FORESTRY DIVISION

ARKANSAS 2020-2029 FOREST ACTION PLAN

Executive Summary

Arkansas Department of Agriculture – Forestry Division Mission:
Protecting Arkansas's forests, and those who enjoy them, from wildland fire and natural hazards while promoting rural and urban forest health, stewardship, development, and conservation for all generations of Arkansans.

In 2008, the USDA – Forest Service responded to increased threats to our nation's forests and decreasing Forest Stewardship funding by choosing to focus on three national priorities:

Conserve and manage working forest landscapes for multiple values and uses.
Protect forests from threats.
Enhance public benefits from trees and forests.

Each state is required by the Cooperative Forestry Assistance Act (CFAA) of the 2005 Farm Bill as amended in the 2014 Farm Bill to analyze forest conditions and trends and determine state priorities for meeting the national priorities. State Forest Action Plan requirements come directly from the USDA – Forest Service.

The Arkansas 2020-2029 Forest Action Plan will:

- Discuss critical issues and present strategic themes with specific objectives and actions for addressing them.
- Describe various forestry programs implemented by the Forestry Division and partner agencies, recognizing their priority areas, goals, and performance measures.
- Identify performance measures to be used for assessing progress toward objectives and actions.

The Arkansas 2020-2029 Forest Action Plan includes the following key sections:

- Introduction
    - Discussion of National Priorities
    - Stakeholder groups involved in the update
- Priority areas of the Arkansas 2020-2029 Forest Action Plan
- Conditions and trends of forest resources
- Threats to forested lands and resources
    - Opportunity areas
    - Multi-state priorities
- Strategies to address the threats and assist forest landowners
    - Objectives and actions for implementation
    - Desired outcomes and metrics
- Resources necessary to successfully address the strategies

Table of Contents.

Introduction

The first Arkansas Forest Action Plan (titled the Statewide Forest Resources Assessment & Strategy) was completed in 2010. Direction was provided by the 2008 Farm Bill. Following completion of a statewide assessment, Arkansas completed a Statewide Forest Resources Strategy that detailed goals, objectives, and strategies toward forest management in priority landscapes. The strategy provides a long-term, comprehensive, coordinated strategy for investing state, federal, and leveraged partner resources to address the management priorities identified in its assessment. The resource strategy incorporates existing statewide forest and resource management plans and provides the basis for future program, agency, and partner coordination. The Arkansas 2020-2029 Forest Action Plan is the updated successor to the former Statewide Forest Resources Assessment & Strategy of 2010.

The National S&PF Priorities

1. **Conserve Working Forest Lands:** conserving and managing working forest landscapes for multiple values and uses.
    - Identify and conserve high priority forest ecosystems and landscapes.
    - Actively and sustainably manage forests.

2. **Protect Forests from Harm:** protect forests from threats, including catastrophic storms, flooding, insect or disease outbreak, and invasive species.
    - Restore fire-adapted lands and reduce risk of wildfire impacts.
    - Identify, manage, and reduce threats to forest and ecosystem health.

3. **Enhance Public Benefits from Trees and Forests:** including air and water quality, soil conservation, biological diversity, carbon storage, and forest products, forestry related jobs, production of renewable energy, and wildlife.
    - Protect and enhance water quality and quantity.
    - Improve air quality and conserve energy.
    - Assist communities in planning for and reducing wildfire risks.
    - Maintain and enhance the economic benefits and values of trees and forests.
    - Protect, conserve, and enhance wildlife and fish habitat.
    - Connect people to trees and forests and engage them in environmental stewardship activities.
    - Restore damaged or deteriorated landscapes to mitigate global climate change.

Role of the Arkansas Department of Agriculture – Forestry Division

Protection of Arkansas's forest resources is accomplished through the coordinated efforts of representatives of natural resource agencies. The successful implementation of the Arkansas Forest Action Plan will depend on the decisions of forest landowners and influence of natural resource professionals.

Forestland ownerships are becoming smaller and more fragmented over time as a result of changes in ownership and management objectives. An increasing number of owners, many of which are absentee, lack forest management knowledge. Many forest landowners may be hesitant to conduct forest management without access to outreach programs and technical assistance. Other landowners will be unable to afford these forest management techniques without financial assistance in the form of cost share programs. Arkansas's forests provide numerous ecosystem services that can be maintained and even increased with communication about the benefits that active forest management provides to forest health, productivity, and sustainability. Enhancing working forests can be accomplished by providing technical assistance to landowners and supporting markets for raw materials.

Financial assistance programs are funded by the federal government and administered at the state level. These programs provide cost share funding and incentive payments to the landowner, thereby reducing the financial burden of active forest management. Forest practices eligible under these programs include site preparation, tree planting, prescribed burning, fire lane construction, pre-commercial thinning, herbicide application, and implementation of best management practices for water quality.

Developing added values to forestland that provide ecosystem services such as carbon sequestration, the implementation focused incentives for reforestation, further developing tax credits for conservation easements, and providing information to landowners on the value of forestland are potential opportunities for creating more active forest landowners.

For a state forestry agency to be eligible to receive funding under the authorities of the Cooperative Forestry Assistance Act, each state is required to analyze forest conditions and trends and determine state priorities for meeting the national priorities. These State Forest Action Plan requirements come directly from the USDA – Forest Service.

There are three components to the assessment and planning required by the State & Private Forestry (S&PF) Redesign approach to identify priority forest landscape areas and highlight work needed to address national, regional, and state forest management priorities.

> **Statewide Assessment of Forest Resources** – provides an analysis of forest conditions and trends in the state and delineates priority rural and urban forest landscape areas.
>
> **Statewide Forest Resource Strategy** – provides long-term strategies for investing state, federal, and other resources to manage priority landscapes identified in the assessment, focusing where federal investment can most effectively stimulate or leverage desired action and engage multiple partners.
>
> **Annual Report on Use of Funds** – describes how S&PF funds were used to address the assessment and strategy, including the leveraging of funding and resources through partnerships, for any given fiscal year. Each State is required to complete a State Assessment and Resource Strategy within two years after enactment of the 2008 Farm Bill to receive funds under CFAA.

Stakeholder Groups Engaged

The Nature Conservancy was selected to assist in updating the Arkansas Forest Action Plan. Special thanks to Doug Zollner, Director of Conservation Science at The Nature Conservancy, for his role as facilitator at stakeholder meetings and coauthor of the update. Additionally, Rachel Worthen, GIS Specialist at The Nature Conservancy, conducted the GIS analysis that produced the Arkansas Forest Action Plan Priority Areas.

Under the umbrella of the National Priorities, a coalition of partners was assembled for three half-day meetings (See Appendix A for agendas and lists of attendees).

- The first meeting reviewed the most recent assessment of southern forests, i.e., Southern Forest Land Assessment 2018, and made conclusions as it pertains to Arkansas forests. The group then identified issues relevant to Arkansas forests.
- In the second meeting, the group constructed and ranked strategies to address issues, overall visions for these strategies, and desired outcomes for the Arkansas 2020-2029 Forest Action Plan.
- The third meeting was the annual gathering of the Arkansas Forest Stewardship Committee. The Committee was introduced to the strategic themes, the GIS analysis, and the next steps for the Plan.

To address the national priorities and recognized threats to the forests in Arkansas, the following strategic themes were selected in the group meetings and ranked as follows:

1. Collaborative Partnerships
2. Forest Management (Technical Assistance)
3. Water Supply Protection
4. Prescribed Fire
5. Wildfire Protection
6. Forest Health Monitoring
7. Certification of Privately Owned Forests
8. Urban and Community Forestry
9. Forest Policy

The finalized Arkansas Forest Action Plan Priority Areas were shared with and approved by the Arkansas Forest Stewardship Committee during their annual meeting on October 2, 2020 (Appendix A).

Priority Areas

One of the objectives of State Forest Action Plans is identification and delineation of priority landscapes to guide where to focus Forestry Division efforts. In the Arkansas 2020-2029 Forest Action Plan, there is not one single priority area theme. The Forestry Division wanted to create priority areas that were relevant to all forest stakeholders in Arkansas; therefore, all ownerships and their land use were considered in this analysis.

We used the updated Southern Forest Land Assessment (SFLA) layers developed by North Carolina for conducting a geospatial analysis for State Forest Action Plans. However, two changes were made to inputs as specified below:

- **HUC % Source Water** – We replaced the SFLA Priority Watershed and Public Drinking Water layer with this layer, which was previously developed by the Environmental Protection Agency to determine the percent area of HUC (Hydrologic Unit Code) 12 watersheds located in a surface water Source Protection Area (see Figure 1).

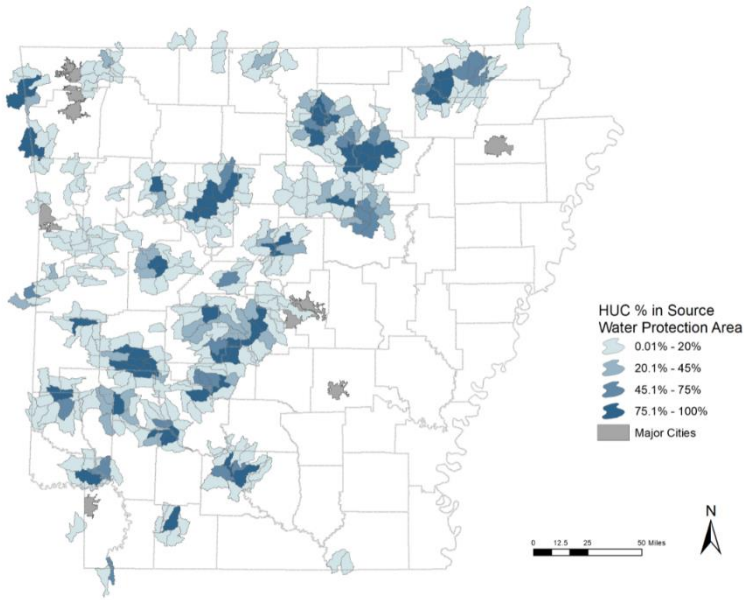


Figure 1: Hydrologic Unit Code 12 Watershed Percent in Surface Water Source Protection Areas

- **Slope** – Slope was dropped from the analysis because of lack of clear understanding of reason used.

First, the **SFLA Resource Priority** (see Figure 3, on next page) was produced by weighted overlay raster analysis. Before running the analysis, each layer was scaled from 0 to 100 (see Figure 2). Weights were assigned each layer such that they summed to 100 percent. To simplify the process, one set of weights was assigned across the entire state (instead of by ecoregion). Overlay analysis produced a raster layer where priority was calculated for each 30-meter pixel.

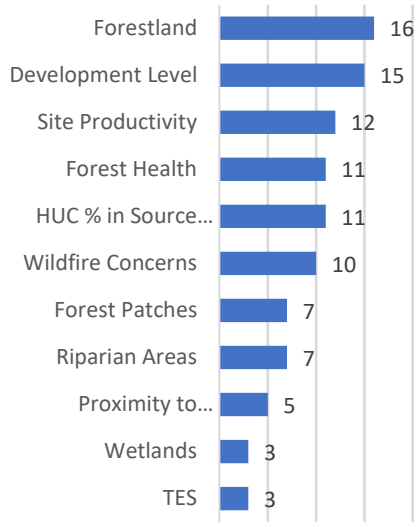


Figure 2: Reassigned Weights for Southern Forest Land Assessment (SFLA) Inputs

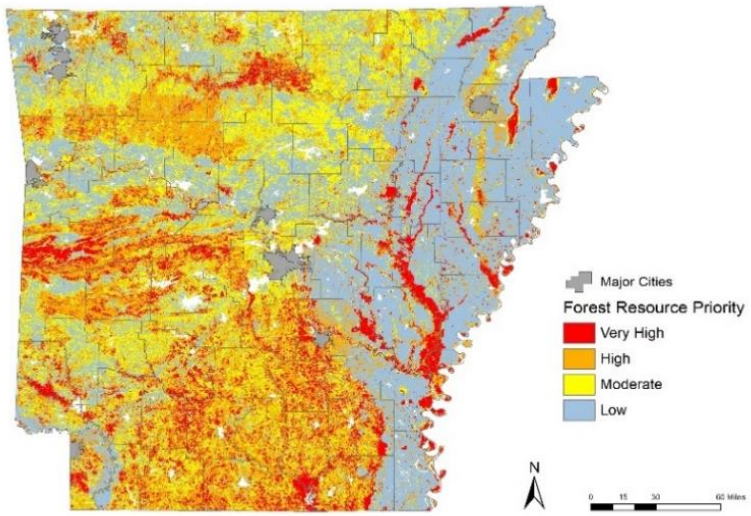


Figure 3: SFLA Forest Resource Priority (by 30-meter Raster)

The Arkansas Forest Action Plan recognizes "specific" geographic areas presented as polygons. Therefore, rather than assigning priority levels to county-level boundaries, the decision was made to assign priority to watershed boundaries. HUC 10 watershed means were calculated (Zonal Statistics) to produce a map of **Resource Priority by HUC 10 Watersheds** (Figure 4).

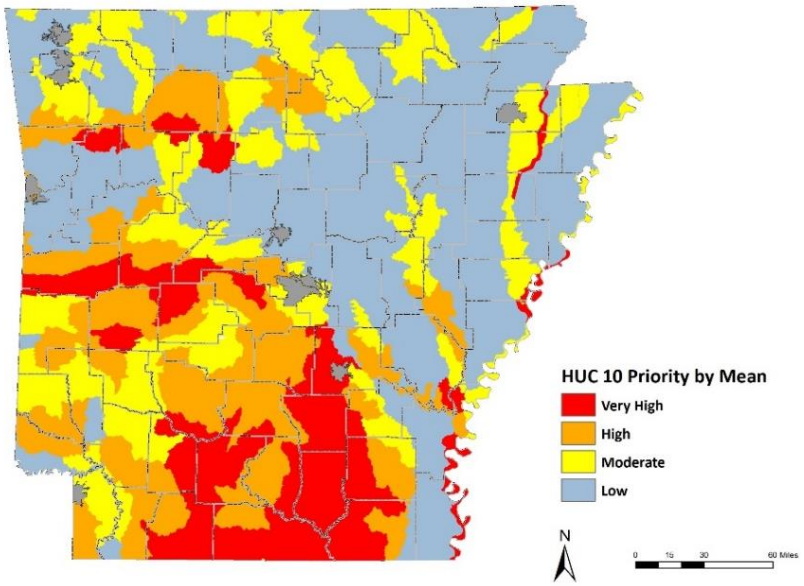


Figure 4: Resource Priority by HUC 10 Watersheds

The Zonal Statistics Tool calculates statistics on values of a raster within zones of another dataset. A single output value is assigned for every zone in the input data set. For both the SFLA Resource Priority (by 30-meter Raster) map and the Resource Priority by HUC10 Watersheds map, Natural Breaks was used to divide the priority values into five classes with the lower two classes combined to the Low ranking (i.e., Very High, High, Moderate, and Low).

Due to the substantial area of southern Arkansas that fell within the Moderate, High, and Very High priority levels, a decision was made to reclassify the priority levels in the South Central Plains Level III Ecoregion. The Moderate and High priority levels were reclassified to Low priority in this ecoregion, leaving only Very High as shown in a map titled **Reduction of Priority Area in the South Central Plains Level III Ecoregion** (see Figure 5).
For the last step in the process, all watersheds with very high, high, and moderate priority level

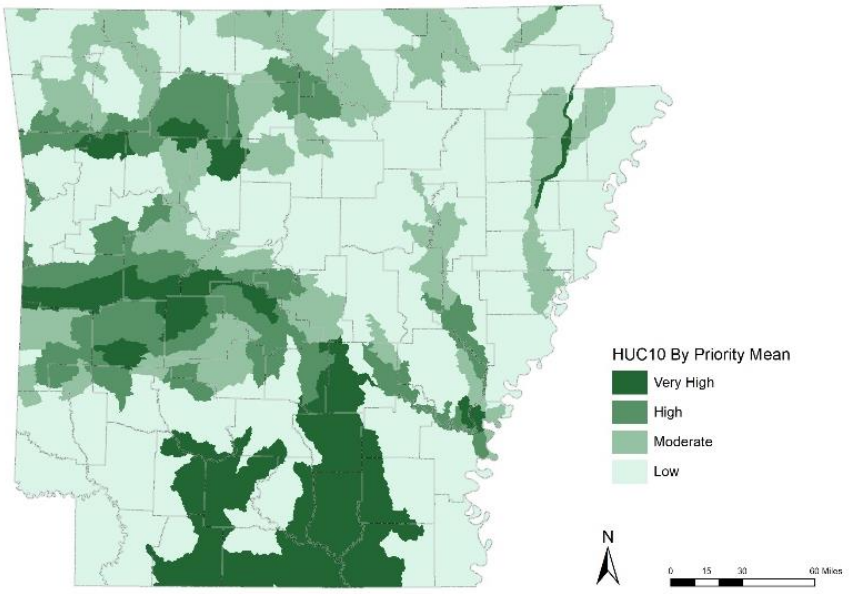


Figure 5: Reduction of Priority Area in the South Central Plains Level III Ecoregion

were combined into one statewide priority area. Additionally, seven HUC 10 watersheds were added based on expert opinion of specific areas designated important to the Forestry Division's mission and watersheds identified as important to source water protection. The following HUC 10 watersheds were added: Greers Ferry Lake (1101001406), Big Creek – Little Red River (1101001407), Poke Bayou (1101000405), Lower Cadron Creek (1111020503), Upper Cossatot River (1114010905), Prairie Creek – Little Missouri River (0804010305), and Outlet Sulpher River (1114030207).

The resulting polygon layer is the **Arkansas Forest Action Plan Priority Areas** (see Figure 6). This layer simultaneously determines the boundaries of the Forest Stewardship Program Priority Areas, which is restricted to less than 50% of the statewide eligible forested acres (i.e., privately-owned, non-industrial forests). Participation in the Forest Stewardship Program is voluntary, and

the program is designed to provide technical assistance and multi-resource Forest Stewardship Management Plans to non-industrial private landowners.

To create the map of the **Arkansas Forest Stewardship Priority Areas** (see Figure 7), the non-forested condition, public land (including the National Forests and state property), industry land, and tracts less than 10 acres were removed from the **Arkansas Forest Action Plan Priority Areas**. The U.S. Forest Service encourages states to utilize Forest Stewardship Program funding on priority areas of the state; therefore, our analysis identifies this priority as "High Stewardship Potential" and the remaining eligible land is labeled "Stewardship Potential." The result is 5,390,46 acres designated as "High Stewardship Potential." Figure 8 combines the Arkansas Forest Action Plan Priority Areas and the "High Stewardship Potential."

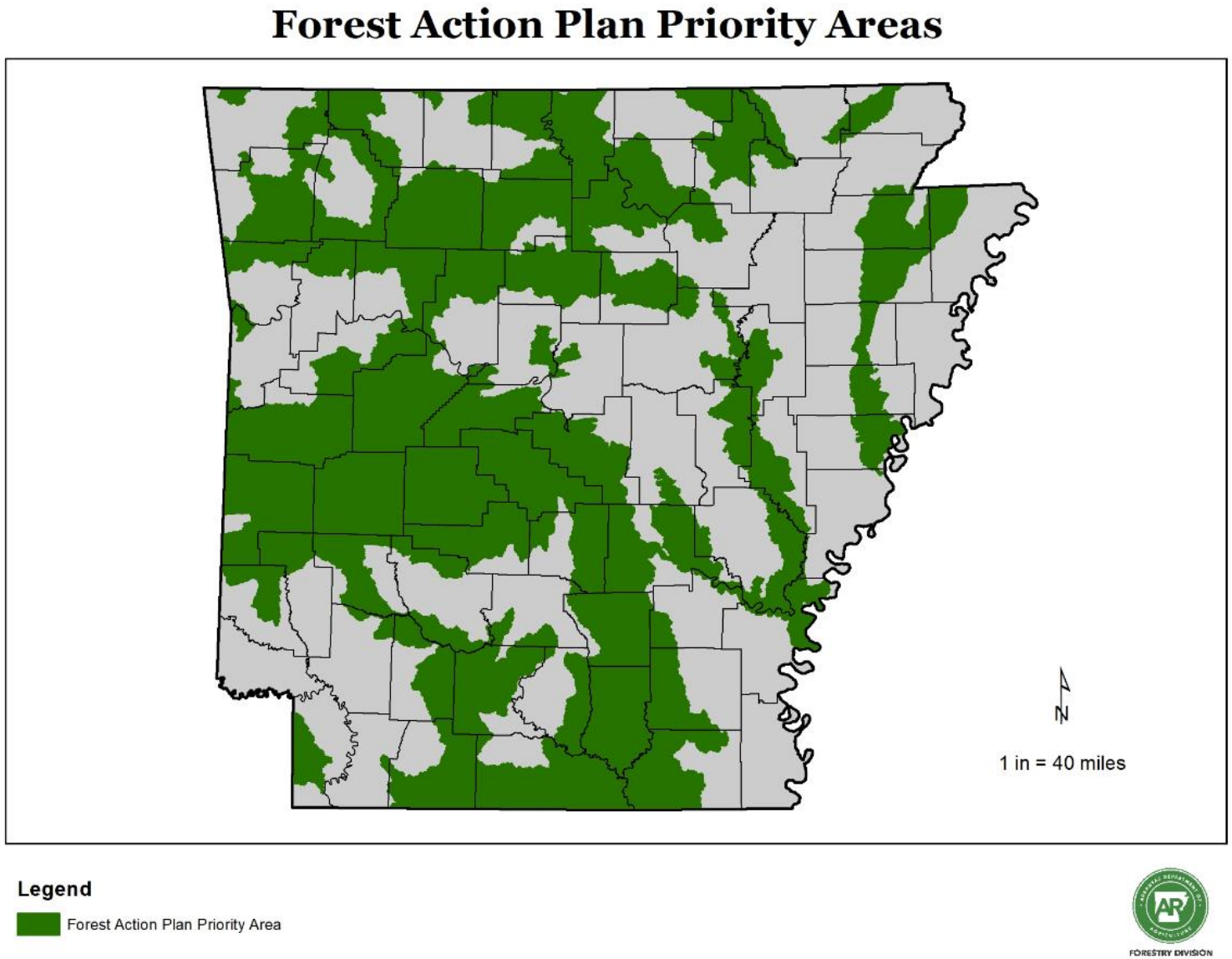


Figure 6: Arkansas Forest Action Plan Priority Areas

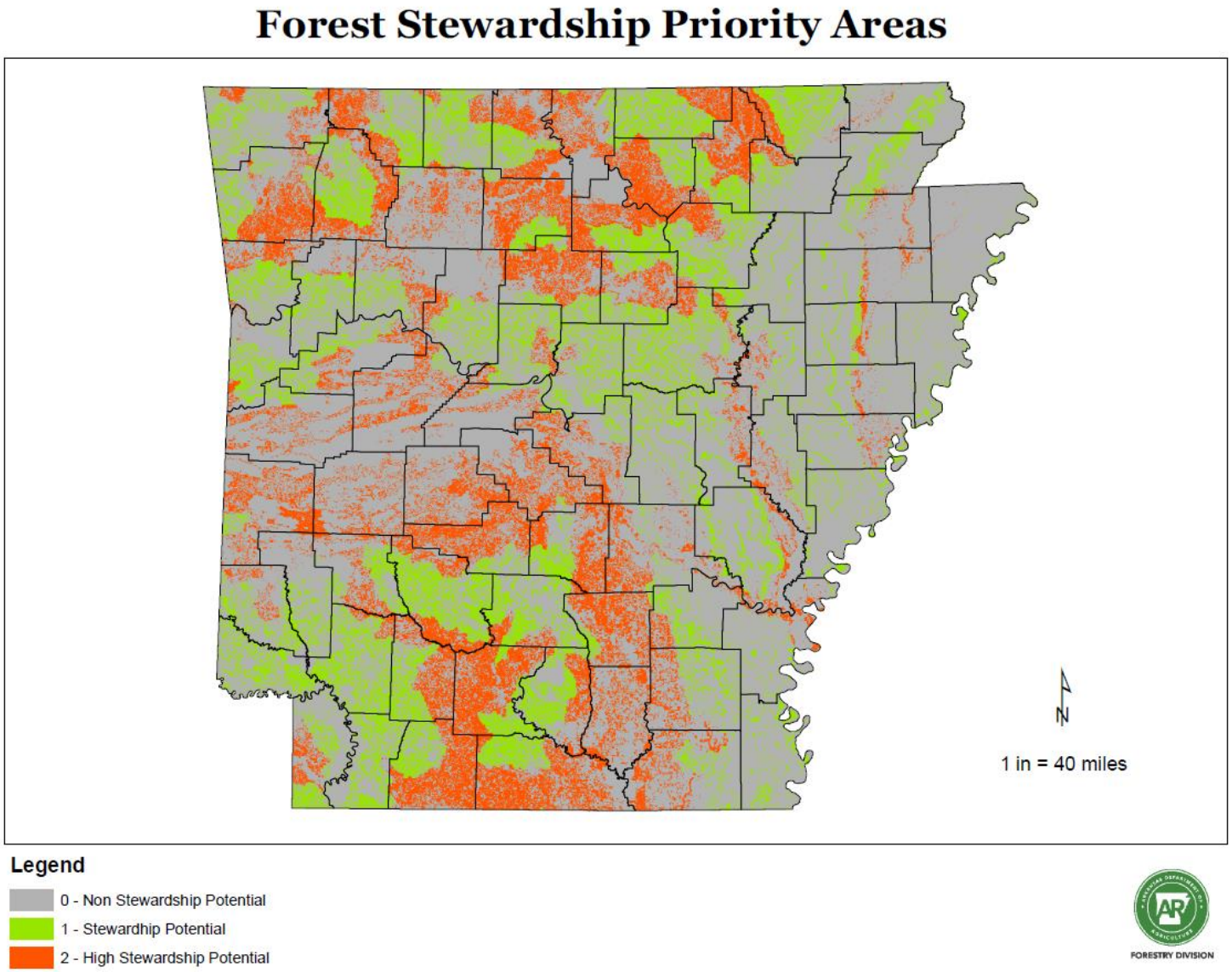


Figure 7: Arkansas Forest Stewardship Priority Areas

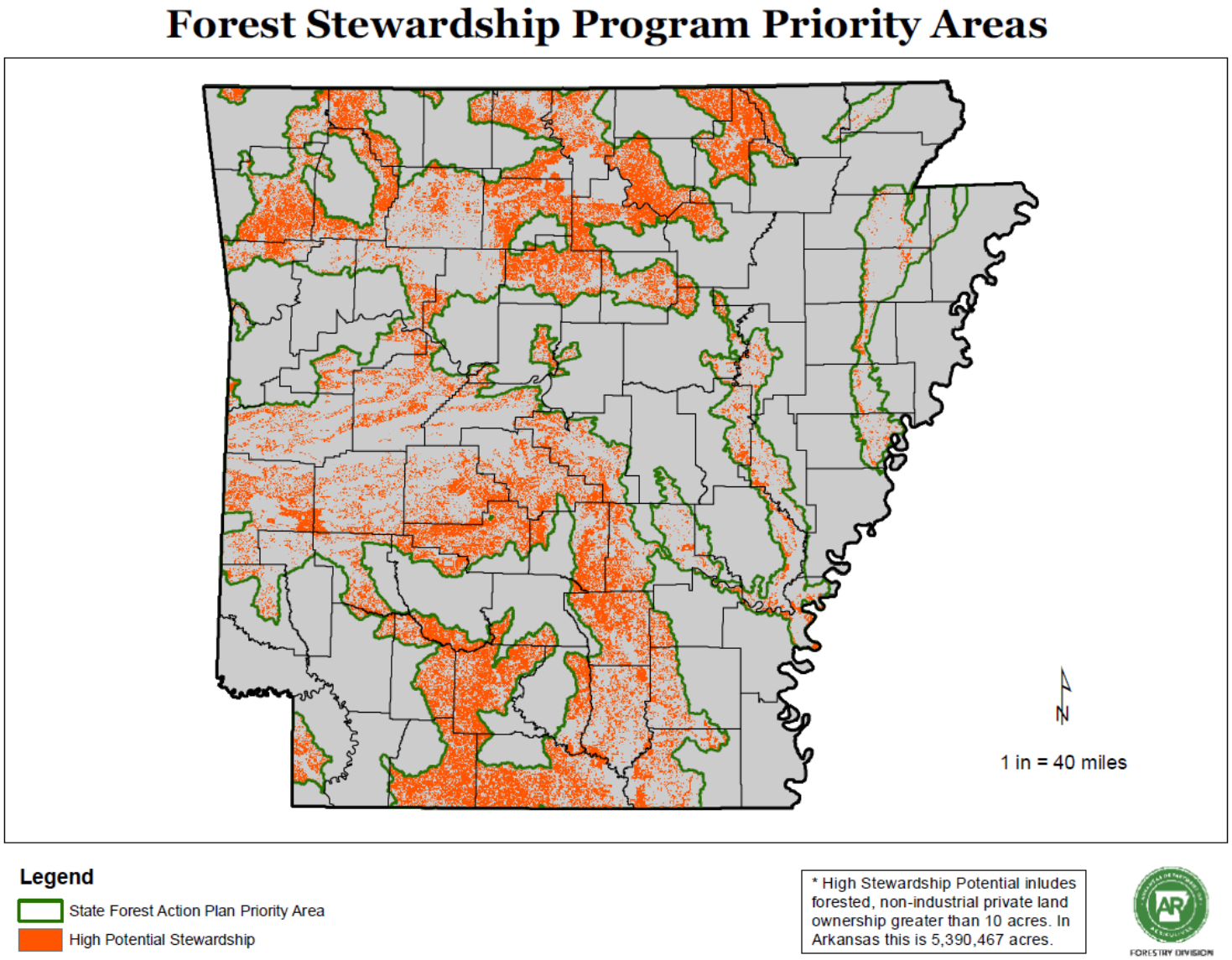


Figure 8: Forest Stewardship Program Priority Areas Combined with the Outline of the State Forest Action Plan Priority Areas.

Conditions and Trends of Forest Resources in Arkansas

The Forest Legacy Program Assessment of Need for the State of Arkansas (Jolley 2009) was not updated for the Arkansas 2020-2029 Forest Action Plan. Many key findings from that document are included or updated in this section.

Historical Forest Resource Conditions

When the English naturalist Thomas Nuttall journeyed across Arkansas in 1819, he saw a vast wilderness. There were extensive tall grass prairies, pine woodlands, and large areas covered by massive bald cypress and bottomland hardwoods at that time - landscapes teeming with wildlife like the Carolina parakeets, greater prairie chickens, and red wolves. Nearly two centuries later, much of what Nuttall observed has been changed, with tall grass prairies converted into agricultural fields, old-growth forests cut-over and replaced with pine plantations, and free-flowing rivers dammed and channelized. Prior to extensive land clearing and conversion, forests covered an estimate 96 percent of the state Arkansas.

The following excerpts were selected from the writings of Dr. John Gray, a forest policy consultant working with the Arkansas Forestry Association (1993):

> *"…in the 1880s … the state's rail network was expanded from 800 to 2200 miles of track. This not only provided access to a much greater proportion of forest, but also connected rail lines to major lumber markets in Midwestern and eastern cities.*
>
> *Large lumber companies from the Lake States and Midwest, backed by northern capital, moved here, bought up large tracts of timber, built mills, and began large scale liquidation harvesting. From 1879 to 1909, the peak production year of, what might be termed, the "Pre-Forestry Exploitation Era", Arkansas lumber production increased twelve-fold. In 1909, the lumber industry employed 73 percent of all factory wage earners in Arkansas. However, by the end of the 1920s; the initial timber-harvesting boom was over. Many of the big mills had closed up completely or closed up here and moved west. Small, portable type mills moved in, able to operate on the scattered, smaller trees left behind. The state's first pulp and paper mill, International Paper Company in Camden which opened in 1928, was also able to use the smaller timber remaining.*
>
> *The first field survey of Arkansas forest conditions, an informal one in 1929, found the situation grim. Of the 22 million total acres of land remaining in forest at that time (65 percent of the total land area), 20 million had been cut over. Though 85 percent of the harvested area was naturally reseeding or resprouting, 70 percent of this had been severely damaged by wildfires. In that survey year 11,000 such fires burned 2 1/2million acres - more than 11 percent of the total forest in just one year.*
>
> *…over the 1930s and 1940s a substantial recovery occurred as a result of several factors. First, not all of the forest products companies that came here during the*

exploitation era "cut out and got out." A number of the more far-sighted ones … began taking steps to assure a continuing supply of timber ("sustainable forestry") from their own lands. These included providing fire protection, selective logging, and reserving parent trees (“seed trees") to reseed areas after a final harvest. A major beginning had been made in public forest ownership and conservation in 1907 and 1908 when an initial 1,100,000 acres of federal public domain land in the Ouachitas and Ozarks were dedicated as the Ouachita and Ozark National Forests. Almost immediately the newly created U.S. Forest Service began providing protection from fire, trespass and timber theft to these lands, in 1930, the Arkansas Forestry Commission was established. One of its major goals was to bring all non-federal forestland under state-provided forest fire protection.

…the first statewide, systematic survey of Arkansas forest conditions … was conducted by the Southern Forest Experiment Station of the U.S. Forest Service over 1947 to 1951 and published in 1953. Follow- up surveys have been conducted approximately at ten year intervals since then. The 1953 report showed that, although 2 1/2 million acres of forestland had been lost since 1929 to other uses (mainly to farm expansion in the Delta), overall timber supply sustainability had been reached. Yearly pine growth was 13 percent greater than removals; the yearly hardwood growth surplus was a whopping 63%. And fire protection was proving effective. Only 90,000 acres were being lost yearly on the 60 percent of the forest under state protection in the late 1940s.

The 45 years from around 1950 to the mid-1990s were marked by major increases in demand for all forest values. There was explosive growth in forest-related outdoor recreation especially, but not exclusively, on the 19 percent of the total forest in public ownership in 1995. From 1948 to 1998, there was an 86 percent increase in hunting licenses and a 132 percent increase in fishing licenses issued in Arkansas by the Arkansas Game and Fish Commission. In 1995-96, the two National Forests were providing nearly 4 million recreation visitor days per year. This plus growth in travel and tourism made the appearance of forests and forest operations - natural beauty or the lack of it - an important factor and a public issue. Over a recent 20-year period, water use in Arkansas increased by 200 percent and was expected to increase by another 140 percent by the year 2030. This has focused attention on the watershed protection effectiveness of forests and the adequacy and application of voluntary "Best Management Practice Standards" to minimize non point source pollution of takes and streams from logging and other forest operations under provisions of the national Clean Water Act of 1972. Along with these there was a strong increase in demand for lumber and other wood products. From 1950 to 1987, Arkansas lumber production increased by 54%; from 1953 to 1997, pulpwood production for Arkansas' eight pulp and paper mills quadrupled. The 1995 Forest Survey Report showed that altogether, the yearly timber harvest had increased by 72 percent since the 1953 Report.”

Arkansas was thoughtfully labeled as “The Natural State” in a 1982 marketing campaign. This designation properly alluded that ecotourism was primed for growth in the state. As growth continues, there is an excellent opportunity for the preservation of forested ecosystems. This

vast forest resource was and will always be valued for outdoor recreation, forest products industry, wildlife, water quality, and aesthetics.

Present Forest Resource Conditions

Currently, 67 percent of forestland is non-industrial private ownership and 14 percent is industry owned. The remaining 19 percent is protected by federal and state agencies.

The Forest Inventory and Analysis program collects data from about 5,700 permanent research plots. The Forestry Division employs inventory specialists that visit these plots to quantify tree size, species composition, stand structure, volume, tree health, and biomass. According to data collected as recently as 2019, 18.9 million acres of the state is forested, amounting to 56% of the state's land area. Since 1978, forestland has increased by 1.6 million acres. Forest type composition by area is 40 percent oak-hickory, 32 percent pine, 16 percent bottomland hardwood, 10 percent oak-pine, and two percent cedar. The state features many distinct landcover types, which align with Arkansas's geology (Figure 9).

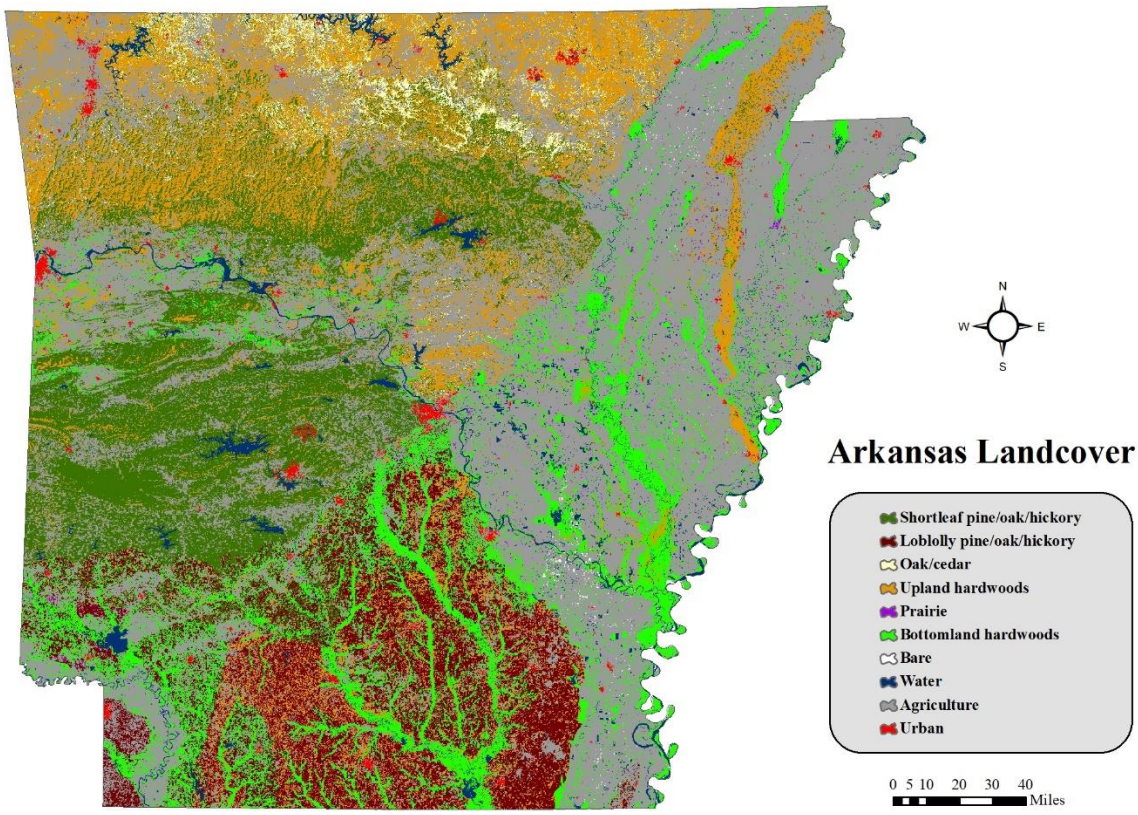


Figure 9: Arkansas Landcover

Pine volumes account for 38 percent of the state's total tree volume, whereas hardwood volume accounts for 58 percent of the state's total tree volume. In the 2019 U.S. Forest Service Resource Update, Loblolly pine, *Pinus taeda*, is Arkansas's most abundant tree species by volume with 9,128.6 million cubic feet (Rosson 2020). Shortleaf pine, *Pinus echinata*, ranks second in volume with 4,060 million cubic feet, and white oak, *Quercus alba*, ranks third in volume with 3,032.9 million cubic feet.

The average annual increase in pine timber growth exceeds the decrease due to removal (Figure 10). A similar relationship between growth and removal exists for hardwood as well (Figure 11). This pattern indicates a forest resource that is growing at a steady pace and timber harvesting is not causing a reduction in statewide timber volume. It is important to note that growths are not a direct result of additional forest area, so this growth appears to reflect an aging timber resource.

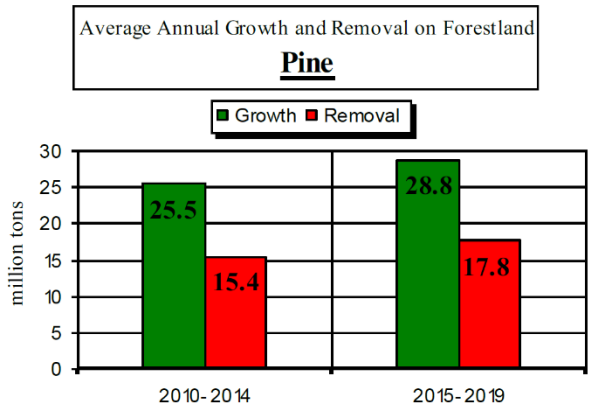


Figure 10: Pine Annual Growth and Removal

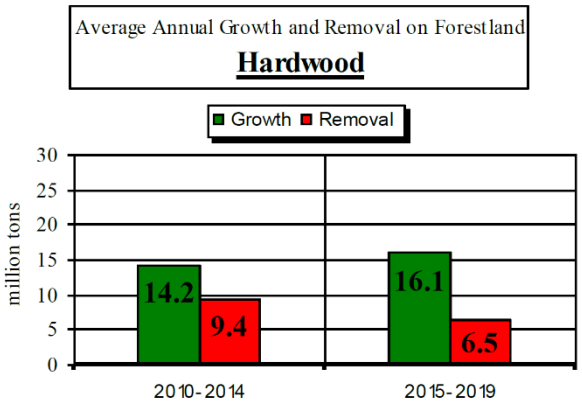


Figure 11: Hardwood Annual Growth and Removal

Arkansas Ecoregions

To better understand the natural division of ecosystems and forest types found within Arkansas, the state can be categorized into distinct ecoregions (Figure 12). The Arkansas Ecoregions were developed by the Environmental Protection Agency with direct contribution and authorship from the Arkansas Natural Heritage Commission (ANHC) and several other state agencies. The maps and accompanying descriptive text and summary tables were originally developed by the U.S. Geological Survey. There are seven Level III Ecoregions in Arkansas. Thorough descriptions of the geology and habitats found within each ecoregion can be referenced in the Arkansas Wildlife Action Plan (AWAP). The following summaries were adapted from information in the AWAP (Foster 2015) and the Forest Legacy Program Assessment of Need (Jolley 2009).

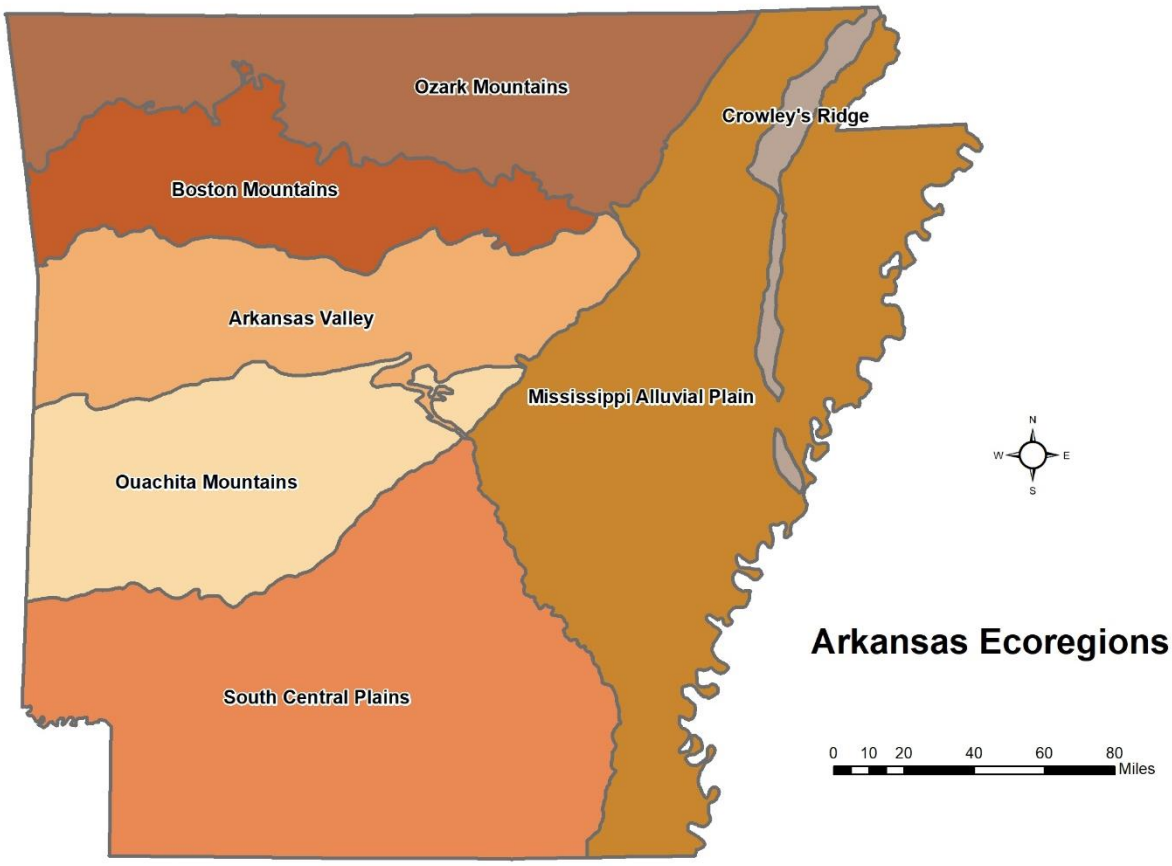


Figure 12: Arkansas Level III Ecoregions

Boston Mountains

Part of the Ozark Mountains, the Boston Mountains feature some of the steepest topography in the state. Uplands are dominated by white oak, northern red oak, southern red oak, and hickories while shortleaf pine can be found on dry, sandy slopes. Floating rivers and visiting waterfalls are favorites of recreation enthusiasts to this ecoregion.

South Central Plains

The South Central Plains, also known as the Central Plains, are a rolling lowland. Bottomland hardwood forests can be found along several large rivers in the region. The ecoregion's sandy soil and abundant rainfall support softwood timber production, and loblolly pine (*Pinus taeda*) is easily the most abundant species by volume in this ecoregion. Open pine flatwoods of this ecoregion have recovery potential for populations of red-cockaded woodpecker. The 16,000-acre Moro Big Pine Natural Area Wildlife Management Area and the 65,000 Felsenthal National Wildlife Refuge feature impressive flatwood ecosystems that once dominated parts of the ecoregion. Unique landforms also exist here, such as the White Cliffs Natural Area, a 100-foot white chalk bluff rich in fossils from the Cretaceous period that were exposed by the Little River.

Ouachita Mountains

A continuation of the Appalachian Mountains, the Ouachita Mountains feature long east-west ridges and wide valleys. Oak-hickory-pine and loblolly-shortleaf cover types dominate this ecoregion while grassy woodlands can be found on dry slopes. This ecoregion features the greatest abundance of shortleaf pine (*Pinus echinata*) in the country. Hot springs flowing from the lowers slopes of Hot Springs Mountain have provided therapeutic bathing for visitors since the early 20th century.

Crowley's Ridge

Formally known as the Mississippi Valley Loess Plains**,** Crowley's Ridge is 150 miles long and sits 200 feet above the delta that surrounds it. This ecoregion was formed by windblown silt deposits (called loess) and subsequent erosion, making it very distinct from the other upland ecoregions. Forests are composed of various oaks, beech, and maple trees with pines on sandier soils. In Arkansas, Crowley's Ridge is the only place where tulip poplar (*Liriodendron tulipifera*) is considered native, but the species can grow and establish in other areas of the state.

Arkansas Valley

The Arkansas Valley consists of plains, floodplains, and scattered ridges and flat-topped mountains. The highest point in the state is Mount Magazine at 2,753 feet, and it is one of a handful of mesas that were once connected to the Ozarks. Another popular landmark is Petit Jean State Park, Arkansas's first state park, which has historical and cultural significance and features some amazing natural attractions. The current forests in this region are dominated by oaks, hickories, and shortleaf pine. Open woodlands occur on the driest sites. In the past, bottomland hardwood forests were plentiful in this ecoregion along the Arkansas River, but most have been converted to cropland and pastureland. Where the bottomland forests remain, they are dominated by oak, sycamore, cottonwood, ash, willow, and elm. In the western area of this ecoregion, the native landscape included scattered oak-pine savannahs with prairie. Since conversion to hay field and pasture, the natural prairies diminished substantially, but some efforts are now being made to restore the important prairie and savannah ecosystems that once thrived here.

Mississippi Alluvial Plain

Also known as the delta, the Mississippi Alluvial Plain is a broad, flat, agriculturally dominated area of Arkansas. Southern floodplain forests are found here with the bald cypress-water tupelo forest type in the wettest areas. Upland forests containing oaks and loblolly pine are also present. The flooding of the low-lying forests provide habitat for waterfowl, creating a destination for duck hunters from all around the world.

Ozark Mountains

Though not as mountainous as the Boston and Ouachita Mountains, the plateaus and dissecting waterways create a varied landscape with numerous, small valleys. Many karst features, such as caves, sinkholes and underground drainages are common in the Ozark Mountains. Oak-hickory forests dominate forested areas while shortleaf pine and cedar

glades can be found on the thinnest soils. This area is well known by outdoor recreation enthusiasts as it contains several popular lakes and beautiful waterways, such as the Buffalo National River and White River. Urban development and parcelization is recognized as one of the most significant issues, especially inrapidly growing Northwest Arkansas.

Ecoregions and the Arkansas Wildlife Action Plan

The Arkansas Wildlife Action Plan identified the "species of greatest conservation need" (SGCN) found in each ecoregion (Fowler 2015). Each SGCN was assigned a priority score based on conservation concern and available actions. Table 1 below shows the total SGCN and the average priority score in each ecoregion.

Ecoregion	Total SGCN	Average Priority Score
Ozark Mountains	218	30
South Central Plains	170	28
Ouachita Mountains	164	29
Boston Mountains	160	29
Arkansas Valley	161	26
Mississippi Alluvial Plain	146	24
Mississippi Valley Loess Plain	51	20

Arkansas Wildlife Action Plan

The Arkansas Wildlife Plan (AWAP), formerly known as the Comprehensive Wildlife Conservation Strategy, was develop in 2007 by a coalition of partners headed by the Arkansas Game and Fish Commission. The 2007 version was incorporated in the Arkansas Forest Action Plan of 2010. The AWAP was updated in 2015 with a refined list of habitats. The AWAP is now going through a process to map significant focal habitats called Conservation Opportunity Areas (COAS) to focus conservation implementation. This effort will be completed in 2021. The draft AWAP map overlaps with the Arkansas 2020-2029 Forest Action Plan Priority Areas by more than 90%.

Additional information and a copy of the AWAP plan can be found on the website. (www.wildlifearkansas.com)

The AWAP identifies and prioritizes important wildlife habitats for protection and restoration. These priorities can change during biennial reviews. The current priority score based on animal species occurrences and ranks for forest types can be found in the table below.

Habitat Name	**Total Priority Scores**
Ozark-Ouachita Riparian	3778
Ozark-Ouachita Mesic Hardwood Forest	2586
Ozark-Ouachita Dry Oak and Pine Woodland	2226
West Gulf Coastal Plain Calcareous Prairie and Woodland	1733
Ozark-Ouachita Pine-Oak Forest/Woodland	1650
Ozark-Ouachita Large Floodplain	1551
West Gulf Coastal Plain Large River Floodplain Forest	1213
Lower Mississippi River High Bottomland Forest	1177
West Gulf Coastal Plain Small Stream/River Forest	1170
Lower Mississippi River Riparian Forest	1138
Ozark-Ouachita Dry-Mesic Oak Forest/Woodland	1070
Lower Mississippi Flatwoods Woodland and Forest	1053
Lower Mississippi River Low Bottomland Forest	1034
West Gulf Coastal Plain Red River Floodplain Forest	926
Ozark-Ouachita Pine-Bluestem Woodland	872
West Gulf Coastal Plain Pine-Hardwood Flatwoods	702
Ouachita Montane Oak Forest	625
Crowley's Ridge Loess Slope Forest	605
West Gulf Coastal Plain Pine-Hardwood Forest/Woodland	581
Lower Mississippi River Bottomland Depression	564
West Gulf Coastal Plain Wet Hardwood Flatwoods	450
West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine	421

Overlap between the AWAP and the Forest Action Plan occurs in three main areas.

1. The AWAP recognizes healthy forests as critical to the maintenance and improvement in wildlife populations. It also recognizes that many forest habitats need management and that no management is a threat to forest health. For instance, CWCS promotes forest management activities that reduce stem density, increase the use of prescribed fire, and retain large diameter trees and snags in forest stands.

2. The AWAP identifies poor forest management as a threat and promotes the use of best management practices, especially in the protection of water quality and preservation of aquatic habitats.

3. The AWAP identifies many of the same threats to forests as the Arkansas Forest Action Plan including invasive species, increased forest density, conversion, lack of fire management, and urbanization.

The Arkansas Wildlife Action Plan determines habitat priorities on two-year intervals. The AWAP priorities for 2021-2023 are:

Arkansas River Valley Prairies and Woodlands
Blackland Prairie and Woodlands
Ozark Highlands Glades and Woodlands
Northwest Arkansas Karst

In summary, the AWAP is compatible with the Arkansas 2020-2029 Forest Action Plan, and they will in fact need each other to implement forest management activities that would gain through a synergy that would be greater than the two plans working separately.

Threats to Forested Lands and Resources

The Forest Legacy Program Assessment of Need for the State of Arkansas (Jolley 2009) was not updated for the Arkansas 2020-2029 Forest Action Plan. Many key findings from that document are included or updated in this section.

Under the umbrella of the National Priorities, a coalition of partners (See Appendix A) was assembled for three, half day meetings in 2019. Members of this coalition have participated in other forest assessments and plans (e.g., Arkansas Statewide Forest Resource Assessment and Strategy of 2010, Forest Legacy Program Assessment of Need, Arkansas Wildlife Action Plan) and are familiar with the conditions and setting for the Arkansas Forest Action Plan. As a result of the meetings, threats to Arkansas forests were recognized and opportunity areas were identified.

Recognized Threats

The coalition agreed that the threats to forestlands had not significantly changed in the last 10 years. Many of these threats are interconnected, such as the effect of poor timber markets on forest health. According to the Southern Forest Futures Project (Wear and Greis 2012), "the interaction of population growth, climate change, timber markets, and invasive species will define the South's future forests." The National Priorities that correspond with each threat are recognized.

1. **Urbanization**

   Urbanization is expected to cause forest losses, increased carbon emissions, and stress to the other resources like wildlife and drinking water (Wear and Greis 2012). The Forest Legacy Areas (Figure 13) remain as the areas determined to be at risk from urbanization, fragmentation, and parcelization. **National Priority number one.**

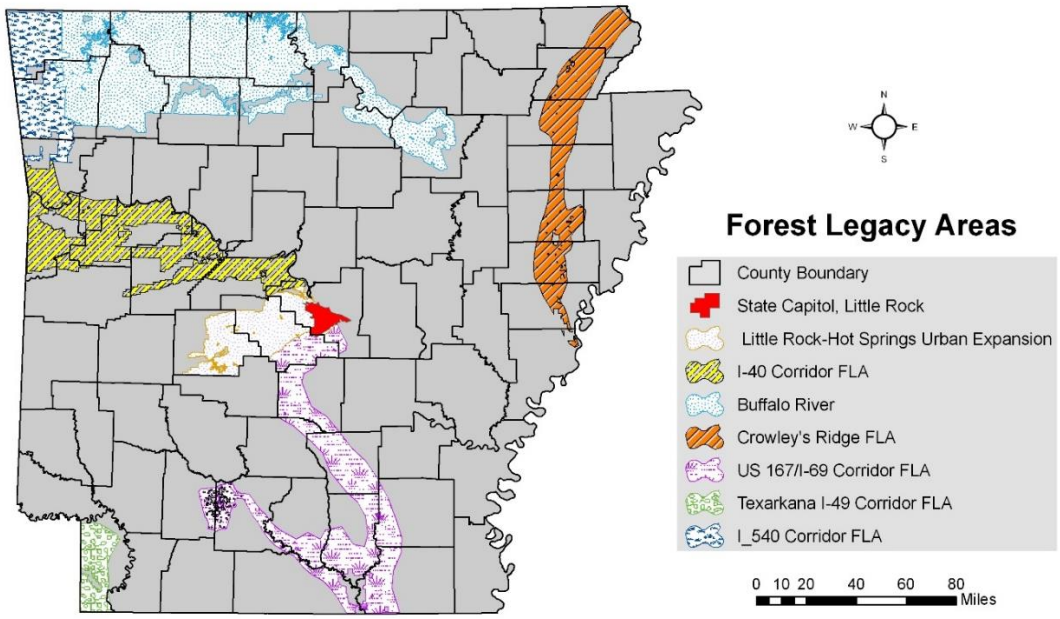


Figure 13: Arkansas Forest Legacy Areas

Urbanization within the I-540 Corridor Forest Legacy Area (FLA) has increased substantially. In fact, the growth in the Northwest Arkansas area has been ranked within the top-10 nationally for over 15 years. At the edges of urbanization, private landowners are selling land at prices that make managing forested land look like a bad investment. Likewise, timber companies are rapidly selling off their land in the Little Rock – Hot Springs Urban Expansion FLA as real estate values have enticingly increased. Due to the proximity of public drinking water supply watersheds near urban areas and the attractiveness of living on a lake, important watersheds are at risk to conversion, fragmentation, and parcelization. This is especially true for drinking water sources found in the Buffalo River FLA, which includes the Beaver Lake and Illinois River Watersheds. **National Priority number one and two.**

According to Forest Inventory and Analysis estimates, approximately 3.7 million acres of forest are under stable long-term ownership in Arkansas, which is 19 percent of forestland in the state. This includes federal and state ownership (Figure 14). Arkansas contains the largest National Forest area in the South with over 2.5 million acres within the Ozark-St. Francis and Ouachita National Forests. The Forest Legacy Program aims to increase protected forestlands in key areas of the state. **National Priority number one.**

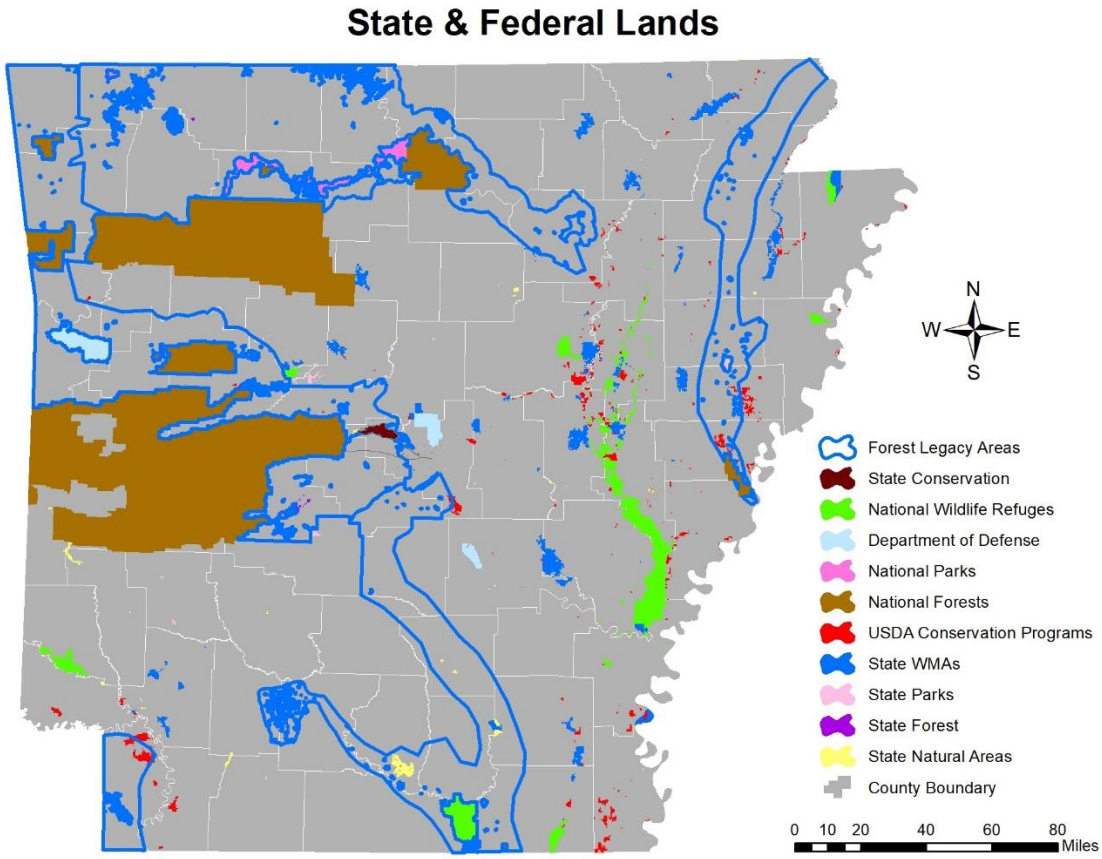


Figure 14: Protected State and Federal Lands and Adjacent Forest Legacy Areas

To reduce the threat of urbanization, parcelization, and land use changes, the protection of forests will benefit an increasing population that will use the natural spaces for recreation and ecotourism. **National Priority number three.**

2. **Unmanaged Forest Property**

In rural areas of the state, absentee ownership, transfer of ownership to heirs, second home development, and delay of forest management practices are all considered ongoing threats to healthy forests. The recent pandemic seems be increasing the trend. Many of the newer landowners do not have the information or background that would make them consider forest management necessary or desirable. **National Priority number one.**

Lack of forest management was recognized as one of the most serious challenges in keeping forests as forest. Understanding landowner background and objectives is key to reversing the trend toward no management. **National Priority number one.**

Tree density in forests is too high. Since settlement the average number of trees per acre has increased from 70 to over 150 in the Ozarks. Similar increases in density can be found in other areas. Timber volumes have increased in each of the Forest Inventory and Analysis

reports over the last 20 years. High tree density can lead to low resilience to biological disturbances like insect and disease outbreaks. **All three National Priorities.**

Interim timber management activities often need to remove small, low value wood products from the forest to maintain canopy tree growth and healthy forest structure. However, marketability of small diameter trees is poor in Arkansas due to increasing supply and lower demand. Additionally, in conventional timber management, smaller parcel sizes are less desirable for timber harvests and silvicultural practices. **Efforts to improve marketability relate to National Priorities one and three.**

3. **Water Supply Forest Conservation**

For water supply protection, forest management is important. Water quality can be directly influenced by forest health issues such wildfire, insects and disease, and non-native species impacts. Riparian forests are particularly important in maintaining water quality in Arkansas rivers and streams. The conservation of riparian forests and corridors and using best management practices for water quality to decrease run-off and pollution are critical steps in keeping our waters clean and retaining the ability to manage forests desirable to the public. **National Priority number three.**

A concern for increasing populations is water stress, i.e., the ratio of water demand to water supply (Liu and others 2020). The problem is exacerbated with issues arising from variable weather patterns and climatic changes, such as the frequency and severity of drought. Furthermore, growth of population will increase water demand and cause the parcelization and reduction of forests, which may degrade water quality (Wear and Greis 2012). Public drinking water systems are mindful of the role that forested watersheds provide. Federal and state agencies play a substantial role in fostering sustainable management of these forested watersheds. About 43.7 percent of surface water in Arkansas originates in state and private ownership, and surface drinking water sources serve approximately 61.1 percent of the total population (Liu and others 2020).

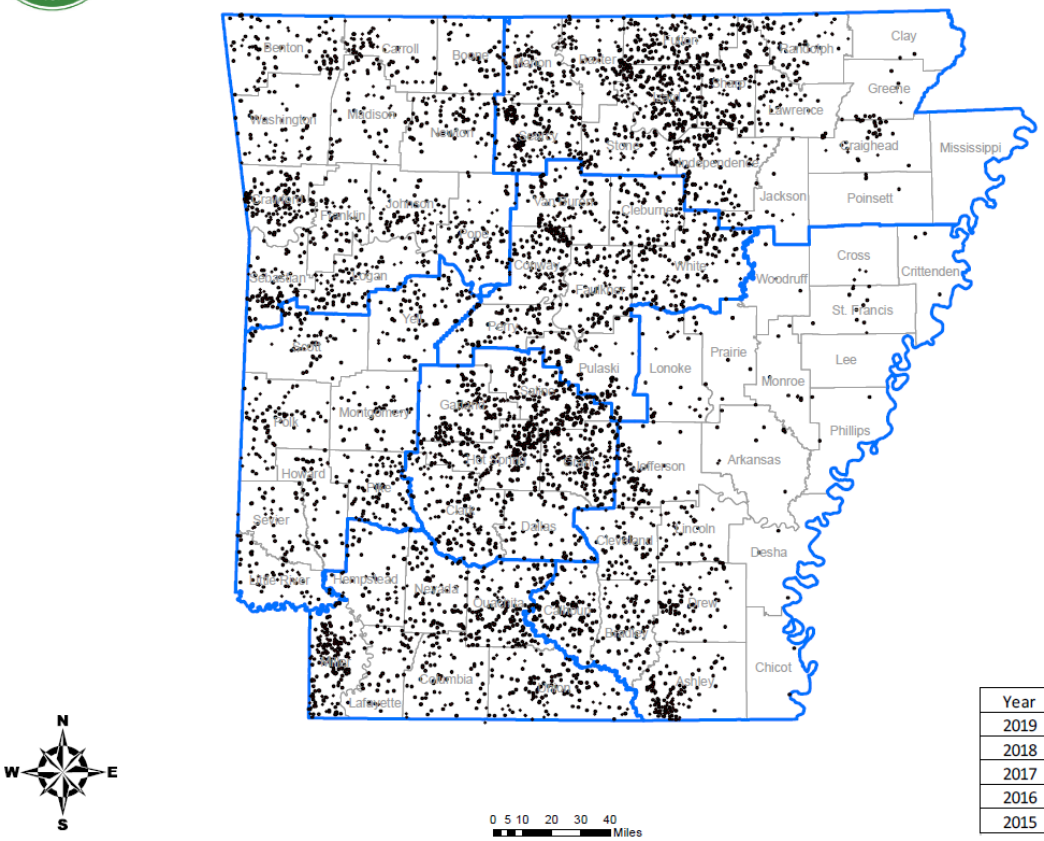
4. **Climate Challenges**

Climate change, in the context of Arkansas forests, can be described as conditions that are more volatile and extreme than the forests of Arkansas are adapted to. More intense rain events, longer drought periods, and warmer winters can cause changes in forest resiliency. Lower resiliency creates openings for catastrophic wildfires, insect and disease outbreaks, and increased storm damage. **National Priority number two.**

Direct climate driven changes, such as extended spring and autumn fire seasons, may lead to hotter and larger wildfire events. Though forecasts of fire potential are uncertain, climate changes coupled with increased development in the wildland-urban interface are expected to create significant challenges in public safety (Wear and Greis 2012). **National Priority number two.**

5. Community Wildfire Protection

Fire as a natural disturbance has been an integral part of Arkansas' forests for thousands of years. Many of the forest types in Arkansas need to receive fire periodically in order to remain healthy. At the same time, timber resources and rural populations need to be protected from wildfire. The Department of Agriculture – Forestry Division manages the Rural Fire Protection Program to aid communities and local fire departments with protecting lives and controlling wildfires. For context, the following map shows the locations of wildfires between 2015 and 2019 (Figure 15). **National Priority number two.**



Year	# Fires	# Acres
2019	585	7,648
2018	970	18,861
2017	1,566	27,549
2016	1,248	19,125
2015	1,177	14,654

Figure 15: Locations of Wildfires between 2015 and 2019

There has been a continual increase in homes and other developments in the wildland-urban interface that increases the wildfire risk to people; therefore, Community Wildfire Protection Plans (CWPP) are more important than ever to improve safety for Arkansans. The Arkansas Department of Agriculture – Forestry Division works directly with communities to create action plans for wildfire mitigation, also known as Firewise USA Communities. As of 2020, 110 communities have a CWPP (Figure 16). There is a need for expanding the CWPP coverage and updating current plans.

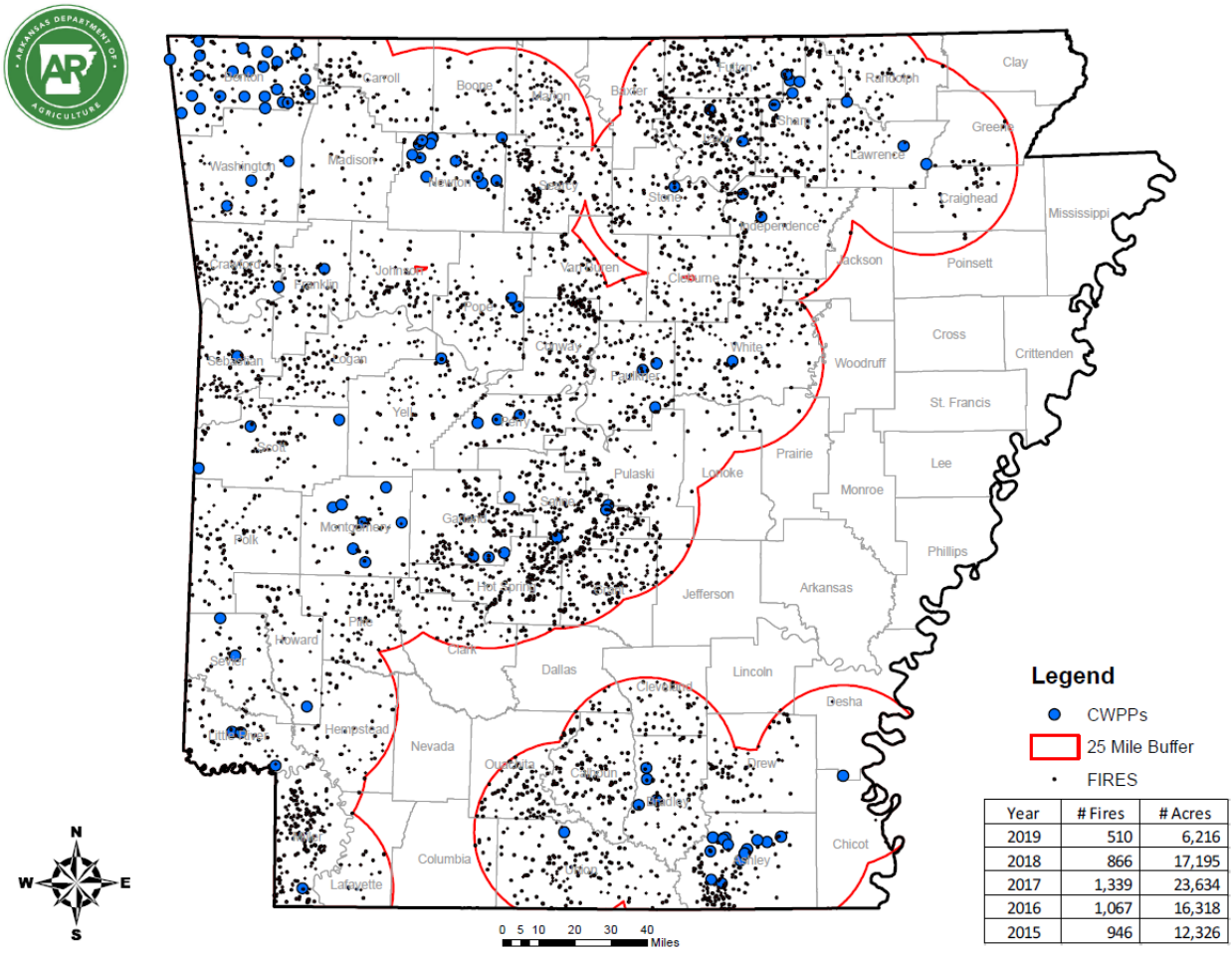


Figure 16: Locations of Community Wildfire Protection Plans (110 Communities) and their proximity to wildfires in Arkansas. CWPP communities were within 25 miles of 85% of wildfires that occurred between 2015 and 2019.

6. Forest Pest Issues

Native insects and diseases are natural part of forest systems. However, damaging outbreaks occur more frequently and are more serious due to unhealthy forest conditions. Diseases and insect vectors generally attack weakened trees. Predisposing and inciting factors like drought, overcrowding, advanced age, and carbon starvation may cause decline events. For example, an ongoing issue with oak decline was instrumental in the outbreak of the native red oak borer in the early 2000s.

Southern pine beetle is recognized as the most economically damaging forest insect in Arkansas. However, with a stand structure markedly altered since the 1970s and 80s, this beetle has caused negligible damage for the past 20 years. Conditions could foreseeably change to allow southern pine beetle to return in Arkansas, given an aging pine resource and declining forest products market. Recognizing the susceptible conditions and maintaining

resilient ecosystems should be a high priority. The next native insect or disease outbreak may not yet be identified, but experts agree that restoring forests to a resilient future condition creates a landscape that is adaptable to unforeseen disturbances. **National Priority number two.**

There is an ever-increasing set of non-native invasive species that negatively impact forest ecosystems. Non-native invasive species can eliminate tree species from the forest, change fire regimes, impact wildlife populations, and generally decrease forest health. Some of these species are newly established such as the emerald ash borer. Others have been around long enough to completely alter the forest landscape, such as Dutch elm disease and chestnut blight. Some invasive insects can be controlled if identified immediately after establishment, such as the gypsy moth. Several damaging invasive threats are on the horizon, such as redbay ambrosia beetle, Asian longhorn beetle, and cogongrass. Many invasive plants are well established, and landowners are spending thousands of dollars a year on their control including Sericea lespedeza, kudzu, Bradford pear, Chinese privet, princess tree, Chinese tallow tree, and tree of heaven. **National Priorities one and two.**

7. **Urban Forestry**

Seventy-five percent of Arkansans live in urban areas. The quality of life in urban centers is directly influenced by the presence of urban trees and natural areas. Researchers have determined that time spent outside and more connected with nature can improve personal health. Retention and restoration of the urban forest canopy is difficult and requires community involvement, therefore community planning efforts need to include elements related to trees. **National Priority number three.**

The urban and community trees are relatively more susceptible to mortality pressures, such as disease, invasive species, carbon starvation, storm damage, and mechanical damage. Public outreach and tree care professional development are needed to mitigate tree health concerns. **National Priority number three.**

Opportunity Areas

The coalition of partners, having met on three occasions in 2019, identified several opportunity areas. Opportunity areas are defined as areas of strategy that can make the Arkansas Forest Action Plan more successful. You will find these areas specifically addressed in the strategies developed for the Arkansas 2020-2029 Forest Action Plan.

1. Coordination/collaboration among partners. The items listed below were identified by the group as areas of emphasis. **Increased collaboration among partners would address all three of the national priorities.**

    a. Program implementation and funding supported and implemented by a broader coalition would make these program more effective (e.g., Environmental Quality

Incentive Program, Forest Legacy Program, Forest Stewardship Program, Arkansas Wildlife Action Plan, Regional Conservation Partnership Program).
   b. Demonstration forests
   c. Unified messaging and marketing

2. Water supply forest conservation. The Arkansas public has identified clean water supply as their greatest conservation priority. At the same time, conversion of forests in water supply watersheds has continued at the same or an increased rate over the past 20 years. Increased focus on water supply watersheds could build public support for forest management. **This opportunity addresses all three National Priorities.**

3. Forest certification. Forest certification can increase the value of forest products and forest management for the landowner and alleviate concern among many about sustainability. **This opportunity addresses all three National Priorities.**

4. Barriers to forest management that could be alleviated by changes in policy. The group identified several current barriers to forest management in Arkansas, three are listed below. Others will crop up in the future. **Removing barriers to forest management would address all three National Priorities.**

   a. Lack of qualified forestry personnel (or natural resource professionals)
   b. Log truck insurance
   c. Manufacturing infrastructure decreasing

5. Carbon financing. Carbon financing is a complex way of addressing climate change while providing a financial return to the landowner. For smaller forest landowners the complexity makes it difficult to utilize successfully. Facilitating carbon financing would keep forest as forests while benefiting landowners in managing their lands. **Increasing the use of carbon financing could address all three national priorities.**

Multi-state Priorities

The Forestry Division has opportunities to participate in various initiatives and programs that extend beyond the state borders. Collaborative efforts are valued to address resource threats that do not stop at political boundaries. The following efforts are currently occurring and serve as examples for future multi-state programs.

- The Shortleaf Pine Initiative
  - Shortleaf pine is now found on less than 50 percent of its historic range.
  - Since launching in 2013, agencies within Arkansas have contributed toward the mission of the Shortleaf Pine Initiative (www.shortleafpine.net).
  - With the Shortleaf Pine Restoration Plan and other resources, Arkansas intends to encourage shortleaf pine protection and restoration.
- The White Oak Initiative
  - In Arkansas, 7,120,100 acres of forestland are estimated to contain white oak, but only 27% of those acres are estimated to have white oak saplings. Therefore, regeneration of white oak forests is a concern if a disturbance affects the overstory (Rosson 2020).
  - Arkansas is participating in the White Oak Initiative (www.whiteoakinitiative.org) through various outreach and research projects.
- South Central Forest Fire Protection Compact
  - The long-standing Compact encourages mutual aid in the case of forest fires within member states.
  - As wildfire severity and frequency increase, states are ready to provide resources when needed.
- Southern Pine Beetle Prediction Trapping Survey
  - The threat of southern pine beetle continues to loom over the southern pine resource.
  - The Trapping Survey is more efficient than ever, utilizing cloud-based data collection services to report capture numbers and analyze outbreak risk in near real-time across the southeastern U.S.
- Southeastern Partnership for Forests and Water
  - This partnership encourages stewardship and sustainable management of forested watersheds to benefit local and state economies and drinking water supplies (www.southeasternpartnership.org).
  - Arkansas participates in the partnership through the Arkansas Forests and Drinking Water Collaborative (www.arforestsandwater.com).
- Keeping Forests
  - Keeping Forests is a diverse coalition conserving the natural, economic, and cultural value of southern forests (www.keepingforests.org).
  - The partners of Keeping Forests support private landowners with working forests and develop approaches that help landowners conserve forests.

Strategy 1: Collaborative Partnerships Around the Forest Action Plan

Vision / Mission: Creating a functional partnership with the desire to keep forests healthy. Develop a statewide partnership to advance the goals of the Forest Action Plan in the spirit of Shared Stewardship.

This strategy addresses all three National Priorities by building and maintaining a collaborative effort among partners in conserving, protecting and enhancing forests.

Objective 1.1. Maintain a Shared Stewardship Council.

Action 1.1.1: Jointly develop a scope of collaborative partnership document. Request participation from select partners, including, but not limited to, "the Parties" of the Memorandum of Understanding for Shared Stewardship signed in 2019 (Appendix B). First meeting in 2021.

Outcome: Forest collaborative provides advice and assistance in addressing barriers to achieving the goals of the Arkansas Forest Action Plan and on forest conservation issues statewide.

Outcome: State partners will provide input and assist, when needed, toward the development of Forest Plans for the Ozark-St. Francis National Forest and the Ouachita National Forest.

Action 1.1.2: Develop and implement Good Neighbor Authority (GNA) projects.

Outcome: Two GNA timber sales implemented.

Objective 1.2: Strengthen partnerships that support forest management on private lands.

Action 1.2.1: Optimize interagency programs that improve delivery of forestry technical assistance

Outcome: Working forests. Participation in landscape restoration funding that enables incentives for forest landowners, e.g., Joint Chiefs' Landscape Restoration Partnership and Regional Conservation Partnership Program.

Action 1.2.2: Build partner support in the Arkansas Forest Stewardship Committee.

Outcome: Partners are engaged on Forest Stewardship Program principles. Forest Stewardship Plans are recommended for forest landowners.

Strategy 2: Forest Management Technical Assistance

Vision / Mission: Private forestland is managed to reach the goals of forest landowners and at a scale that improves water quality, stores carbon, increases habitat for wildlife, and reduces forest health threats across the state.

This strategy addresses all three National Priorities by providing management assistance to private landowners in conserving, protecting, and enhancing forests.

Objective 2.1: Offer forestry technical assistance to private landowners.

Action 2.1.1: Implement the Forest Stewardship Program (FSP) statewide.

Action 2.1.2: Hold an annual FSP committee meeting.

Action 2.1.3: Assist in delivery of Natural Resource Conservation Service cost share programs, such as Environmental Quality Incentives Program.

Action 2.1.4: Assist in delivery of the Arkansas Tree Farm Program.

Outcome: 500 landowners are provided technical assistance annually.

Objective 2.2: Ensure landowners have access to well-trained personnel and contractors.

Action 2.2.1: Work with landowner and forestry organizations (such as Arkansas Forestry Association, University of Arkansas Monticello School of Natural Resources, and University of Arkansas Cooperative Extension Service) to host workshops and field tours to demonstration sites for landowners, contractors, partners, and Forestry Division personnel.

Action 2.2.2: Maintain an online database of forestry service providers and contractors.

Action 2.2.3: Promote management of forests toward desired future conditions and landowner objectives, which may include restoration of native forest ecosystems.

Action 2.2.4: Facilitate communication between landowners and the scientific community, including wildlife agencies.

Outcome: Personnel, partners, contractors, and landowners are aware of the economic and environmental benefits of quality forest management.

Objective 2.3: Engage traditionally underserved landowners or communities.

Action 2.3.1: Land managers and personnel receive training in how to approach underserved communities.

Action 2.3.2: Develop or participate in programs that are relevant to underserved landowners and communities.

Outcome: Increase the quality and quantity of technical support visits to all landowners and communities. At least, ten families engaged annually.

Objective 2.4: Ensure that the Forest Stewardship Program and cost share programs are relevant and useful to private forest landowners.

Action 2.4.1: Periodically survey landowners on what services they need.

Action 2.4.2: Work with collaborative partnerships to analyze requests from landowners and the services proffered.

Action 2.4.3: Recognize a landowner as Certified Forest Steward of the year.

Outcome: Forest stewardship plans are useful to landowners.

Objective 2.5: Improve seedling availability for reforestation practices.

Action 2.5.1: Baucum Nursery increases supply based on demand for local seedlings.

Action 2.5.2: Tree improvement methods produce better performing seedlings that are adapted to native ecosystems.

Action 2.5.3: Quality bareroot seedlings are delivered and stored at local work centers.

Action 2.5.4: Baucum Nursery produces shrub and flowering plant species that also benefit wildlife.

Outcome: In-state nurseries supply seedlings for reforestation practices throughout the state with locally sources seed.

Strategy 3: Water Supply Protection

Vision: Keep surface drinking water supplies clean. Manage watersheds for resilient forests and clean water.

This strategy addresses all three National Priorities by focusing forest management assistance and best management practices implementation on forested watersheds that provide drinking water to Arkansas citizens.

Objective 3.1: Protect and enhance water quality through forest conservation.

Action 3.1.1: Focus technical assistance to private landowners on drinking water supply watersheds, particularly those watersheds identified in the Productive Forests, Protecting Water analysis (see Appendix C).

Action 3.1.2: Facilitate implementation of cost share practices that will protect water quality.

Action 3.1.3: Promote reforestation and improve seedling availability to priority watersheds.

Outcome: More than 75% of the forest cover in water supply watersheds in moderate or higher condition. 70% of technical services proved by the Forestry Division is in drinking water supply watersheds.

Objective 3.2: Provide high-quality training and learning opportunities geared towards forested watersheds.

Action 3.2.1: Identify regions, communities, vocations, and environments that need targeted training and expand existing opportunities to exchange technical information.

Action 3.2.2: Emphasize best management practices (BMPs) for water quality in the Arkansas logger education training program.

Action 3.2.3: Encourage courtesy examinations for improving implementation of BMPs at harvesting sites.

Outcome: Management in forested watersheds is trusted. Productive forests concurrently maintain drinking water protection. Complaints on logging activity are reduced through courtesy examinations.

Objective 3.3: Serve as the primary contact and mediator for complaints resulting from the potential adverse impacts of forestry practices and violations of the Clean Water Act.

Action 3.3.1: Maintain Memorandum of Understanding with Arkansas Department of Energy and Environment concerning the handling of complaints of water quality degradation due to forestry operations.

Outcome: Complaints resolved. Each valid complaint is treated as a lesson learned and contractor compliance improves over time.

Objective 3.4: Manage the voluntary BMP implementation program.

Action 3.4.1: Produce a periodic BMP Implementation Survey using data driven conclusions. Utilize funding from Environmental Protection Agency's 319 program to accomplish this task when possible.

Action 3.4.2: Lessons learned from the Implementation Survey are compiled and used to improve training and standards.

Action 3.4.3: Respond to new questions and concern about BMP standards, effectiveness, training, and implementation.

Outcome: BMPs for water quality and BMP training are continually analyzed using the best available information and current standards are improved. Effectiveness studies are completed with partners.

Objective 3.5: Participate in interagency coordination groups that aim to protect forested watersheds.

Action 3.5.1: Participate in the Southeastern Partnership for Forests and Water, and in doing so, maintain the Arkansas Forest and Drinking Water Collaborative.

Action 3.5.2: Work with community efforts and nonprofit organizations that focus on protection of specific water resources, such as Beaver Watershed Alliance and Illinois River Watershed Partnership.

Outcome: Forestry agencies work directly with community efforts and water utilities on drinking water protection strategies. Watershed management plans are developed and updated to include forest management considerations.

Strategy 4: Prescribed Fire

Vision: Fire is used as a management tool for producing more resilient forest landscapes. Lead the prescribed fire collaborative efforts and improve the practice of prescribed burning on private lands. Lower fire risk through fuels reduction and improving forest health.

This strategy addresses all three National Priorities by providing management assistance to private landowners in prescribed fire implementation that protects and enhances forests.

Objective 4.1: Lead the Prescribed Fire Council.

Action 4.1.1: Coordinate and fund the "Prescribed Fire as a Management Tool" workshop.

Outcome: A steady stream of personnel and partners with basic prescribed fire knowledge are successfully graduated from the annual workshop.

Action 4.1.2: Manage the "voluntary smoke management guidelines". Remaining aware of smoke management issues, regulations, proposed regulations.

Outcome: Smoke production from prescribed burns does not become a barrier to implementing prescribed burns.

Action 4.1.3: With partners, put on annual training for private landowners that moves around the state to meet demand.

Outcome: Landowner demand for basic prescribed fire training and technical information is met. The Forestry Division works with partners such as Arkansas Game and Fish Commission and Quail Forever to increase landowner acceptance of prescribed fire as a management tool.

Action 4.1.4: Track prescribed fire implementation annually.

Outcome: An analysis of completed burns determines where additional prescribed burning is needed to reach forest resiliency objectives.

Action 4.1.5: Continue marketing prescribed fire to the public.

Outcome: Media event held annually at the Prescribed fire training. New materials developed for social media. Ten articles appear in newspapers annually describing prescribed fire and its benefits.

Objective 4.2: Prescribed burn 50,000 acres annually through direct Forestry Division involvement.

Action 4.2.1: Prescribed burn 20,000 acres through the authorities of the Community Fire Protection Program (also known as the Stevens Amendment) and Wyden Amendment.

Outcome: Full use of available authorities to burn on private lands adjacent to partner lands.

Action 4.2.2: Prescribed burn 7,000 acres annually at Poison Springs State Forest.

Outcome: Poison Springs State Forest is actively managed as a forest that demonstrates multiple uses. PSSF serves as a demonstration site for pine and oak management with recurring fire in south Arkansas.

Action 4.2.3: 23,000 acres are burned by Forestry Division personnel in cooperative role supporting partners.

Outcome: Increased forest resiliency, and measurable accomplishments are tracked that lower fuels and fire danger.

Action 4.2.4: Advocate the services of forestry consultants and other agencies that are trained to deliver prescribed burn service.

Strategy 5: Wildfire Protection

Vision: Improve public and inter-agency cooperation in wildfire mitigation, prevention, and management.

This strategy addresses National Priority number two by protecting forest from harm.

Objective 5.1: Increase the area of wildland-community interface managed with fire prevention and mitigation in mind.

Action 5.1.1: Promote the development and application of the FireWise program.

Action 5.1.2: Boost homeowner investment in Community Wildfire Protection Plans.

Action 5.1.3: Update current Community Wildfire Protection Plans every three years.

Outcome: Measurably safer wildfire conditions. Deliverables include number of acres with plans and number of communities improving wildfire protection.

Objective 5.2: Reaffirm and expand partnerships with mutually invested agencies and communities.

Action 5.2.1: Provide essential fire management training to fire departments.

Action 5.2.2: Open up fire management training to other agencies and organizations.

Action 5.2.3: Provide for the safety of emergency responders and the public during wildfire events.

Outcome: 250 personnel from Volunteer Fire Departments (VFDs) or other partners trained. Strategies from NIMS, ICS, NWCG are implemented. Emergency training and other relevant safety systems are offered to partners.

Objective 5.3: Continue improving technology and other Forestry Division resources that enhance wildfire detection and suppression.

Action 5.3.1: Maintain and update Remote Automated Weather Stations (RAWS).

Action 5.3.2: Maintain and enhance initial attack capability (SEAT, VFDs, other mutual aid agreements). Continue training pilots in aerial identification of wildfires.

Action 5.3.3: Continue the maintenance and development of the dispatch program.

Action 5.3.4: Continue the maintenance and development of the fire reporting system.

Action 5.3.5: Utilize unmanned aerial systems (UAS), a.k.a. drones, for field operations. Train field personnel to use UAS.

Action 5.3.6: Staff the 24-hour dispatch center.

Outcome: Personnel training and qualification are enhanced and tracked in a database. Fire occurrence and cause are analyzed. Pilots with the necessary wildfire detection skills are available. Technological efficiencies are utilized.

Objective 5.4: Provide increased preparedness and wildfire suppression capacity to control wildfires in areas of high-risk or with heavy fuel loading.

Action 5.4.1: Identify areas of high-risk to target for fuel mitigation (Southern Wildfire Risk Assessment, CARS list, local knowledge), update annually.

Action 5.4.2: Upgrade fire suppression equipment for mutual aid partners. Administer the federal excess personal property, Department of Defense firefighter program, and Volunteer Fire Assistance program to support fire departments and other mutual aid organizations.

Outcome: High risk areas mapped and VFDs and other partners notified. Wildfires spotted, reported, and scouted more efficiently.

Objective 5.5: Enhance the Forestry Division's wildfire law enforcement capability.

Action 5.5.1: Provide fire investigation and law enforcement training for Forestry Division personnel; FI-110, FI210 and Law Enforcement Training Academy.

Outcome: Regularly train and refresh personnel and partners annually.

Objective 5.6: Enhance marketing efforts on wildfire risk with the public.

Action 5.6.1: Inform the public of the 24-hour point of contact for reporting.

Action 5.6.2: Provide a continuous stream of messages about fire safety.

Outcome: Accidental ignitions decline, thereby saving agency resources.

Strategy 6: Forest Health Monitoring

Vision: Healthy, resilient forests. Forest assessments show a trend toward a healthier forest condition. Landowners recognize disease and insect problems and manage forests to reduce the impact of pest outbreaks. The public and partners report forest health problems and help with early detection.

This strategy addresses National Priority number two by protecting forest from harm.

Objective 6.1: Forest landowners, Forestry Division personnel, and partners are aware of what to look for in a healthy forest and can alert land managers to indications of declining forest health, insect outbreaks, or disease occurrence.

Action 6.1.1: Provide information, workshops, and scripts for personnel and partners who interact with forest landowners.

Action 6.1.2: Create and print a handbook on forest damage agents.

Action 6.1.3: Create a decision-making procedure for identifying forest health problems and notifying a specialist.

Outcome: Personnel and partners are equipped with basic and accurate knowledge about forest damage agents. Personnel, partners, and forest landowners know who to contact when a forest health indicator of concern is recognized. Field personnel record identified damage agents into a reporting system.

Objective 6.2: Forest disturbances and occurrences of forest pests are recorded, and affected landowners are assisted.

Action 6.2.1: Provide tools to record basic forest health monitoring information.

Action 6.2.2: Facilitate recovery of ecosystems damaged by forest disturbances.

Outcomes: A database logs spatial and temporal information about forest health problems that are discovered through ground and off-plot assessments. Information and technical services are directed toward damaged forests.

Objective 6.3: Incorporate forest health considerations in technical assistance provided to landowners.

Action 6.3.1: Give high priority to thinning treatments in forest stewardship plans.

Action 6.3.2: Promote federal cost share and incentive programs that improve forest health, e.g., Forest Stand Improvement Practice Code in the Environmental Quality Incentives Program or thinning incentives in the Southern Pine Beetle Prevention Program.

Outcome: Forests with low health indicators and high hazard for forest health problems are treated. Cost share and incentives allow management to occur in otherwise unprofitable situations. Management is proactive and prevents future expected issues.

Objective 6.4: Prepare for southern pine beetle outbreaks.

Action 6.4.1: Participate in regional preparedness planning.

Action 6.4.2: Monitor southern pine beetle (SPB) activity and use predictive models to estimate impacts. Conduct spring SPB trapping surveys using established protocols. Conduct annual SBP detection flights. Follow up on reports received from the field personnel, landowners, other agencies.

Action 6.4.3: Encourage management toward a desired future condition when timber marketability limits the advantage of intensively managed pine forest.

Action 6.4.4: Implement suppression program protocols when SPB is detected.

Outcome: SPB outbreaks are prevented through proactive management. Forests are less susceptible to SPB outbreaks. Landowners are notified when SPB is detected and given recommended control information.

Objective 6.5: Strengthen monitoring and reporting of native insect pests that outbreak periodically.

Action 6.5.1: Send field personnel, partners, and the general public information on what is going on in the disease and insect world, what to look for, and where to report it.

Outcome: An aware public and partners report possible issues with forest health. No outbreak situation impacting more than 240 acres goes undetected.

Objective 6.6: Prevent, detect, monitor, and control invasive, non-native forest insects and pathogens.

Action 6.6.1: Consistently update field personnel, landowners, and partners of problem insects that are likely to reach Arkansas, how to prevent that occurrence and where to report the occurrence when detected.

Action 6.6.2: Cooperate with programs and partnerships focused on the detection of invasive insects and disease, e.g., gypsy moth trapping program.

Outcome: Field personnel look for invasive threats. An informed base of partners assists in the prevention of invasion and is prepared to report early detection. Protocols to control problematic invasive insects are completed.

Objective 6.7: Prevent, detect, monitor, and control invasive, non-native plants that impact forests and woodlands in Arkansas.

Action 6.7.1: Consistently update field personnel, landowners, and partners of problematic plants that are likely to spread in Arkansas, how to prevent that occurrence, and where to report the occurrence when detected.

Action 6.7.2: Provide field personnel, landowners, and partners with information on how to recognize, report, and manage invasive plants.

Action 6.7.3: Develop a rapid response program for limiting or controlling invasive plants.

Outcome: An informed base of partners is assisting in the prevention of invasion and prepared to report early detection. Protocols to control problematic non-native plants are completed.

Strategy 7: Certification of Privately Owned Forests

Vision: Keeping forests forested and under management to promote forest health. Increasing salability of lower value timber resources by certifying private lands.

This strategy addresses National Priority number three by enhancing public benefits from forest management.

Objective 7.1: Promote certification programs for private lands, e.g. Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), or American Tree Farm System (ATFS).

Action 7.1.1: Develop enough expertise to present the idea to a landowner or landowner group.

Action 7.1.2: Identify new incentives through certification that encourage landowners to choose forests over other land uses.

Action 7.1.3: Convene stakeholder meetings to inform landowners of the certification program process and benefits.

Outcome: Landowners (or landowner groups) understand the benefits of certification. The Forestry Division is aware of the demand for this service.

Objective 7.2: Maintain the Poison Springs State Forest (PSSF) as an SFI certified property.

Action 7.2.1: Create a plan for monitoring the forest structure and harvesting sustainably.

Action 7.2.2: Use PSSF to educate the steps to obtain SFI certification and the procedure for maintaining that certification.

Outcome: PSSF serves as a demonstration of sustainable management under the SFI certification program.

Strategy 8: Urban and Community Forestry

Vision**:** To improve quality of life, environmental health, and community resilience by encouraging and empowering Arkansas communities to develop sound urban forestry management strategies.

This strategy addresses National Priority number three by enhancing public benefits from forest and trees.

Objective 8.1: Encourage a healthy relationship between nature and people and subsequently maintain abundant, sustainable community forests by providing technical assistance to individuals and communities.

Action 8.1.1: Provide information to the public about proper tree care methods.

Outcome: Technical assistance provided to 10 communities. Total tree cover in targeted communities increases by 5% over the 10-year period.

Action 8.1.2: Promote the connection between trees and human health through education and outreach. Broaden understanding of tree cover benefits and be a liaison between communities and research.

Action 8.1.3: Promote the importance of trees in reducing storm water runoff in communities through demonstration projects and outreach efforts.

Outcome: Three demonstration projects established with outreach materials (signs, video, social media, paper) available.

Action 8.1.4: Engage youth education and select schools to receive trees through the Shade Trees On Playgrounds program.

Action 8.1.5: Promote the restoration of green space with low impact development projects that improve water quality.

Outcome: Low impact development projects accomplished in three communities.

Objective 8.2: Promote inclusion of urban forestry in community planning, development, and sustainability.

Action 8.2.1: Encourage participation in the Tree City USA, Tree Campus K-12, Tree Campus Higher Education, and Tree Line USA programs and assist current program participants to meet their core standards.

> Outcome: The number of participating communities and schools in Arbor Day Foundation programs increases annually. Forestry Division personnel help each participant to establish a Tree Board, develop a Community Forestry Plan/Program, a Tree Care Ordinance, and a scheduled Arbor Day Observance.

Action 8.2.2: Upon request, Forestry Division personnel conduct basic community tree assessments and inventories.

> Outcome: Forestry Division field personnel provide data-driven community tree assessments and influence future planning efforts. When potential fire hazard areas are identified, incorporate Firewise program in community forestry planning.

Action 8.2.3: Provide training for municipal staff, planners, developers, architects, engineers and others in proper tree management, maintenance, protection (mitigating damage and soil compaction), tree assessment, and policy development.

Action 8.2.4: Offer communities funding for small-scale projects through the Urban Forestry Community Improvement Grant.

> Outcome: At least three projects are funded annually, and observable improvements to communities are showcased around the state.

Action 8.2.4: Improve the skills and knowledge of tree care professionals through workshops and encourage professional certification to become an arborist.

> Outcome: The number of ISA Certified Arborists increases annually.

Action 8.2.5: Assist communities in pre-storm planning and recovery after natural disasters by aiding on pre-storm plans and reforestation programs.

Action 8.2.6: Assist with development of tree and zoning ordinances to maintain existing canopy and mitigate loss due to land use changes and environmental disasters.

> Outcome: A set of standardized zoning ordinances that can be used by communities.

Strategy 9: Forest Policy

Vision: Good policy is a well-managed, healthy forest. Policy related barriers to well-managed forest are removed and new issues addressed as they come up.

This strategy addresses all three National Priorities by removing barriers to forest management on private lands.

Objective 9.1: To reduce the barrier that insurance can be for loggers to enter or stay within the industry.

Action 9.1.1: With the insurance industry, determine what actions need to be taken so that entry into, and remaining, in the logging industry becomes less of a barrier.

Outcome: Insurance is not named as a major barrier within the logging industry.

Objective 9.2. Reduce the scarcity of resource professionals.

Action 9.2.1: Determine the reason for the apparent reduction in resource professional availability.

Action 9.2.2: List remedies to the lack of resource professionals and plan steps to address the issue.

Outcome: Lack of resource professionals is not named as a major barrier to keeping our forests healthy.

Objective 9.3: Lessen concerns over controlled burn smoke impacting people, especially in urban areas.

Action 9.3.1: Include smoke management techniques in prescribed burning training.

Action 9.3.2: When burning near urban populations ensure the outreach materials and reasons for burning are known to the public.

Action 9.3.3: Manage the Arkansas Voluntary Smoke Management program.

Outcome: The number of public complaints about smoke decreases.

Objective 9.4: Aid investment planning of innovative forest products markets in Arkansas.

Action 9.4.1: Draw attention to resource availability with timber supply analyses

Action 9.4.2: Highlight the forest health benefits achieved through management.

Action 9.4.3: Conduct mill surveys to understand the current mill infrastructure and capacity for additional production.

Objective 9.5: Address other policy barriers as they come up.

Action 9.5.1: Facilitate conversation about what barriers are slowing down the restoration of healthy forests.

Outcome: Policy supports a well-managed heathy forest.

Resources Necessary to Address the Strategies

Staffing

The Arkansas Department of Agriculture – Forestry Division is founded on the basic commitment to serve Arkansas private landowners. Protection of life and property against wildfires and other disturbances demands a work force that can rapidly address these threats. Staffing capacity is a high priority so that in the personnel numbers are adequate for protection efforts and forest management assistance.

Investment in Personnel and Training

The delivery of technical assistance and the ability to respond in emergencies are dependent on successful training investment. Training resources are needed to improve the many functions of the Forestry Division. Furthermore, experienced personnel with good communication skills are in low supply. In recent history, position vacancies are common and employee retention is exceedingly challenging; the Forestry Division needs a concise recruiting program to address these difficulties.

Technological Efficiencies

To aid with staffing challenges, the Forestry Division must utilize technological efficiencies. This applies to improving the effectiveness of work tasks, response to wildfires, automating processes, and making metrics reporting easy-to-use. Implementing the Arkansas Forest Action Plan should be complimented with quantifiable accomplishment reporting, but the reporting of accomplishments should not be tedious for personnel. The Forestry Division needs assistance in the form of funding and expertise to develop cloud-based reporting systems.

Tools That Improve Technical Assistance

Foresters and rangers need new tools and training that produce better services for Arkansans. For example, access to GIS tools, mobile applications, and unmanned aerial systems are expected to improve the capabilities of field personnel. However, with these new tools comes an increased need for technical trainings.

Capacity to Address Additional Strategies

In the 2019 stakeholder meetings, two additional strategic themes were recognized, i.e., demonstration forests and carbon programs. The Forestry Division and its partners do not currently have the capacity, expertise, or staffing to adequately address these strategies. However, both are considered important next steps for Arkansas and future direction State and Private Forestry. The details, including the vision and desired outcomes, of these two strategies are listed below.

Demonstration Forests

Vision: A suite of demonstration forests are highlighted in digital marketing campaigns. These demonstration forests are locally accessible, and they are a teaching mechanism for forest landowners. The forests show what a healthy, well-managed forest looks like.

This strategy would address all three National Priorities by providing a visual example of the benefits of well-managed forests to landowners and the public.

Potential Objectives and Action Items: Determine what a good demonstration forest should look like, and take a demonstration forest project to scale by selecting and designating demonstration forests across the state

Desired Outcome: A demonstration forest in each major forest type and ecoregion is selected. Successful forest management plans are highlighted. Demonstration forests comparatively display even-aged management vs. uneven-aged management and natural regeneration vs. planted regeneration. The forests are accessible to land managers and landowners through both in-person demonstration and effective marketing campaigns.

Carbon Programs

Vision: Keeping forests forested and sequestering carbon. Forests are recognized as a piece of the solution to climate change. Landowners and land managers understand the carbon financing process.

This strategy would address all three National Priorities by providing another source of financing for private landowners to manage their forests and keep it forested.

Potential Objectives and Action Items: Land managers develop a broader understanding of carbon programs through education materials. Subsequently, land managers and Forestry Division personnel educate landowners and assist with development and implementation of a carbon plan. Successful plans are selected as case studies and demonstration forests.

Desired Outcome: Private landowners successfully receive carbon financing to maintain their forests, and their success is a model for additional landowners.

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Liu, Ning; Dobbs, G. Rebecca; Caldwell, Peter V.; Miniat, Chelcy Ford; Bolstad, Paul V.; Nelson, Stacy; Sun, Ge. 2020. Quantifying the role of State and private forest lands in providing surface drinking water supply for the Southern United States. Gen. Tech. Rep. SRS–248. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 405 pp.

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Appendices

Appendix A

Partner Meeting Agendas and Lists of Attendees

Cited on Page 7

Agenda for 1st Arkansas Forest Action Plan Partner Meeting
Arkansas Department of Agriculture Board Room
27 March 2019

Forest Action Plans must address the following Goals

1. Conserve and Manage Working Forest Landscapes for Multiple Values and Uses.
2. Protect Forests from Threats.
3. Enhance Public Benefits from Trees and Forests.

Objectives of Meeting:

- Discuss and prioritize threats to forests.
- Discuss and prioritize opportunities to assist landowners and managers in achieving their management objectives.
- Discuss and prioritize opportunities to enhance public benefits from trees and forests.

Outcome: A list of opportunities that can be turned into strategies that address the Forest Action Plan Goals.

9:00am – 9:15am	Introductions and Why are We Here (Joe Fox)
9:15am – 9:30am	Overview of present Forest Action Plan (Doug Akin)
9:30am - 10:15am	Threats to forest discussion and prioritization (Douglas Zollner facilitates)
10:15am – 11:00am	Landowner / manager opportunities discussion (Douglas Zollner facilitates)
11:00am – 11:45am	Enhancing public benefits opportunity discussion (Douglas Zollner facilitates)
11:45am - 12:15pm	Next steps - Think about Priority Areas.

Lunch Provided

Attendees of the 1st Arkansas Forest Action Plan Partner Meeting
Arkansas Department of Agriculture Board Room
27 March 2019

NAME	**COMPANY**
Doug Zollner	The Nature Conservancy
Jim Jolley	Arkansas Department of Agriculture – Forestry Division
Fred Burnett	Arkansas Department of Agriculture – Forestry Division
Scott Meek	Green Bay Packaging
Douglas Teale	Domtar
Darren Spinks	Arkansas Department of Agriculture – Forestry Division
Leighanna Gildner	Office of Rep. French Hill
Joe Fox	Arkansas Department of Agriculture – Forestry Division
Chandler Barton	Arkansas Department of Agriculture – Forestry Division
Doug McClellan	USDA – Natural Resources Conservation Service
Eric Brixey	Arkansas Department of Agriculture – Forestry Division
Jeff Fore	The Nature Conservancy
Bill Holimon	Arkansas Natural Heritage Commission
James Baker	USDA – Natural Resources Conservation Service
Peter Remoy	Weyerhaeuser
Kevin McGaughey	Arkansas Department of Agriculture – Natural Resources Division
Ray Yelverton	USDA – Forest Service
Kyle Cunningham	University of Arkansas Cooperative Extension Service
Harold Fisher	Arkansas Department of Agriculture – Forestry Division
Ellen Kincaid	Highland Pellets
Max Braswell	Arkansas Forestry Association
John Beasley	Arkansas Department of Agriculture – Forestry Division

Agenda for 2nd Arkansas Forest Action Plan Partner Meeting
Arkansas Department of Agriculture Board Room
27 June 2019

Objectives of Meeting:

- Discuss draft strategies.
    - Collaborative partnership (all the below)
    - Forest Management (private landowner technical assistance programs, climate change, carbon.
    - Water supply protection and management (Legacy, BMP's, and other landowner assistance programs, climate change, carbon)
    - RxFire (Forestry Division burning, fire council, recommendations through the collaborative on where to emphasize, private landowner training and technical assistance, climate change)
    - Wildfire protection – suppression, partners, and Firewise
    - Disease and insects, invasive non-native species of concern (invasive species and forest health monitoring)
    - Certification of private lands (management, technical assistance)
    - Urban forestry program (climate change, invasive species, greenspace mapping and protection, public benefits)
    - Demonstration sites (Marketing, messaging, connecting people with forestry)
    - Policy (insurance, resource prof., manufacturing, smoke management, other issue from the collaborative as they come up)
    - Carbon (financing for private landowners, climate change)
- Discuss and prioritize areas on a map to implement the strategies.

Outcome: Review of proposed strategies. Draft map of priority areas.

9:00am – 9:10am	Introductions and minutes (Joe Fox).
9:10am – 9:30am	Overview of draft strategies from previous meeting (Douglas Zollner)
9:30am - 10:00am	Strategy discussion (Douglas Zollner facilitates)
10:00am – 10:30am	Where are the priority areas (Douglas Zollner facilitates)
10:30am – 11:30am	Feedback on priority area additions and/or changes (Douglas Zollner)
11:00am – 11:30am	Next steps

Lunch Provided – 11:30am

Attendees of the 2nd Arkansas Forest Action Plan Partner Meeting
Arkansas Department of Agriculture Board Room
27 June 2019

NAME	**COMPANY**
Jim Jolley	Arkansas Department of Agriculture – Forestry Division
Fred Burnett	Arkansas Department of Agriculture – Forestry Division
Randy Brents	Arkansas Game & Fish Commission
Rob Willey	Arkansas Game & Fish Commission
Darren Spinks	Arkansas Department of Agriculture – Forestry Division
Leighanna Gildner	Office of Rep. French Hill
Joe Fox	Arkansas Department of Agriculture – Forestry Division
Chandler Barton	Arkansas Department of Agriculture – Forestry Division
Susan Hooks	USDA – Forest Service
Bill Holimon	Arkansas Natural Heritage Commission
Bob Morgan	Arkansas Forests and Drinking Water Collaborative
Jim Woodruff	Private Landowner from Northwest Arkansas
Jessica Hawkins	USDA – Forest Service
Douglas Zollner	The Nature Conservancy
Krista Quinn	Arkansas Department of Agriculture – Forestry Division
Josh Smith	USDA – Natural Resources Conservation Service
Debbie Moreland	Arkansas Association of Conservation Districts
Max Braswell	Arkansas Forestry Association

Agenda for the 3rd Arkansas Forest Action Plan Partner Meeting
Arkansas Forest Stewardship Committee Meeting
Arkansas Department of Agriculture Board Room
October 11, 2019

Welcome and Introductions (Joe Fox)

Approval of Recap Notes from Last Meeting

Forest Legacy Program (Jim Jolley)

- Acquisition Status
- ANCRC Grants
- Forest Legacy Funding
- FY 2021 Project Proposals

Forest Stewardship (Darren Spinks)

- Recap
- Forest Steward of the Year Selection

Forest Action Plan

- Update Status (Doug Zollner)
- Committee Role (Chandler Barton)

New Business

Adjourn and Lunch

Attendees of the 3rd Arkansas Forest Action Plan Partner Meeting
Arkansas Forest Stewardship Committee Meeting
Arkansas Department of Agriculture Board Room
October 11, 2019

Committee Staff

- Jim Jolley, Arkansas Department of Agriculture – Forestry Division
- Chandler Barton, Arkansas Department of Agriculture – Forestry Division
- Darren Spinks, Arkansas Department of Agriculture – Forestry Division

Active Members

- Joe Fox, Arkansas Department of Agriculture – Forestry Division
- Jonathan Baxter, U.S. Fish and Wildlife Service
- Bill Holimon, Arkansas Natural Heritage Commission
- Ted Zawislak, Arkansas Game and Fish Commission
- Tony Ramick, Arkansas Department of Agriculture – Natural Resources Division
- Ray Yelverton, U.S. Forest Service – Ouachita National Forest
- Doug Zollner, The Nature Conservancy

Other Invited Guests in 2019

- Josh Smith, Natural Resources Conservation Service
- Luke Lewis, Arkansas Game and Fish Commission

Agenda for the 2020 Arkansas Forest Stewardship Committee Meeting
Zoom Meeting
October 2, 2020

Welcome and Introductions (Joe Fox)

Approval of Recap Notes from Last Meeting

Forest Legacy Program (Jim Jolley)

- Acquisition Status
- FY 2022 Project Proposals
    - Ranking

Forest Stewardship (Darren Spinks)

- Recap and Accomplishments in 2020

Forest Action Plan

- Priority Areas (Chandler Barton)

New Business

Adjourn and Lunch

Attendees for the 2020 Arkansas Forest Stewardship Committee Meeting
October 2, 2020

Committee Staff

- Jim Jolley, Arkansas Department of Agriculture – Forestry Division
- Chandler Barton, Arkansas Department of Agriculture – Forestry Division
- Darren Spinks, Arkansas Department of Agriculture – Forestry Division

Active Members

- Joe Fox, Arkansas Department of Agriculture – Forestry Division
- Doug Akin, Natural Resources Conservation Service
- Bill Holimon, Arkansas Natural Heritage Commission
- Debbie Moreland, Arkansas Association of Conservation Districts
- Tony Ramick, Arkansas Department of Agriculture – Natural Resources Division
- Doug Zollner, The Nature Conservancy

Other Invited Guests in 2020

- Bryan Rupar, Central Arkansas Water
- Bill Chaney, Arkansas Department of Agriculture – Forestry Division
- Larry Boccarossa, Arkansas Timber Producers Association
- Kyle Cunningham, University of Arkansas Cooperative Extension Service
- Scott Meek, Green Bay Packaging
- Doug Teale, Domtar
- Jeffrey High, U.S. Forest Service

Appendix B

Memorandum of Understanding

Cited on Page 32

MEMORANDUM OF UNDERSTANDING
Between
THE STATE OF ARKANSAS
And the
UNITED STATES DEPARTMENT OF AGRICULTURE

This Memorandum of Understanding (MOU) for Shared Stewardship is hereby made and entered into by and between the State of Arkansas and the United States Department of Agriculture hereinafter referred to as "the Parties."

BACKGROUND

The mission of the Arkansas Forestry Commission is to protect Arkansas's forests, and those who enjoy them, from wildland fire and natural hazards while promoting rural and urban forest health, stewardship, development and conservation for all generations of Arkansans.

The Arkansas Game and Fish Commission's mission is to conserve and enhance Arkansas's fish and wildlife and their habitats while promoting sustainable use, public understanding and support.

The United States Department of Agriculture provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on public policy, the best available science, and effective management. The Department of Agriculture has a vision to provide economic opportunity through innovation, helping rural America to thrive; to promote agriculture production that better nourishes Americans while also helping feed others throughout the world; and to preserve our Nation's natural resources through conservation, restored forests, improved watersheds, and healthy private working lands.

The mission of the Forest Service, an agency of the United States Department of Agriculture, is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The Forest Service manages 193 million acres of National Forest System lands with tribal governments, state and private landowners, and maintains the largest forest research organization in the world. Being a good steward is an essential component of our Agencies' work.

The Natural Resources Conservation Service (NRCS) is an agency of the United States Department of Agriculture committed to "helping people help the land." The NRCS improves

the health of our Nation's natural resources while sustaining and enhancing the productivity of American agriculture. This is achieved by providing voluntary assistance through strong partnerships with private landowners, managers, and communities to conserve, protect, restore, and enhance the lands and waters upon which people and the environment depend.

I. PURPOSE

The purpose of this MOU is to establish a framework for the parties to work collaboratively on accomplishing mutual goals, to further common interests and effectively respond to the increasing ecological challenges and natural resource concerns in Arkansas, whether aquatic, terrestrial, or air.

Federal, state and private managers of land face a range of urgent challenges, among them catastrophic storms, droughts, flooding, wildfires, insect and disease outbreaks, and invasive species. We recognize that these challenges must be met with proactive measures across all lands including:

- Restoring fire-adapted ecosystems and reducing the risk of wildfire to communities.
- Identifying, managing, and reducing threats to forest and ecosystem health.
- Fostering economic development strategies that keep working forests productive.

In addition, the long-term strategy for conserving working forest lands needs continual attention by actively and sustainably managing forests and conserving high priority forest ecosystems and landscapes.

The Forest Service and the NRCS will work shoulder-to-shoulder with state leaders using all available resources to:

- Identify land management priorities and priority natural resource concerns.
- Prevent and/or co-manage ecological health risks and natural catastrophes.
- Protect and enhance water quality and quantity.
- Improve air quality and conserve energy.
- Assist communities in planning for and reducing wildfire risks.
- Maintain and enhance the economic benefits and values of trees and forests.
- Protect, conserve, and enhance wildlife and fish habitat.
- Connect people to trees and forests and engage them in environmental stewardship activities.

A key component of the shared stewardship strategy is to prioritize investment decisions on forest treatments in direct coordination with states and other federal agencies. This will be done by using the most advanced science to increase the scope and scale of critical forest treatments that protect communities and create resilient forests and landscapes.

In consideration of the above, the parties agree as follows:

II. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:

The parties will collaborate to carry out projects as identified and prioritized under the PURPOSE section. The parties will take a more integrated approach to prioritizing investments in locally led conservation where they will have the greatest impact and will set priorities which address ecological risks and natural resource concerns across broad landscapes. A collaborative approach that addresses ecological risks across different ownership boundaries and habitat types will have direct and positive effects on land management practices and the constituents in Arkansas.

III. THE PARTIES SHALL:

A. Collaborate on mutually agreed upon projects and other work in pursuit of the overarching goals of this MOU, sharing decision space to identify priorities which are consistent with the State Forest Action Plan, and the State Wildlife Action Plan. Consideration will be given to NRCS State Technical Committee recommendations and associated decisions by the State Conservationist in addressing all natural resource concerns across the State when setting priorities

B. Collectively evaluate and examine options for managing ecological risks and determine the appropriate actions to take. Realistically prioritize actions in order to focus and direct concerted investments for achieving landscape scale improvements.

C. Make reasonable efforts to achieve consistency and avoid conflicts between federal, state, tribal, and private objectives, plans, policies, and programs; and address and resolve all issues and concerns raised by any partner unless precluded by law.

D. Encourage the use of applicable state and federal programs and authorities to carry out actions, when available. This includes but is not limited to state-delivered landowner technical assistance, forest health assistance, wildland fire suppression, prescribed fire, state delivered USFS State and Private Forestry Programs, Joint Chief's Landscape Restoration Partnerships, Good Neighbor Authority, landscape scale restoration programs and others available through the Federal Farm Bill and other authorities.

E. Consider and incorporate state and local expertise and data, including socioeconomic data, in the development and analysis of actions.

F. Agree upon mechanisms to ensure substantial participation from state and local partners such as Arkansas State Parks, Arkansas Natural Heritage Commission, Arkansas Department of Transportation, Conservation Districts, and others who will have an interest in carrying out the principles described in this MOU. To effectively reach these agencies, organizations, and other partners, the parties will develop a communication and outreach plan to gauge interest, determine desired levels and methods of engagement, and seek input to prioritization processes.

G. Agree to work under the premise of stewarding the whole. Parties will consult with and seek input from additional units of government, tribes, collaborative groups, advisory groups, and others as may be appropriate to derive the best solutions and highest benefits for the resources invested

IV. MUTUAL UNDERSTANDING AND AGREEMENT BETWEEN THE PARTIES:

A. Each party will be responsible for complying with applicable federal, state, and local statutes and regulations. If conflicts arise, the parties will evaluate how authorities can best achieve the goals of a project.

B. The parties jointly will protect sacred sites and preserve cultural resources in accordance with applicable law and take all legally required actions to protect data collected from Native American tribes.

C. The parties will communicate on a regular basis to enhance and develop the institutional arrangements necessary to facilitate the purposes of this MOU.

D. The parties will conduct business pertaining to this MOU by means of in-person meetings, conference calls, or other means and, in each calendar year, the parties will meet at least once in person, to evaluate progress on the MOU.

V. PROVISIONS:

A. NOTICES. Any communications affecting the operations covered by this MOU given by any party to this MOU is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, to the contact of each organization at the address specified in this MOU. Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

B. CONDUCT OF ACTIVITIES. Parties and their respective divisions and offices will handle their own activities and utilize their own resources, including the expenditure of their own funds, in pursuing the objectives of this MOU. Each party will carry out its separate activities in a coordinated and mutually beneficial manner.

C. ENDORSEMENT. Any party's contributions made under this MOU do not by direct reference or implication convey endorsement of any party's products or activities.

D. ENFORCEABILITY. This MOU is not intended to, and does not create, any right or benefit, substantive or procedural, enforceable at law or equity, by any third party against the United States, the State of Arkansas, their agencies, officers, or any person. The parties shall manage their respective resources and activities in a separate, coordinated and mutually beneficial manner to meet the purpose(s) of this MOU. Nothing in this MOU authorizes any of the parties to obligate or transfer anything of value.

Specific, prospective projects or activities that involve the transfer of funds, services, property, and/or anything of value to a party requires the execution of separate agreements and are contingent upon numerous factors, including, as applicable, but not limited to: federal agency availability of appropriated funds and other resources; state agency availability of funds and other resources; federal and state agency administrative and legal requirements (including agency authorization by statute); etc. This MOU neither provides, nor meets these criteria. If the parties elect to enter into an obligation agreement that involves the transfer of funds, services, property, and/or anything of value to a party, then the applicable criteria must be met.

Additionally, under a prospective agreement, each party operates under its own laws, regulations, and/or policies, and any partner/agency obligation is subject to the availability of appropriated funds and other resources. The negotiation, execution, and administration of these prospective agreements must comply with all applicable law.

Nothing in this MOU is intended to alter, limit, or expand the agencies' statutory and

regulatory authorities.

E. ALL PARTIES ACKNOWLEDGED IN PUBLICATIONS, AUDIOVISUALS AND ELECTRONIC MEDIA. All parties shall acknowledge any partner support in any publications, audiovisuals, and electronic media developed as a result of this MOU.

F. EXTENSION, AMENDMENT, AND TERMINATION. This MOU may be extended or amended upon written request of a party or parties and the subsequent written concurrence of the other party(ies). Any party may terminate this MOU with a 60-day written notice to the other parties.

VI. PERIOD OF PERFORMANCE:

This MOU takes effect upon the signatures of all parties and shall remain in effect through September 30, 2024.

VII. AUTHORIZED REPRESENTATIVES:

By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this MOU.

In witness whereof, the parties hereto have executed this MOU as of the last date written below.

United States Department of Agriculture:

Date: Sept 4, 2019 **By:** Sonny Perdue

Sonny Perdue
Secretary of Agriculture

State of Arkansas:

Date: Sept. 4, 2019 **By:** Asa Hutchinson

Asa Hutchinson
Governor of Arkansas

Arkansas State Game and Fish Commission:

Date: 9-4-2019 **By:**

Pat Fitts
Director

Appendix C

Productive Forests, Protecting Water GIS Analysis

Cited on Page 36

PRODUCTIVE FORESTS PROTECTING WATER

ARKANSAS FORESTS & DRINKING WATER COLLABORATIVE

Arkansas SOURCE WATER PROTECTION

ARKANSAS DEPARTMENT OF AGRICULTURE

FORESTRY DIVISION

The Arkansas Forests and Drinking Water Collaborative is a loose collection of water utilities, forest industries, state and federal agencies and non-profit conservation associations. These entities work together to improve collaboration between the water and forest sectors for the benefit of both.

Through the work of the Collaborative, the Arkansas Department of Agriculture - Forestry Division received a grant from USDA - Natural Resources Conservation Service to establish the relative importance of watersheds (HUC-10 units) to local drinking water utilities and to provide technical assistance to private forest landowners in those watersheds for forest management planning.

The first step in implementing this grant was to prioritize watersheds for their importance to drinking water through GIS analysis developed by the Arkansas Department of Health.

GIS Data Analysis: Watershed Prioritization

Process:

1. Identify HUC-10s with Surface water intakes utilized for public supply or direct tributary watersheds.
2. Calculate % Forested land cover within identified HUC-10s.
3. Calculate value for population served by HUC10s.
4. Calculate Risk value within Identified HUC-10s (Wildfire, Insect, Development, Unpaved Roads)
5. Identify if each HUC-10 has stream or waterbody listed as impaired for nutrients or surface erosion in ADEQ's 303(d) list.
6. Perform final calculations with the prioritization formula using all values calculated through the GIS analysis.
7. Use other layers (Public Lands and AFC/NRCS program implementation data) to evaluate where implementation is most likely to be successful.

Data Layers:

- Drinking Water/Tributary Watersheds (HUC-10)
- Forest Land Cover (Cropland Data Layer)
- Risk Layers (Wildfire, Insect, Development, Unpaved Roads)
- ADEQ 303(d) Listed streams (Category 4)
- Other layers used to evaluate impact of implementation.

Prioritization Output:

- Three Priority areas identified:
  - Beaver Lake/Mulberry River (2 HUC-10s)
  - Hicks Creek/Middle White River (3 HUC-10s)
  - Ouachita Headwaters/Upper Ouachita River (2 HUC-10s)

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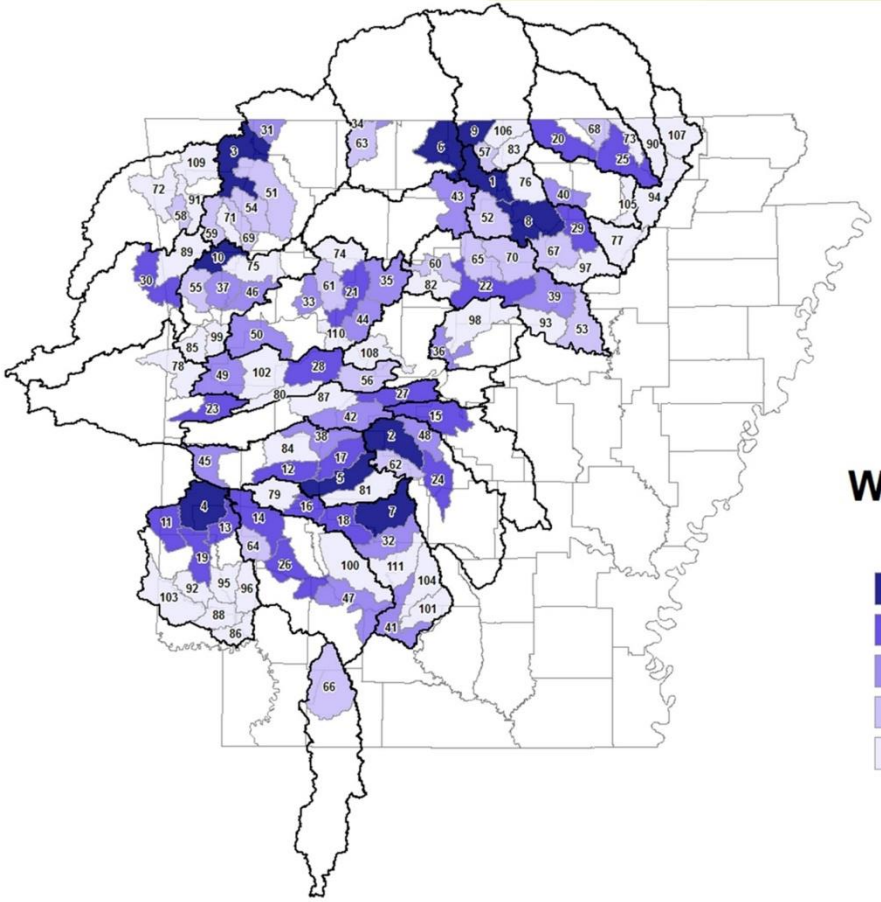

Watershed Prioritization by Rank

- 1 - 10 (Highest Priority)
- 11 - 30
- 31 - 50
- 51 - 70
- 71 - 111 (Lowest Priority)