

PARTNERS FOR FISH AND WILDLIFE PROGRAM

CANDIDATE CONSERVATION PILOT

ACTION PLAN

SOUTHEAST REGION

FY 2007-2011

INTRODUCTION:

Beginning in fiscal year (FY) 2007, the Service initiated a National Candidate Conservation Pilot Project (Pilot Project) to identify and implement processes and habitat improvement actions that will over the short term remove or reduce habitat related threats to candidate and at-risk species on private lands, and over a longer term sustain or increase the populations of these species such that their listing as threatened or endangered under the Endangered Species Act would be unnecessary.

To help achieve the purpose of this pilot initiative, each Service Region, beginning in FY 2007, was directed to carry out several strategic actions:

- Collaborate with biologists in other program areas to identify specific candidate or at-risk species for which threats can be reduced or removed through additional or improved voluntary habitat improvement actions on private lands.
- Identify and implement efficient and effective cross-program collaboration efforts that will share technical expertise and available project funds.
- Identify and implement specific technical assistance and habitat improvement actions to help private landowners conserve candidate or targeted at-risk species.
- Develop and implement voluntary partnerships with private landowners and other partners directed to the conservation of candidate or targeted at-risk species.

The Partners for Fish and Wildlife (Partners) Program in the Southeast Region works with private landowners and other partners on a voluntary basis in developing and delivering habitat improvement projects that benefit Federal trust resources (e.g., wetlands, federally protected species and species of concern). Project proposals are developed at the field level in collaboration with our partners, and these proposals are review and ranked by a cross-program Service team at the State level. Habitat projects on private lands that would benefit threatened, endangered, and proposed or candidate species receive the highest priority for funding.

In developing this pilot initiative and selecting the focal species, Partners staff, in collaboration with Endangered Species Program staff, reviewed past and expected private lands habitat improvement opportunities delivered through the Partners Program relative to the importance, removal of specific threats, and the expected benefits of the conservation practices to the target species (e.g., known occurrence and use of private lands, minimizing or eliminating significant threats, and providing important life needs for the species).

It should be appreciated that due to factors beyond our control, it is very unlikely that the Service would be able to recommend a status change (i.e., removal from the candidate list) over the five-year time frame for this pilot for any of the focal species that have been targeted for habitat improvement activities through the Partners Program. The delivery of specific habitat improvement actions on private lands should not be viewed as a “quick fix” for these or any other species, but should be viewed within the context of a long-term, landscape-level strategic conservation approach. Following the implementation of specific habitat restoration efforts, it may take many years for the habitat to move through various stages of habitat succession and recovery toward achieving the desired habitat functions needed by the target species. For example, it may take many years for planted longleaf pine and the use of prescribed fire to reestablish the functional ecosystem characteristics needed by the target species. On the other hand, specific habitat management of existing habitat to restore or enhance specific life needs of target species, or efforts to remove specific threats may achieve the desired results in a shorter period of time. Also, it may not always be possible to minimize or remove the most significant threats to the species through our habitat improvement actions (e.g., where the construction of large dams has significantly impacted the survival of the species). Objective, scientific evaluations of population response to specific habitat improvement actions also demands long-term collection and evaluation of population data and related independent environmental factors such as climate, significant weather and storm events, disease, external contaminant issues, migration, documented population cycles, etc. in order to detect real changes in population trends.

Table 1 provides a listing of the focal species that will be targeted for this five-year pilot initiative. The focal species listed below are known to have important remaining populations on private lands. Also, the known threats to the life needs of these species and the specific habitat improvement actions needed to remove or reduce some of these threats are doable, private landowners and other partners willing to work with us have been identified by our field staff, and we believe that habitat improvement actions on private lands will provide benefits to the target species.

Table 1. Target species to be actively addresses through habitat improvement activities on private lands over the next five years (FY 2007-2011).

Common Name	Primary Habitat Target	Geographic Focus	Status*
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Black pine snake	Longleaf pine	Southern MS;	C
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		southwestern AL	
Elfin Wood Warbler	Coffee Plantations	Puerto Rico	C
Gopher tortoise	Longleaf pine	AL (east of the ** Tombigbee and Mobile Rivers), southeastern SC, GA, FL; Sandy coastal plains	SOC
Slabside pearlymussel	Aquatic; Riverine	AL, KY, TN; Cumberland and Tennessee River Systems	C
Yellowcheek darter	Aquatic; Riverine	AR; headwater streams of Little Red River	C
Everglades bully (Plant; upright shrub)	Tropical pinelands;	South Florida; Miami-Dade County	C

*C=candidate species; SOC=species of concern

** The gopher tortoise is listed under the Endangered Species Act as threatened in Louisiana, Mississippi, and west of the Tombigbee and Mobile Rivers in Alabama, and is a species of concern throughout the remainder of its range

STRATEGIC APPROACH:

In striving to achieve the goals of this pilot effort, the Service will follow the Director's guidance and the strategic model provided in the Service's Strategic Habitat Conservation Report (2006), and will focus on the following overarching strategies:

- 1) If needed, update existing population status and distribution information (establish a baseline) relative to priority focus areas or areas where most of our work on private lands is expected to occur;
- 2) Identify, evaluate, and prioritize threats within selected geographic focus areas relative to the life needs of the target species, and define specific activities that will remove or reduce those threats;
- 3) If necessary, establish a re-stocking effort to re-introduce the target species into suitable habitat restored or enhanced on private lands;

- 4) Identify private landowners and other partners within targeted focus areas that may be willing to work with us; contact these entities and develop voluntary actions/projects designed to implement items 1-3 above. Seek out and utilize all available sources of technical assistance and funding;
- 5) Develop a succinct conservation strategy based upon items 1-4 with measurable goals and objectives designed to illustrate our success;
- 6) Establish and implement a process to monitor the conservation activities implemented under this initiative.

The Partners for Fish and Wildlife Act of 2006 mandates that the Partners Program direct its activities to “providing technical and financial assistance to private landowners to restore, enhance, and manage private land to improve fish and wildlife habitats.” Therefore, the Partners Program alone cannot address all of the strategic approaches listed above, especially long-term monitoring and research needs directed to the determination of biological response and population status. The Partners Program will seek to address these needs through coordination and collaboration with other Service Programs and partnerships with other entities outside the Service.

To accomplish the Director’s goals and to comprehensively address the strategies above, all Service operational programs (e.g., Ecological Services, Refuges and Wildlife, Migratory Birds, Fisheries, and Federal Assistance) should evaluate their capabilities and opportunities (similar to what we have done in this pilot plan) to carry out actions that would benefit these target species, or additional species that meet the policy criteria for that program. Once these evaluations are completed within each program area, additional collaborations between all appropriate programs will be needed to leverage our resources and to develop specific cross-program implementation strategies to maximize the cumulative benefits of all actions.

In addition, to be successful we believe it is critical for the Service to strategically collaborate with other Federal and state agencies that have dedicated funding and technical assistance capabilities to address conservation actions that would benefit these target species. Service efforts alone (at the current funding level) are not likely to result in significant improvements to target species populations in the near term, but in cooperation with other partners such as the Natural Resources Conservation Service and their implementation of Farm Bill Conservation Programs, and working closely with states implementing their State Wildlife Action Plans, the likelihood of success increases greatly.

For this pilot initiative, Partners Program funds identified below will be targeted over the next five-years to priority geographic focus areas, and will be leveraged with a goal of achieving at least a 50 percent cost match (including in-kind services) with our partners. In addition to our private landowner partners, our field biologists will actively seek out other partners through other federal agencies, State agencies, non-government

conservation organizations, private industry and others, and we will work closely with all partners in seeking other funding sources (e.g., Endangered Species Program funds, Farm Bill conservation programs, State programs) to address specific priority habitat improvement activities.

REFERENCES:

U. S. Congress. 2006. Partners for Fish and Wildlife Act. 109th U. S. Congress, S. 260. Signed into law October, 3, 2006.

U. S. Fish and Wildlife Service. 2006. Expanding our cooperative conservation partnerships with private landowners to increase recovery and candidate conservation efforts. January 23, 2006 Memorandum from Director to Service Directorate.

U. S. Fish and Wildlife Service. and U. S. Geological Survey. 2006. Strategic habitat conservation: final report of the National Ecological Assessment Team. U. S. Dept. of the Interior, Washington, D. C. 45 pp.

U. S. Fish and Wildlife Service. 2006. Candidate species by state. Internet at: <http://www.fws.gov/southeast/es/state%20candidate.htm> Accessed 11/09/2006.

SUMMARY OF TARGET FOCAL SPECIES AND ACTION STRATEGIES:

BLACK PINE SNAKE (*Pituophis melanoleucus lodingi*): Historically, the black pine snake occurred in one parish in Louisiana, 14 counties in Mississippi, and three counties in Alabama. Survey information has indicated that this species has been extirpated in Louisiana, and from two counties in Mississippi. Surveys have indicated that the black pine snake likely still occurs in Clarke, Mobile, and Washington counties in Alabama; and, Forrest, George, Harrison, Jones, Marion, Pearl River, Perry, Stone, and Wayne counties in Mississippi. Of the total habitat known to be occupied by extant populations, 60 percent is on Federal land, 5 percent on other publicly-owned or managed lands, and 35 percent on private lands. In Alabama, most of the remaining populations are believed to occur on private lands. In Mississippi, populations are concentrated on the DeSoto National Forest, and the Marion County Wildlife Management Area, although some populations still occur on private lands.

THREATS: The primary threats to this species are the destruction and loss of habitat and killing by humans. Habitat fragmentation within the longleaf pine ecosystem threatens the continued existence of all black pine snake populations on private lands. The current listing priority for this subspecies is high, since the magnitude and immediacy of threats is high. The occurrence and distribution of the black pine snake is highly correlated with the historic range of the longleaf pine ecosystem. Today, the remaining longleaf pine forests in the southeast have been reduced to less than five percent of historical extent. Black pine snake habitat has been eliminated through land

use conversions, primarily urban development and conversion to agriculture and other pine ecotypes.

HABITAT PREFERENCE: Black pine snakes prefer sandy, well-drained soils with an overstory of longleaf pine. Also, they seem to prefer open canopies, reduced mid-stories, and dense herbaceous understories, and they are frequently found underground in rotting pine stumps. Forest management strategies such as fire suppression, increased stocking densities, and removal of downed trees and stumps all contribute to the degradation of habitat. Most of the remaining patches of longleaf pine on private land are fragmented and degraded.

RECOMMENDED HABITAT IMPROVEMENT ACTIONS: Reestablishment of longleaf pine and associated native ground cover on private lands (designated focus areas to reduce habitat fragmentation) within its historic range; implementation of forest management practices, including the use of prescribed fire.

Alabama: Ecological Services (ES) field biologists have identified 14 potential private landowner partners (~57,000 acres IN Table below) that may be willing to voluntary work with us to carry out habitat improvement activities on their land:

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT PROJECTIONS (FY 2007-2011): ALABAMA

Landowner	County	Tract size (ac)	Habitat	Willingness
MAWS*	Mobile	7000+	Open stands of longleaf – bluestem	Probable
City of Citronelle *	Mobile	350	Longleaf pine and bay-gum swamp	Probable
Davis	Mobile	1700	Loblolly/slash/longleaf	Probable
ADCNR/TNC Perdido River	Baldwin	14,000+	Loblolly/longleaf/Atlantic White Cedar	Probable
Poarch Creek Indians*	Escambia	10,000	Loblolly/longleaf/Atlantic White Cedar	Probable
Swearingen*	Baldwin	1000	Longleaf-bluestem	Probable
Coastal Land Trust*	Baldwin	2300	Loblolly/shortleaf/longleaf-bluestem	Probable
TNC-Splinter Hill	Baldwin	500	Longleaf-bluestem-pitcher plants	Probable
Annie Jordan Trust*	Washington	10,000	Longleaf-bluestem	Maybe
Crowder/Yance	Washington	5,000	Longleaf/loblolly	Maybe
Moorer Trust*	Mobile	3000+	Longleaf-bluestem	Maybe
ALDOT Mitigation Bank*	Mobile	800	Longleaf-bluestem	Probable
South Alabama Utilities	Mobile	360	Longleaf	Probable
Eichold*	Escambia	1000	Longleaf-bluestem	Probable
Total		57,010		

Potential partners for black pine snake management. * Indicates suitable habitat already exists on the site.

The tract in the above table with the greatest immediate potential for restoration is the Splinter Hill tract (14,000 acres) in Baldwin County near the Perdido River that was recently purchased from International Paper Company by The Nature Conservancy

(TNC). Approximately 9,000 acres of the 14,000 acres will be purchased by the Alabama Department of Conservation and Natural Resources in the near future so the land will be permanently protected. Numerous clear cuts on the TNC land have not been replanted and are ripe for restoration with longleaf pine. We estimate that approximately 500 acres (\$200/ac restoration costs) of longleaf pine could be restored on this tract in the short term (over next three years), and approximately 10,000 acres could be restored over the next 15 years. Thinning and prescribed fire on the existing loblolly pine plantations could be conducted over the next 5 years to make the existing loblolly habitat more suitable for black pine snakes. Thinning would be conducted at no cost to the Service. Prescribed fire could be conducted for \$15 to \$25 per acre.

FY 2007 Partners for Fish and Wildlife Program Funding Allocation for Longleaf Pine Habitat Improvement Projects to Benefit the Black Pine Snake in Alabama and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT (Acres)
Daphne, AL	\$125,000	Reestablish longleaf; Prescribed burns; Restore native groundcover; Invasive species control	800

Over the five-year period of this pilot initiative, and assuming a funding commitment at the FY 2007 level, we estimate that approximately 4,000 acres of longleaf pine habitat improvement activities on private lands in Alabama will be carried out to benefit the black pine snake and other species of concern that depend on the imperiled longleaf pine ecosystem

Mississippi: ES field biologists have identified six habitat improvement projects on private lands in the southeastern Mississippi longleaf pine focus area, totaling approximately 3,400 acres at an estimated total project cost of about \$2,000,000 (estimated Service cost of about \$1,000,000).

FY 2007 Partners for Fish and Wildlife Program Funding Allocation for Longleaf Pine Habitat Improvement Projects to Benefit the Black Pine Snake in Mississippi and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT (Acres)
Jackson, MS	\$50,000	Reestablish longleaf; Prescribed burning;	500

**Restore native groundcover;
Invasive species control**

Over the next five years, and based on the FY 2007 funding level for the Partners Program, we estimate that approximately 3,000 acres of voluntary longleaf pine habitat improvement activities on private lands in south Mississippi will be carried out to benefit the black pine snake and other species of concern that depend on the imperiled longleaf pine ecosystem.

ESTIMATE OF SURVEY AND MONITORING NEEDS:*

The removal of the black pine snake from the candidate list will be dependent upon collecting and evaluating information involving several current information gaps over an extended period of time as needed to objectively evaluate the removal of known threats and the positive effects of specific habitat improvement actions on the black pine snake. Initial data information needs include the following:

- 1) Baseline and post habitat improvement surveys for the black pine snake within designated focus areas on private and/or public lands to determine existing population levels, reference conditions, and biological response to specific habitat improvement and re-stocking actions;
- 2) DNA analysis of the black pine snake intergrade as determined to be appropriate.

In addition, we recommend an evaluation of the need and feasibility of captive breeding and reintroduction of the species into suitable restored habitat. The purpose of any propagation effort would be to reintroduce self-sustaining populations of black pine snakes within its native or historic range in Alabama, Mississippi, and perhaps Louisiana. Captive reared snakes could be reintroduced to many of the private lands tracts without a Candidate Conservation Agreement with Assurances (CCAA) document. We believe that most landowners would allow the Service to stock black pine snakes on their land without a legally binding document.

We estimate that a reasonable level of support for carrying out the survey and monitoring needs on an annual basis is \$50,000. Further, additional support of approximately \$100,000 would be needed annually for any captive propagation and re-stocking efforts.

* A designated funding source for these estimated needs has not been determined.

REFERENCES:

U. S. Fish and Wildlife Service. 2007. Species profile: black pine snake. Internet at: <http://ecos.fws.gov/speciesProfile/SpeciesReport.do?scode=C029> Accessed 2/20/2007.

U. S. Fish and Wildlife Service. 2006. Personal communication. Jim Boggs, Assistant Field Supervisor, Lafayette, LA Field Office; Randy Roach, Alabama Partners Program Coordinator, Daphne, AL; Ray Aycock, Project Leader, Jackson, MS Field Office.

U. S. Fish and Wildlife Service. 2005. Species assessment and listing priority assignment form: black pine snake. Southeast Region, Atlanta, GA. 12 pp.

ELFIN WOODS WARBLER (*Dendroica angelae*): This is an endemic parulid from upland forest, listed as a candidate by the Service and is considered vulnerable by the Puerto Rico Department of Natural and Environmental Resources. The current known distribution of the Elfin Woods Warbler is limited to four locations in Puerto Rico, two of which little information is available. The most recent survey shows a current population size of approximately 300 pairs (BirdLife International, 2004). Most of the known range for this species is currently within two protected forests, Maricao Commonwealth Forest and the Caribbean National Forest, administered and managed by the Puerto Rico Department of Natural and Environmental Resources (DNER) and the U. S. Forest Service, respectively. Both populations occur at low density. The area for this pilot effort includes those private lands within the Las Marias and Maricao municipalities, adjacent to the Maricao Commonwealth Forest, where the species has been documented nesting in shade coffee plantations.

THREATS: Recognized threats to this species include destruction of habitat due to catastrophic events such as hurricanes, as well as inadequate agricultural activities including sun coffee plantations and timber harvest, construction activities. In addition, recreational activities in areas where this species exists may result in damage to habitat or significant disturbance or harassment.

HABITAT PREFERENCE: High elevation forests within Puerto Rico.

RECOMMENDED HABITAT IMPROVEMENT ACTIONS: Working with our partners, the Service will facilitate and provide technical and financial assistance for the implementation of tree establishment (e.g. *Calophyllum calaba*, and *Inga vera*) in upland and riparian zones, use exclusion, and for the conversion of sun coffee plantations to shade coffee plantations, which have been shown to provide valuable habitat for this species. In addition, working with landowner to protect and conserve present podocarpus forest from further modification.

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT PROJECTIONS (FY 2007-2011):

Ecological Service (ES) field biologist in coordination with NRCS, University of Puerto Rico and the Puerto Rico Agricultural Extension Service have identified several private lands (approximately 300 acres) adjacent to the Maricao Commonwealth Forest that may be willing to voluntary work with us to carry out habitat restoration activities on their properties.

FY 2007 Partners for Fish and Wildlife Program Funding Allocation for Habitat Improvement Projects to Benefit the Elfin Woods Warbler in Puerto Rico, and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT(Acres)
Boqueron, PR	\$25,000	Reestablishment of trees In target upland and Riparian areas	62 acres

Over the next five years, and based on the FY 2007 funding level for the Partners Program, we estimate that approximately 200 acres of voluntary habitat improvement activities on private lands within the Puerto Rican focus area will be carried out to benefit the Elfin Woods Warbler and other species of concern that depend on the upland forest ecosystem.

Additional voluntary habitat improvement opportunities on private lands may be available, but are limited by Service funding and technical assistance capability. We will continue to work with other Service program areas and other partners to secure the technical and funding assistance needed to expand this effort.

The PFW program integrated the Service’s Endangered Species Program, the Natural Resources Conservation Services, the U.S. Forest Service, the Puerto Rico Agricultural Extension Service, The Puerto Rico Department of Natural and Environmental Resources and Envirosurvey Inc (local NGO) as partners in this initiative.

ESTIMATE OF SURVEY AND MONITORING NEEDS:*

Continue surveys and censuses for this species in potential habitat areas including a status survey of the Carite Forest Elfin Woods warbler population. Also, the Service has funded a study to investigate the status and nesting habitat requirements for this species. For habitat improvement projects implemented, develop a monitoring plan and carry out

monitoring to document the use or non use of reestablished habitat by the species.
Estimated cost: \$10,000/yr.

* A designated funding source for these estimated needs has not been determined.

REFERENCES:

Birdlife International. 2004. Threatened birds of the world 2004. CD-Rom. Cambridge, UK.

Delannoy, C. 2007. Distribution, abundance, and description of habitats of the Elfin Woods Warbler *Dendroica angelae*, in southwestern Puerto Rico. Final Report submitted to the U.S. Fish and Wildlife Service. 77 pp.

U. S. Fish and Wildlife Service. 2005. Species assessment and listing priority assignment form: Elfin Woods Warbler. Southeast Region, Atlanta, GA. 10 pp.

U. S. Fish and Wildlife Service. 2007. Habitat Information Tracking System. Elfin Woods Warbler Candidate Conservation Pilot, HabITS No. 45370. Accessed September 20, 2007.

Waide, R. 1995. Status and conservation of the Elfin Woods Warbler (*Dendroica angelae*) in the Luquillo Experimental Forest. Final Report submitted to the U. S. Fish and Wildlife Service. 25 pp.

Potential Partners:

USFWS-Endangered Species Program
Natural Resources Conservation Service
U.S. Forest Service
Puerto Rico Department of Natural and Environmental Resources
Puerto Rico Agricultural Extension Service
Envirosurve Inc (local NGO)
Academia

GOPHER TORTOISE (*Gopherus polyphemus*): The gopher tortoise typically inhabits relatively well-drained, sandy soils throughout the southeastern Coastal Plain. In Florida, tortoises are widely distributed, occurring in parts of all 67 counties; however, their current range in South Florida is restricted due to unsuitable habitat and increased urbanization. Tortoises are also found in the southern parts of South Carolina, Georgia, Alabama, Mississippi, and the southeastern corner of Louisiana. The gopher tortoise is a federally threatened species in Alabama (west of the Tombigbee and Mobile Rivers), Louisiana, and Mississippi. Throughout the remainder of its range, the tortoise is

considered a species of concern. The gopher tortoise is generally considered to be a keystone species for the longleaf pine ecosystem.

It is estimated that approximately 70 percent of the population of tortoises occurs on private lands. No estimate is available for the gopher tortoise's population size within its known range of occurrence.

THREATS: Primary threats include the conversion of gopher tortoise habitat to urban areas, croplands, and pasturelands along with adverse forest management practices. Although the harvest of gopher tortoises is now prohibited by all states throughout its range, illegal commercial hunters continue to collect gopher tortoises for their meat.

HABITAT PREFERENCE: The gopher tortoise most often lives on well-drained, sandy soils in transitional (forest and grassy) areas. It requires an open forest floor with grasses and forbs for food, and sunny areas for nesting. Within the longleaf pine or other pine ecotypes, regular burning and thinning of trees is essential. Care must be taken with any clear cutting and site preparation which can be very damaging, with adverse population effects lasting many years.

RECOMMENDED HABITAT IMPROVEMENT ACTIONS: Habitat improvement actions to remove or reduce threats include the planting of longleaf pine, reestablishment of native ground cover within its historic range, and implementation of forest management practices, including the use of prescribed fire. Opportunities that would reduce fragmentation of suitable habitat will also have a high priority.

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT PROJECTIONS (FY 2007-2011):

The habitat accomplishment estimates for private landowner interest presented above for Alabama for the black pine snake also apply for the gopher tortoise.

For the remainder of the Southeast Region, where the gopher tortoise is a species of concern within the historic range of the longleaf pine ecosystem and sand ridge habitat, additional habitat improvement opportunities on private lands have been identified.

FY 2007 Partners for Fish and Wildlife Program Funding Allocation for Longleaf Pine Habitat Improvement Projects to Benefit the Gopher Tortoise in Florida, Georgia, and South Carolina, and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT(Acres)
Jacksonville, FL	\$80,000	Reestablish longleaf pine;	140

		Reestablish native ground cover; Prescribed fire; Invasive species control	
Athens, GA	\$70,000	Same as above	600
Charleston, SC	\$73,000	Same as above	600

Over the next five years, and based on the FY 2007 funding level for the Partners Program, we estimate that approximately 6,700 acres of voluntary longleaf pine habitat improvement activities on private lands in Florida, Georgia, and South Carolina will be carried out to benefit the non-listed population of gopher tortoises and other species of concern that depend on the imperiled longleaf pine ecosystem.

Additional voluntary opportunities to reestablish longleaf pine on private lands are available, but are limited by Service funding and technical assistance capability. We will continue to work with other Service program areas and other partners to secure the technical and funding assistance needed to expand this effort.

ESTIMATE OF SURVEY AND MONITORING NEEDS:* The 1990 recovery plan for the federally threatened population of the gopher tortoise (western part of range) recommended range wide surveys at five-year intervals, and research on tortoise population viability and genetics. Additional needs would include baseline population surveys of target populations, periodic surveys and biological response studies following the implementation of specific habitat improvement activities, and possible re-stocking efforts in suitable restored habitat. The Service has several partnerships with states, the military, and corporate entities engaged with some of the above efforts. Additionally, the Service is pursuing a range-wide conservation strategy for this species as a result of a multi-party Memorandum of Intent (MOI). The Service intent is to match up our monitoring and survey needs with this range-wide effort over the next few years. In the interim, we believe that a reasonable level of support for coordinating the survey and monitoring needs on an annual basis is \$100,000.

*A designated funding source for these estimated needs has not been determined.

REFERENCES:

Florida Fish and Wildlife Conservation Commission. 2006. Biological status report gopher tortoise. Internet at: <http://myfwc.com/imperiledspecies/reports/Gopher-Tortoise-BSR.pdf>

University of Georgia. 2001. Gopher tortoise fact sheet. University of Georgia and Savannah River Ecology Laboratory. Internet at: <http://www.uga.edu/srel/gopher.htm> Accessed 02/20/2007.

U. S. Fish and Wildlife Service. 2007. Gopher tortoise information. Daphne, Alabama Field Office. Internet at: <http://www.fws.gov/daphne/gopher/index.htm> Accessed 02/20/2007.

U. S. Fish and Wildlife Service. 1990. Gopher tortoise recovery plan. Southeast Region, Atlanta, GA. 28 pp.

SLABSIDE PEARLYMUSSEL (*Lexingtonia dolabelloides*): The slabside pearlymussel is currently limited to nine streams in the Tennessee River System (Alabama, Tennessee, Virginia), having been eliminated from the Cumberland River System (Kentucky and Tennessee), and from the Tennessee River main stem. This species has been eliminated from about 60 percent of its historical habitat, but may still occur in the following rivers: Powell River, Clinch River, North Fork Holston River, Big Moccasin Creek, Middle Fork Holston River, Hiwassee River, Paint Rock River, Larkin Fork, Estill Fork, Hurricane Creek, Elk River, Bear Creek, and Duck River. Population data gathered over the past 10 years indicates that this species is rare in about half of its existing populations. Although it is more common in other population locations, it is relatively abundant in only a few locations. Populations of the slabside pearlymussel have been declining throughout its remaining range, with the possible exception of the largest populations. This species occurs in streams that run exclusively through private lands.

THREATS: The decline of this species is due primarily to habitat loss and degradation that have occurred over the last 130 years. Primary threats and causes for decline include impoundments, stream channel alterations, water pollution, and sedimentation. Population losses due to man-made impoundments have probably contributed more to the decline of this species than any other single factor. Other significant threats include in-stream gravel mining, heavy-metal drainage and sedimentation from coal mining, and contaminants from point and non-point discharges. The remaining populations of slabside pearlymussels are generally small and geographically isolated. This patchy distribution in short river reaches makes them much more susceptible to elimination from single catastrophic events, such as toxic chemical spills. The current listing priority for this species is high, although some of the threats are not considered to be imminent.

HABITAT PREFERENCE: This species is primarily a large creek to moderately-sized river species, inhabiting sand, fine gravel, and cobble substrates in relatively shallow riffles and shoals with moderate current. The species also requires flowing, well-oxygenated waters to thrive.

RECOMMENDED HABITAT IMPROVEMENT ACTIONS: Reducing erosion and sedimentation and improving water quality by restoring, enhancing, managing, and protecting riparian and in-stream aquatic habitat by carrying out activities such as planting of native vegetation within stream buffer areas, bank stabilization, fencing out or excluding livestock from streams, in-stream habitat structures, and re-stocking of target species into suitable habitat. The significant habitat loss and degradation threats caused by large impoundments cannot be recovered or removed through the Partners Program.

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT

PROJECTIONS (FY 2007-2011): Ecological Services field biologists have identified two geographic focus areas (Tennessee River focus area in Alabama and the Clinch and Powell Rivers focus area in Tennessee) involving habitat improvement activities that would benefit the slabside pearl mussel. Approximately 10 to 15 potential private landowner partners within these focus areas have also been identified.

FY 2007 Partners for Fish and Wildlife Program Funding Allocation for Stream Habitat Improvement Projects to Benefit the Slabside Pearl Mussel in the Alabama and Tennessee Focus Areas, and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT (Acres/Miles)
Wheeler National Wildlife Refuge, AL	\$30,000	Riparian and streambank protection and rehabilitation	18/1.0
Cookeville, TN	\$45,000	Riparian and streambank Protection and rehabilitation; In-stream structures	30/5.0

Over the next five years, and based on the FY 2007 funding level for the Partners Program, we estimate that approximately 200 acres of stream buffer and 20 miles of riparian and in-stream habitat will be carried out through voluntary stream improvement activities on private lands within the Alabama and Tennessee focus areas. These efforts are intended to improve water quality and habitat conditions for the slabside pearl mussel and other protected and species of concern within these targeted stream systems. The Service will continue to work with other partners to seek additional technical assistance and funding support from all available funding sources such as Farm Bill conservation programs and private landowner grant programs.

ESTIMATE OF SURVEY AND MONITORING NEEDS*: The removal of the slabside pearl mussel from the candidate list should depend on several types of information and the evaluation of that information to reach rational decisions:

- 1) Surveys for new populations on private and public lands to determine existing population levels; estimated cost=\$50,000 to \$100,000
- 2) Evaluation of the impact of specific habitat improvement projects on the population status of the target species (biological response); estimated cost=\$50,000 to \$100,000;
- 3) Develop better life history information; estimated cost unknown.

In addition, an evaluation of the need for and feasibility of development and use of culture techniques for potential propagation and reintroduction into suitable habitat is recommended. Estimated cost for this action is unknown.

* A designated funding source for these estimated needs has not been determined.

REFERENCES:

U. S. Fish and Wildlife Service. 2007. Species profile: slabside pearlymussel. Internet at: <http://ecos.fws.gov/speciesProfile/SpeciesReport.do?sPCODE=F01Y> Accessed 02/20/2007.

U. S. Fish and Wildlife Service. 2005. Species assessment and listing priority assignment form: slabside pearlymussel. Southeast Region, Atlanta, GA. 15 pp.

YELLOWCHEEK DARTER (*Etheostoma moorei*): Recent population status information has estimated that only about 10,000 yellowcheek darters survive in the headwater streams of the Little Red River in Arkansas. Approximately 93 percent of the upper Little Red River watershed is in private ownership. Since the early 1980's, the yellowcheek darter's population has declined dramatically from about 60,000 individuals to its present known population size.

THREATS: Historically, the yellowcheek darter was found throughout the length of the Little Red River headwaters to below the tailwaters of Greers Ferry Lake. The construction of the Greers Ferry Dam in 1964 flooded most of this darter's habitat. Since most of its former habitat is unsuitable, the yellowcheek darter is now restricted to the Middle, South, Archey, and Turkey Forks of the Little Red River. Other factors contributing to the population decline of this species include low yearly rainfall amounts, drought, and water pollution. The listing priority for this species is high with significant and imminent threats.

HABITAT PREFERENCE: This species needs high gradient headwater tributaries with clear water; permanent flow; moderate to strong riffles; and gravel, rubble, and boulder substrates. It cannot thrive in reservoir and pool environments or in the cold tailwaters below Greers Ferry Dam.

RECOMMENDED HABITAT IMPROVEMENT ACTIONS: Reduction of erosion and sedimentation and improvement of water quality by restoring, enhancing, managing, and protecting riparian and in-stream aquatic habitat by carrying out activities such as planting of native vegetation, bank stabilization, fencing out or excluding livestock from streams, in-stream habitat structures, and re-stocking of target species into suitable habitat. The significant habitat loss and degradation threats caused by the construction and operation of Greers Ferry Dam cannot be recovered or removed through the Partners Program.

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT

PROJECTIONS (FY 2007-2011): Within the designated focus area (Middle, South, Archey, and Turkey forks of the Little Red River), Service biologists have identified 56 eroding streambanks. Within this area, there are approximately 331 individuals, corporations, and other entities that own land. Two private landowners and one corporation have expressed interest in voluntary conservation partnerships on their land, including the use of a Candidate Conservation Agreement with Assurances. We expect that over the next several years the number of landowners partners will increase as the Service and other partners establish trust and credibility within the focus area.

FY 2007 Partners for Fish and Wildlife Program Funding Allocation For Stream Habitat Improvement Projects to Benefit the Yellowcheek Darter Within the Little Red River Focus Area, Arkansas, and Estimated Accomplishment Output.

FIELD OFFICE	AMOUNT	ACTIVITIES	ACCOMPLISHMENT OUTPUT (Acres/Miles)
Conway, AR	\$50,000	Riparian and streambank Protection and rehabilitation; In-stream structures	40/2

Over the next five years, and based on the FY 2007 funding level for the Partners Program, we estimate that approximately 150 acres of stream buffer and 5 miles of riparian and in-stream habitat will be carried out through voluntary stream improvement activities on private lands within the Little Red River focus areas. These efforts are intended to improve water quality and habitat conditions for the yellowcheek darter and other protected and species of concern within this targeted stream system.

Currently, other partners (e.g., Natural Resources Conservation Service, Arkansas Game and Fish Commission, The Nature Conservancy, Wal-Mart) have actively engaged in conservation efforts to benefit the yellowcheek darter and other imperiled species within

the Little Red River focus area. In 2005, a multi-agency team developed the *Conservation Strategy for the Speckled Pocketbook and Yellowcheek Darter* to aid in the implementation and identification of proactive land conservation measures, standards and guidelines for these species. This strategy is considered to be the first step in a watershed level approach to restoring stream habitat and other habitat improvement actions that would benefit these species. Also, the Service has recently awarded a grant (\$30,000) to The Nature Conservancy to prioritize habitat sites within the focus area, and is currently seeking a \$200,000 grant from the Doris Duke Foundation to carrying out habitat improvement activities within the focus area.

ESTIMATED SURVEY AND MONITORING NEEDS:* The removal of the yellowcheek darter from the candidate list should depend on several types of information and the evaluation of that information to reach rational decisions:

- 1) Surveys of existing populations; baseline determinations;
- 2) Evaluation of the impact of specific habitat improvement projects on the population status of the species (biological response);
- 3) Develop better life history information.

In addition, an evaluation of the need for and feasibility of development and use of culture techniques for potential propagation and reintroduction into suitable habitat is recommended. Estimated cost for this action is unknown.

Some of these information needs are being addressed by The Nature Conservancy and through the Conservation Strategy partnership. Estimated cost for all of the survey and monitoring needs is unknown, but we estimate \$100,000 as a starting amount.

* A designated funding source for these estimated needs has not been determined.

REFERENCES:

U. S. Fish and Wildlife Service. 2007. Species profile: yellowcheek darter. Internet at: <http://ecos.fws.gov/speciesProfile/SpeciesReport.do?sPCODE=E01E> Accessed 02/20/2007.

U. S. Fish and Wildlife Service. 2006. Screening information for consideration of categorical exclusion for NEPA review purposes programmatic safe harbor agreement and candidate conservation agreement with assurances within the upper Little Red River watershed in Arkansas. Southeast Region, Atlanta, GA. 9 pp.

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U. S. Fish and Wildlife Service. 2004. Wal-Mart's donation aids recovery efforts for rare fish. Internet at: <http://www.fws.gov/southeast/news/2004/r04-001.html>
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EVERGLADES BULLY (*Sideroxylon reclinatum* spp. *austrofloridense*): The Everglades bully is an upright shrub from about 3-6 feet tall, known from only a few locations in South Florida (primarily Miami-Dade County).

THREATS: The present or threatened destruction or modification of its habitat or range. The Miami-Dade County pine rocklands have largely been destroyed by residential, commercial, and urban development and agriculture.

HABITAT: The Everglades bully is restricted to pinelands with tropical understory vegetation on limestone rock, mostly in the Long Pine Key area of the Everglades National Park. Smaller occurrences occur on private lands, including some natural forest community fragments and other parcels. Of the original 182,780 acres where this species occurred, now only about 20,106 acres remain.

RECOMMENDED HABITAT IMPROVEMENT: Protection of existing habitat. Work with private landowners and other key partners to eliminate threats; restore and manage habitat through the elimination or control of invasive and exotic species and the use of prescribed fire.

ESTIMATED LANDOWNER INTEREST AND ACCOMPLISHMENT PROJECTIONS (FY 2007-2011): Restore and manage approximately 60 acres on private lands.

ESTIMATED SURVEY AND MONITORING NEEDS: Monitor and survey remaining small populations in Miami-Dade County. Evaluate and track new restoration efforts.

We believe that a reasonable level of support for the coordinating the conservation strategy for this species on an annual basis is \$50,000*

* A designated funding source for these estimated needs has not been determined.

REFERENCES:

U. S. Fish and Wildlife Service. 2007. Species assessment and listing priority assignment form: Everglades bully. Southeast Region, Atlanta, GA 16 pp.

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