner or parcel. There is no access to spatial data. For staff, this is the first place to direct anyone seeking general program data. Most data requests should be satisfied through this interface.

4.2 Requests for Protected Data from the Public and External Partners:

If an entity is requesting detailed information beyond what is available on the public site, particularly spatial data, then all of the following criteria must be met before protected data is shared:

- ✓ Submission of a formal letter of request that describes how the requestor is a technical or financial contributor to the activities of the Partners for Fish and Wildlife Program or the Coastal Program, the intended use for the data, and the requested data fields.
- ✓ Approval by the Regional Coordinator or their delegate for requests within a discrete Region or the System Administrator for all requests that include multiple regions.
- ✓ Signature on data sharing agreement by the requestor and the Service (Attachment 2).

4.3 Requests for Protected Data from other Programs within the Service:

For Intra-Service requests from other programs a Privacy Act System Data Transfer Agreement, FWS Form 2333, should be signed by the requestor and the appropriate program staff (Attachment 3). This policy ensures that all Service staff given access to data is aware of the HabITS data sharing policy.

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5.0 DOCUMENTATION

Regional Coordinators should maintain copies of all data requests and data sharing agreements and copy the System Administrator on all correspondence so that there is a central repository to document the history of HabITS data sharing and data requests. Similarly, the System Administrator will maintain copies of all data requests and data sharing agreements and copy affected Regional Coordinators on all National Data Agreements

6.0 REIMBURSEMENT:

Some data requests require a sizeable amount of effort to generate, particularly multi-jurisdictional or recurrent requests. If the data request is time consuming or complex in nature then a reimbursable agreement should be used in addition to the data sharing agreement. The System Administrator will assist with identifying the appropriate resources necessary to support a complex or recurring data request that is outside or in addition to an existing cooperative agreement.