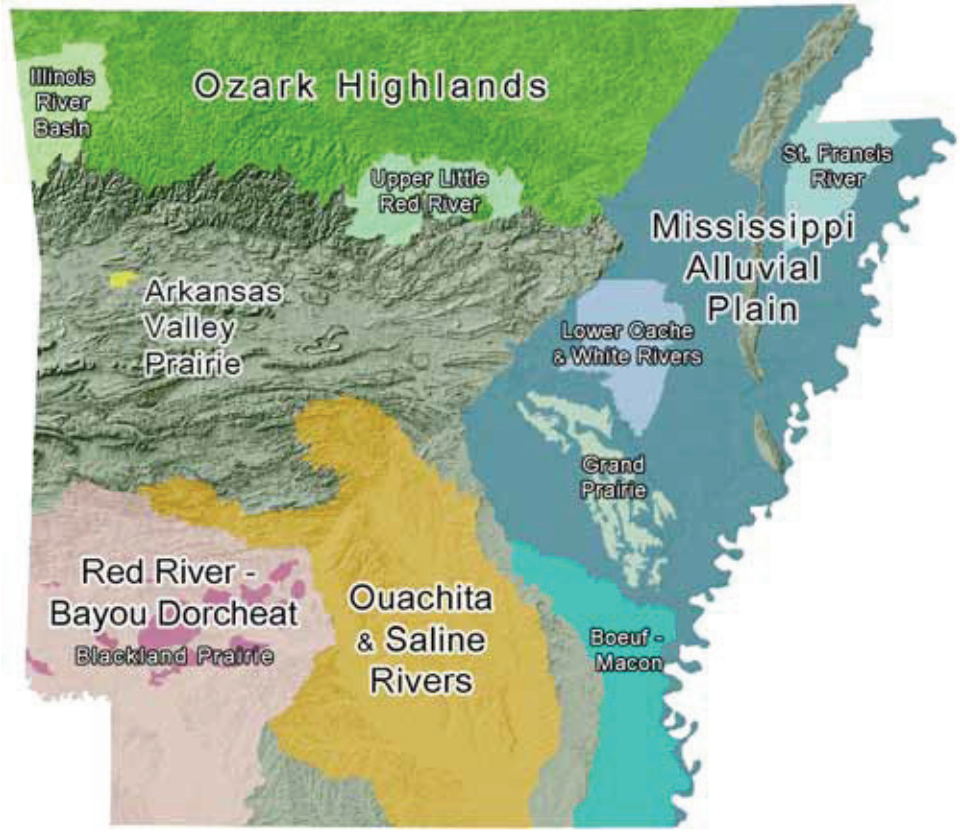
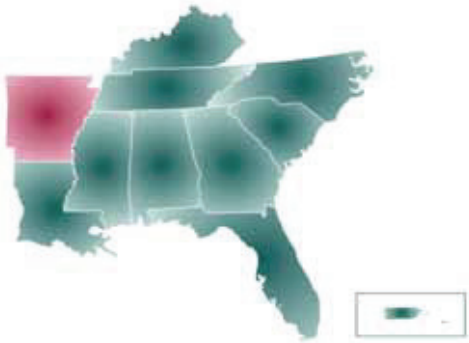
Appendix A: Arkansas



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.

(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

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

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.

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

and implement prescribed burning to promote development of native grasses and forbs in the understory.

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

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)

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

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,

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

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 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

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

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.

- **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

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;

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)

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/

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)

MAP – St. Francis River Sub-Focus Area

siltation; 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, 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

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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