Five -Year Review of the 2005 Forest Plan

Arkansas and Oklahoma
FY 2006 - FY 2010

United States
Department of
Agriculture

Forest
Service

5-year Review of the 2005 Forest Plan

Ouachita National Forest
Arkansas and Oklahoma

TABLE OF CONTENTS

Findings of the 5-year Review

Based on information gained through 5 years of Forest Plan monitoring, summarized in this report, the Forest Plan Interdisciplinary Team (IDT) made findings and developed recommendations for possible changes to the Plan and Forest Plan implementation. The IDT recommended consideration of Forest Plan amendments to address:

- Adjusting Management Area 22 boundaries to better reflect Red-cockaded Woodpecker habitat management needs
- Leasing decisions (and/or stipulations) for minerals and energy development
- Allowing prescribed fire during county burn bans
- Updating conservation provisions for the American Burying Beetle (through a Conservation Plan completed after the 2005 Revised Forest Plan went into effect)
- Updating some statements of desired conditions and certain design criteria for soil and water, transportation, and lands

The IDT also recommended revising or deleting several Forest Plan monitoring questions. Finally, the IDT identified several categories of emerging issues and policies that may affect forest management in the future:

- Smoke Management
- Soils
- White-nosed Syndrome (bats)
- Biomass Utilization
- Climate Change
- Watershed Function
- Watershed Health
- Lake Level Management
- Heritage Resources Measurement
- Flooding in Developed Recreation Areas
- Land Administration
- Special Use Permits
- Early Seral Stage Creation
- Stewardship Contracts
- Collaboration and Partnerships

Determination

Based on monitoring of Forest Plan implementation from December 2005 through September 2010 and the 5-year Review, I have determined that neither conditions on the land nor the demands of the public have changed significantly since 2005. However, the 5-Year Review did identify concerns that could lead to amendments to the Forest Plan and changes in the ways the Plan is implemented over the next 5 years. These “needs for change” will be addressed in Fiscal Years 2012-2014.

/s/ Bill Pell (for)
Norman L. Wagoner
Forest Supervisor, Ouachita National Forest

September 30, 2011
Date

Executive Summary of the 5-year Review

The 5-year Review summarizes results and identifies trends from the past 5 years of monitoring the implementation of the Forest Land and Resource Management Plan for the Ouachita National Forest. The 5-year Review helps determine if there are significant trends or new information that would indicate a need to change the Forest Plan or adjust implementation activities. The findings of the 5-year Review are grouped under two headings:

- Changes to the Forest Plan that may require one or more plan amendments
- Emerging issues and emerging national/regional policy/direction

Changes to the Forest Plan to Consider

Management Area 22/RCW: To accommodate the probable near term expansion of Red-cockaded Woodpecker (RCW) clusters northward into nearby high quality habitat in Scott, County, Arkansas, the boundaries of the Arkansas Habitat Management Area (HMA) and Management Area 22 may need to be adjusted. A Forest Plan amendment would be needed.

Minerals and Energy Development: Interest in gas exploration is increasing, mainly on the Poteau and Cold Springs Ranger Districts where coal-bed methane reserves exist. Inquiries and past actions have also occurred on the Oklahoma Ranger Districts and the Mena-Oden Ranger Districts. It is recommended that the Forest request a new Reasonably Foreseeable Development Scenario (RFDS) from the Bureau of Land Management to update the RFDS used for the 2005 Forest Plan. After the RFDS is updated, the Forest should perform a Changed Conditions Analysis. Such an analysis may require an amendment to the Forest Plan if any changes are needed in the leasing decisions and/or stipulations.

Prescribed Fire Use during County Burn Bans: A forest-wide design criterion in the 2005 Forest Plan (AQ004, p. 73) prohibits the Forest from conducting prescribed burns when county “Burn Bans” are in effect. Experience since 2005 has shown that county burn bans have often been put into force under conditions that are still well within parameters for safe and effective controlled burns conducted on the Ouachita National Forest under the supervision of Forest Service fire management officers. (County officials often are understandably more conservative or restrictive, given that burning by untrained individuals—regardless of whether such burning involves slash piles, “trash,” fields, or woodlots—is much more likely to result in unintended consequences than burning by experienced professionals and technicians operating under a well organized command-and-control organization.)

The design criterion AQ004— “Burning will not be conducted when county burn bans are in effect”—should be re-examined and the plan should probably be amended to remove this unnecessary constraint on prescribed burning. Coordination with county officials will continue regardless.

American Burying Beetle Conservation Plan: The bait-away and trap-and–relocate protocols referenced in the 2005 Forest Plan are no longer the methods endorsed by the USFWS. The Forest Plan should be amended to incorporate two new American Burying Beetle conservation areas (in AR and OK) and either update the design criterion for this species or reference the Conservation Plan that is now in place.

Desired Condition Statements and Design Criteria

Soil and Water: Forest Plan, pp. 20-21, Desired Conditions for Soil Resources. Consider adding Desired Condition statement for Soil Resources [between Proposed, Endangered, Threatened, and Sensitive (PETS) Species Habitat and Geologic Resources] that would begin, "Soil health is of utmost importance in all forest management. Soil is the medium which provides sustenance and growth to biota, flora, wildlife, and enhancement to water quality and air quality." The Desired Condition statement itself would state: "Soils are healthy, protected, and productive, and their capacity to function integrally with and beneficially for other natural resources on the Forest is sustained and improved by maximizing their potential through scientifically sound management and through minimizing negative impacts during forest management activities."

Page 62, Soil, Water, and Air Priorities, 5th bullet: Recommend change from "Identify roads and trails that should be reconstructed or decommissioned to reduce sediment and improve watershed condition" to "Identify roads and trails that should be reconstructed, *relocated, redesigned, or* decommissioned to reduce sediment and improve watershed condition."

Forest Plan, p. 75, SW008: "For erosion control, plan, install, and maintain drainage structures in roads, skid trails, and firelines using spacing guidelines from state Best Management Practices and/or Forest Service directives. For waterbar (surface drain) spacing guidelines, use Table 3.1 (also see standards under Transportation and Timber Harvest Administration)." Consider changing SW008 to add OHV trails so that the guidance begins: "For erosion control, plan, install, and maintain drainage structures in roads, skid trails, OHV trails, and firelines……." Note that "OHV Trail Best Management Practices" may not be addressed in existing state BMPs or Forest Service directives, and they may have to be developed (see Additional Guidance section below).

Transportation System: Forest Plan, p. 67, Transportation System, 4th bullet: Recommend change from "Develop and operate a system of OHV routes that satisfies some public demands for motorized recreation and protects environmental quality; maintain routes to agency guidelines, when the latter are published" to "Develop and operate a system of OHV routes that sustains environmental quality and strives to meet public requests for motorized recreation. Place special emphasis on performing needed maintenance on existing trails and application of best practices for design and maintenance."

Forest Plan, p. 91, under Transportation Design Criteria
Propose adding a new design criterion, TR019, that reads, "OHV trails will be designed, constructed, and maintained to minimize negative effects on natural resources. Trails and drainage structures should be located and designed to include the following considerations: minimize hydrologic connectivity; avoid sensitive areas such as riparian areas (except for necessary crossings), hydric soils, wetlands, and unstable landforms; avoid the capture, diversion, and/or concentration of runoff from slopes adjacent to OHV trails; remove storm runoff from the trail surface before it concentrates enough to initiate rilling; and dissipate intercepted water by rolling the grade or using reverse grades. Extend drainage outlets beyond the toe of fill or side-cast. Trails should be no wider than necessary to provide the recreation experience defined in the Trail Maintenance Objective. Incorporate design elements that discourage off-route use (e.g., taking shortcuts, cutting new lines). For maintenance of existing OHV trails (primarily those not designed for such), provide trail; incorporate sediment basins at

rolling dip outlets instead of lead off ditches; and provide energy dissipaters at OHV rolling dip outlets where sediment basins cannot be installed."

Wilderness: The Forest Plan (p. 99), under Design Criteria for Designated Wilderness #1a.14, states that "Prescribed fire (ignited by lightning and allowed to burn under prescribed conditions and fires ignited by a qualified Forest Service officer) may be used in wilderness to reduce fuels if necessary to meet wilderness management objectives." Following is a recommended clarification: "Due to changing guidance and national policy, wildfires occurring in Forest Management Areas that allow Fire Use will be managed following the most up-to-date guidance for implementing wildland fire management policy."

Additional Guidance: The section containing additional guidance needs to be updated.

For example, on page 171, Appendix F of the Forest Plan, under the Soil and Water Resources heading, a reference for Ouachita NF OHV maintenance and design criteria, including OHV Trail Best Management Practices, will need to be added. Such BMP or technical requirements for OHV trails are currently being prepared and should be completed in 2011.

Monitoring Questions: A recommended change to wording of the monitoring questions for Landownership Pattern (Forest Plan, p. 21) follows:

Change the term, "occupancy trespass," to "unauthorized occupancy."

After 5 years of implementation, it is apparent that some of the questions in the Monitoring protocols are more relevant than others in measuring activities, accomplishments, and progress toward desired conditions and objectives. Listed below are questions recommended for elimination.

Air Quality

How many PSD permits were reviewed over the past five years?

The Clean Air Act and its Amendments designate specific wilderness areas and national parks as mandatory Class I areas, and these areas are provided special protection against degradation of air quality related values such as visibility. The Ouachita National Forest manages one Class I area, Caney Creek Wilderness. The Clean Air Act gives federal land managers the 'affirmative responsibility' to protect the air quality related values at these Class I areas and to consider whether a proposed new or modified source of air pollution may adversely impact such values. The Ouachita National Forest works with state regulatory agencies in Arkansas and Oklahoma to determine if new or existing industries will affect air quality at Caney Creek Wilderness through the Prevention of Significant Deterioration (PSD) permitting process. At least 20 PSD permit applications were reviewed from 2005 through 2010, and none of the proposed facilities was determined to cause or threaten adverse impacts to air quality at Caney Creek Wilderness.

How many regional air quality planning committees were participated in?

The Air Resource Manager for the Ouachita National Forest participated in two committees for CENRAP (Central Regional Air Planning Association).

Facilities
How many new facilities do not meet Built Environment Image Guide (BEIG) principle forest-wide? There are no facilities known to fall short of BEIG principles on the Ouachita NF.

Lands
How many ROW acquisition cases have been accomplished?
There are no desired conditions, priorities, objectives, or standards relative to acquisition of rights-of-way; however, the number of ROW acquisition cases has traditionally been reported. This numerical reporting is not serving as a valid measurement of Forest Plan implementation and is recommended to be dropped.

Minerals

How many operating plans have been administered to standard? Number of operations proposed under outstanding and reserved mineral rights processed? Number of operations proposed under outstanding and reserved mineral rights processed within 60 days and 90 days, respectively? How many violation notices were issued this year?

None of these numerical reporting items are serving as a valid measurement of Forest Plan implementation and are recommended to be dropped after this year.

Emerging Issues and Emerging National/Regional Policy/Direction

Emerging Issues and Emerging National/Regional Policy/Direction are included within the 5-year Review because they represent conditions or management direction that may require management changes in the near future. Such emerging issues and policies are not currently pressing, but if developments continue in the same direction currently indicated, they may become significant and require changes in management strategies, priorities, or direction.

Smoke Management: Prescribed fires emit $PM_{2.5}$, along with other pollutants. With the ongoing prescribed fire program on the Ouachita NF, it remains important to plan for and to be aware of downwind concentrations of fine particulate matter to ensure that prescribed fire emissions are not contributing to any violations of the NAAQS.

Soils: Biomass removal for energy utilization could emerge as a forest management issue in the near future. Additional study is recommended to review effects of woody debris removal on soil resource conditions.

White-nosed Syndrome: Since discovery of white-nose syndrome (WNS) in bats in the northeast United States, it has been confirmed in 19 states, including the adjacent states of Missouri and Tennessee. It has also been confirmed in northwestern Oklahoma but not elsewhere in Oklahoma or Arkansas. White-nose syndrome is responsible for the mortality of more than one million bats in the northeastern United States since 2006. The Oklahoma Division of Wildlife Conservation reports that one cave myotis (*Myotis velifer)* collected alive on May 3, 2010, from northwest Oklahoma tested positive for WNS; however, there have been no mortality events attributable to WNS in Oklahoma. Officials from the Arkansas Game and Fish Commission and the U.S. Forest Service have completed monitoring surveys in Arkansas for WNS and have not identified it in any caves in Arkansas. If WNS becomes more prevalent, additional steps will likely be required to protect bat populations on the Ouachita NF Arkansas and Oklahoma.

Biomass Utilization: It is recommended that potential impacts of biomass utilization for biofuels be addressed through soil and water design criteria, including accountability measures. Specific language is included within the body of the 5-year Review.

Climate Change: Climate change is the focus of a USDA and several multi-agency policy initiatives. One of the goals for national forests striving to adapt to climate change should be to manage for resilient forests. The 2005 Forest Plan does not address climate change because it was completed before this issue became a consensus concern for federal agencies. However, the Forest Service Strategic Framework for Responding to Climate Change (2008) has established a foundation for integrating climate change into the agency's programs, policies, practices, and partnerships. Some consideration should be given to adding Forest Plan direction on climate change.

Insects and Disease—Climate change in the form of higher temperatures could change ecological scenarios in many ways. One way would be that seemingly innocuous insects could become pests if warmer climates allowed two or perhaps three life cycles per year instead of the single annual life cycle they have now. It is not likely that species on the Ouachita NF or threats to species will change dramatically over the next 5 years due to climate change, but if summers continue to be dry and hot for a longer period, the Forest could experience more stresses and/or changes. It is difficult to estimate or quantify such changes, but the Forest will need to be flexible enough with Forest management to begin preparing for the changes when they become inevitable.

Emerging Policy on Climate Change—A new USDA climate change implementation plan is currently in development. The implementation plan will set priorities, guide collaborative response efforts, and be integrated with the Secretary of Agriculture's "all-lands" vision for America's Forests.

At the Forest level, pilot studies have been completed to determine the effect of climate change on water quality and aquatic biota. The studies demonstrated the increased risk to aquatic biota by subwatershed (cumulative effects). Using two emission levels (B1 and A1B) and three time periods (2010, 2050, and 2080), the increased risk to aquatic biota by subwatershed (cumulative effects) was modeled. Then, the risk scenario calculation was repeated to show the effects of proper road maintenance, and a decreased watershed risk was demonstrated even with elevated CO_2 emissions.

Subwatersheds and Associated Risk for Aquatic Biota and Climate Change

Risk Scenario	2010 current	2010 mng resp*	2040 B1	2040 B1 mng resp	2080 B1	2080 B1 mng resp	2040 A1B	2040 A1B mng resp	2080 A1B	2080 A1B mng resp
High	88	82	93	85	93	85	105	96	105	96
Moderate	46	40	42	43	42	43	44	43	45	43
Low	56	68	55	62	55	62	41	51	40	51

***Mgn resp – responsible management that brings roads and trail up to FS standards**

The Eastern Forest Environmental Threat Assessment Center recently released a template for assessing climate change impacts and management options (TACCIMO), a web tool to allow

users to integrate current climate change science into land management planning decisions. The tools are designed to fit within the NEPA process. Land management plan amendments and revision, environmental assessments and impact statements, and reasonable alternatives will need to address climate change and weigh alternatives based on their effects on climate.

Watershed Function: The U.S. Department of Agriculture (USDA) *Strategic Plan for FY 2010–2015* targets the restoration of watershed and forest health as a core management objective of the national forests and grasslands. To achieve this goal, the Forest Service will restore degraded watersheds by focusing on watershed improvement projects and conservation practices at the landscape and watershed scales. The Watershed Condition Framework (WCF) is a comprehensive approach for classifying watershed condition, proactively implementing integrated restoration in priority watersheds on national forests and grasslands, and tracking and monitoring outcome-based program accomplishments for performance accountability. The watershed condition policy goal of the Forest Service is "to protect National Forest System watersheds by implementing practices designed to maintain or improve watershed condition, which is the foundation for sustaining ecosystems and the production of renewable natural resources, values, and benefits" (FSM 2520).

Lake Level Management: Routine lowering of lake levels to accomplish swimming beach maintenance has resulted in large numbers of fish flushed from some lakes. A better practice is to leave at least 50 percent of the lake level during the winter to maintain the fishery and still provide the necessary draining and drying of the substrate to facilitate maintenance. The Forest Leadership Team has implemented a process that requires each District to provide the Forest Supervisor and his staff with information in the fall about any water level manipulation planned for the following year on fishable water bodies, allowing sufficient lead time for coordination with all affected parties.

Heritage Resources Measurement: A new system has been in trial for 2 years to measure how well Heritage Resource Programs are functioning. This system assesses program planning; Section 110 inventory, evaluation, and nomination(s); Priority Heritage Asset (PHA) condition assessments; PHA stewardship; the number of volunteer hours contributed; and "scientific study" to derive the percentage of the Heritage Program Managed to standard. A score of 45 is required to meet the criterion of "managed to standard." For FY 2010, the Ouachita score was 47.

Flooding of Developed Recreation Areas: In June 2010, a major flash flood swept through Albert Pike Recreation Area, resulting in 17 fatalities in the Recreation Area and 3 more fatalities upstream in an undeveloped area. Several other Ouachita NF developed recreation areas, as well as other recreation areas across the country, are adjacent to streams, lakes, and rivers, where they may be subject to occasional flooding or flash flooding. The Southern Region and the US Forest Service as a whole are reviewing and evaluating policies regarding flood-susceptible areas, and changes may be forthcoming.

Land Administration: Several tracts that would have made good additions to consolidate Forest ownership have been sold by existing and former timber companies. Acquisition funds are very limited, however, and land acquisition is becoming more difficult due to rising costs and increased competition from the private sector for such land. Increased private development and use next to or within the Forest are likely to result in more requests to

expand roads and utilities, new boundary disputes or encroachments, and increased illegal trails. Acquiring public access through private lands is becoming increasingly difficult, and owners are less willing to allow public access across their land. With more occupation in and near National Forest System lands, user conflicts and law enforcement issues are likely to increase.

Special Use Permits: Since the Forest Plan was adopted in 2005, there have been two policy changes affecting special use permits and the number of permits issued:

1. Implementation of Cost Recovery, where applicants pay a portion of the cost of processing their permits. The requirement to pay part of the cost of processing a permit has both slowed processing time and dissuaded some proponents from applying for a permit.

2. Implementation of a policy to waive the need for a permit in those cases where the proposed use is nominal and of short duration. If state or local permits satisfy Forest Service concerns and other terms and conditions are not necessary, the need for a permit may be waived. The Forest has waived the need for most research studies and geocache site permits.

Current economic conditions have resulted in increased requests from public and semi-public entities seeking to use National Forest Systems lands for roads, easements, and utilities. With limited public funding and increased pressures for public services, it is likely that such pressures will continue to increase.

Early Seral Stage Creation: Based on 2005 Forest Plan projections, early seral stage habitat should continue to increase and then stabilize at approximately 50,000 to 60,000 acres after 10 years (USDA Forest Service 2005b, p. 175.) The 2005 Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year. Since FY 2006, the annual Ouachita NF monitoring and evaluation reports have noted that the Forest has not met that objective.

The 2010 Species Viablity Evaluation (SVE) resulted in several scores declining due to lack of early seral stage habitat creation. The forest-wide SVE condition score for the grass/forb and seedling/sapling habitat in 2005 was 1.94, but by FY 2010 it had declined to 1.56 (declining but still in the “Fair” range). Throughout the communities evaluated, the early seral vertical structure component scored “Poor,” with little to no improvement from the 2005 values. A silviculture/wildlife study is recommended to review why the level of early seral habitat creation remains so far below the Forest Plan objective.

Review of previous monitoring and evaluation reports reveal a 1990 Forest Plan goal of creating 5,800 acres annually to meet Forest Plan minimum management requirements. The following tabulation presents acres of early seral stage habitat created by timber harvest methods since

1990 Forest Plan			2005 Forest Plan	
Fiscal Year	Acres of Early Seral Habitat Created		Fiscal Year	Acres of Early Seral Habitat Created
2000	2,246			
2001	953		2006	2,602
2002	772		2007	4,363
2003	2,268		2008	3,869
2004	1,866		2009	2,151
2005	3,031		2010	2,676

Early seral stage is important for the viability of early seral-dependent species as well as to development of a healthy and resilient forest. The early seral stage is particularly important to species such as white-tailed deer, Northern Bobwhite, Prairie Warbler, and snakes seeking small mammals as food sources. The grass/forb seedling/sapling (early seral) condition is highly productive in terms of diversity and abundance of nesting and escape cover and forage production, including insects, small mammals, reptiles, seeds, and soft mast. This condition has a transitory lifespan, and is often in short and/or declining supply.

Present forest management has resulted in a forest that is growing older, because the acreage regenerated in the older age groups is less than the acreage of timber entering into the next 10-year age classes. Ultimately, this will result in a forest with far too much timber over 80 years of age and far too little acreage in the early seral stages of growth. This condition increases the risk to catastrophic insect or disease attack and penalizes certain wildlife species that have habitat and cover needs more closely aligned with early seral stage development.

Thinning treatments for timber stand improvement, wildlife stand improvement and acres treated with prescribed fire should be considered to determine their contribution to the needs of species dependent on early seral habitat.

Watershed Health: Concerns about high open road densities and less than adequate maintenance of roads and OHV trails remain. The open road density objective of one mile of road per square mile in most management areas, a wildlife objective with implications for watershed health, is exceeded forest-wide, where the average density is 2.06 miles per square mile. Open road densities in a few watersheds and in some natural communities are at or below the Plan objective; however, in most others, open road densities exceed the Forest Plan objective.

The reduced capacity to maintain roads and trails to standard is contributing to increased sediment loading of streams. There are also related concerns about high levels of off-highway vehicle (OHV) use in some watersheds, even though the recent travel management decision now prohibits most cross-country travel and limits OHV and other motor vehicle traffic to designated roads and trails.

Due in part to each of these concerns but also to improvements in the databases that house the inventories for roads and trails (including details about the condition of individual routes or route segments), there has been a rise in the percentage of subwatersheds considered to be at moderate risk from about 9 percent in 2005 to over 19 percent in 2010, and a rise in the

percentage of subwatersheds considered to be at high risk from about 5 percent in 2005 to approximately 40 percent in 2010.

Following the 2010 Ouachita National Forest Travel Management decision, road maintenance in 16 of the Forest's impaired watersheds was accelerated. Ongoing efforts include addressing deferred maintenance on high-clearance Maintenance Level 2 roads, which normally receive little to no maintenance except for timber sale activities approximately every 10 years. The intent is to periodically re-visit these roads and maintain the road conditions according to Forest Plan direction, Forest Service directives, and Best Management Practices. These current and future road maintenance efforts, as well as forest-wide road maintenance, stand to be influenced strongly by the changing budget picture.

As noted in the "Changes to the Forest Plan to Consider" section, editorial changes need to be made to the "Priorities" for Soil, Water and Air Resources section to address OHV routes.

Stewardship Contracting: Stewardship contracting offers special opportunities to collaborate with partners to leverage funding and achieve desired objectives. The authority granted under Section 323 of Public Law 108-7, the Consolidated Appropriations Resolution of 2003, provided the Chief of the Forest Service with full authority to enter into and administer agreements or contracts for the purpose of stewardship contracting.

The intent of stewardship contracting is to accomplish resource management with a focus on restoration. Stewardship contracting helps achieve land management goals while meeting local and rural community needs, including contributing to the sustainability of rural communities and providing a continuing source of local income and employment. It focuses on the "end result" ecosystem benefits and outcomes, rather than on what is removed from the land.

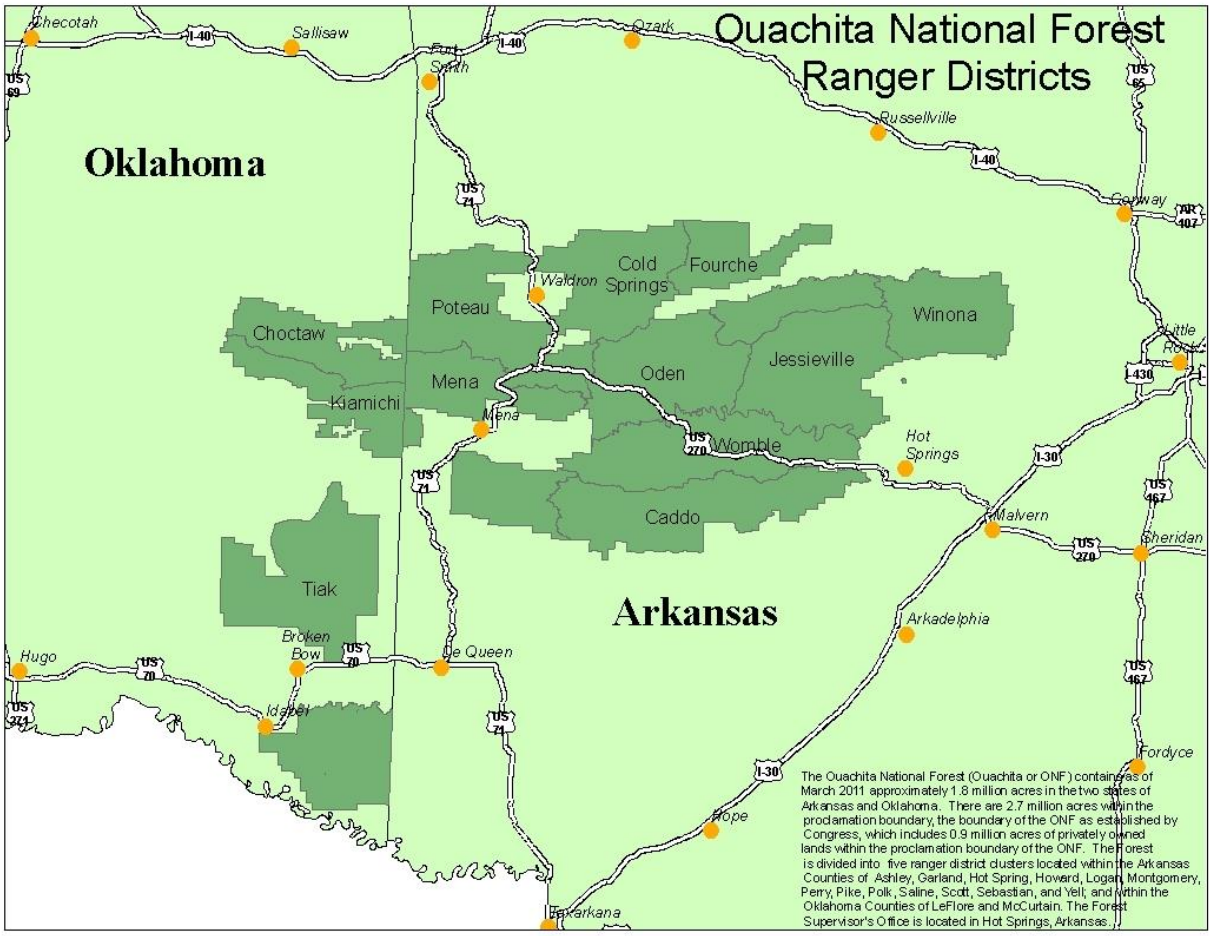
The Ouachita National Forest has completed six stewardship project proposals and has one additional contract pending approval. Three of the projects have been implemented through use of Integrated Resource Timber Contracts and one project was implemented through use of an agreement with the National Wild Turkey Federation.

The Ouachita National Forest

The Ouachita National Forest is located in western Arkansas and southeastern Oklahoma. As of September 2011, the Ouachita National Forest (Ouachita NF, Forest, or ONF) contained approximately 1.8 million acres of federally managed land in the two states of Arkansas and Oklahoma. There are approximately 2.7 million acres within the boundary of the Forest as established by Congress, also known as the proclamation boundary. Not all land within the proclamation boundary is a part of the NFS system. Privately owned lands within the proclamation boundary total nearly 1 million acres.

The Ouachita NF is divided into five ranger district clusters located within the Arkansas counties of Ashley (Crossett Experimental Forest), Garland, Hot Spring, Howard, Logan, Montgomery, Perry, Pike, Polk, Saline, Scott, Sebastian, and Yell; and within LeFlore and McCurtain counties in Oklahoma. The Ouachita NF Supervisor's Office is located in Hot Springs, Arkansas. Individual Ranger Districts are shown in the figure below. For administrative purposes, the Ranger Districts are grouped into the following clusters: Oklahoma; Poteau/Cold Springs; Mena/Oden; Caddo/Womble; and Jessieville/Winona/Fourche.

Ouachita National Forest Vicinity Map



The 2005 Forest Plan

In December 2005, the Ouachita NF completed a Forest Plan revision incorporating the amendments of the previous 15 years, and streamlining the management direction within the Forest Plan. Appendix A lists amendments to the 2005 Forest Plan. The 2005 Forest Plan guides all natural resource management activities for the Ouachita National Forest. To accomplish this, the 2005 Forest Plan:

- Establishes long-range goals (desired conditions) and short-range objectives (generally for the next 10 to 15 years)
- Specifies management prescriptions and associated standards and anticipates the rates or levels of management practices that will be applied
- Establishes monitoring and evaluation requirements that provide a basis for periodic determination and evaluation of the effects of implementing the Forest Plan

Implementation of the 2005 Plan

The 2005 Forest Plan (Forest Plan) for the Ouachita National Forest provides broad, strategic direction for managing the land and its resources and sets the context for project development. Site-specific project decisions must be consistent with the Forest Plan and will undergo review for compliance with the National Environmental Policy Act, the National Historic Preservation Act, and the Endangered Species Act. The Forest Plan is implemented through project work primarily accomplished at the District level.

Projects Completed Fiscal Years 2006–2010

Appendix B to this report contains a list of projects on the Ouachita NF implemented from 10/06/2005 through 09/29/2010. The list of projects was derived from the Planning, Appeals, and Litigation System (PALS). The PALS database is used to track project planning and NEPA decision data and to generate the quarterly Schedule of Proposed Actions (SOPA). Quarterly and "live" SOPA reports are available at the following internet address: www.fs.fed.us/sopa.

The Caddo/Womble District cluster, with a total of 97 projects, completed the most projects during this period. The Oklahoma Ranger Districts completed 87, the Jessieville/Winona/ Fourche completed 72, the Mena/Oden completed 60, and the Poteau/Cold Springs completed 53. Six projects were completed at the Forest level for a total of 375 projects during the 5-year review period. Appendix B shows that many projects addressed multiple purposes; therefore, the number of project purposes is greater than the number of total projects.

Vegetation management was the most common type of project (151), and fuels management was the next most numerous type (135). Wildlife, fish, and rare plants projects numbered 98, while forest products projects totaled 81. There were 69 special use projects, 55 recreation management projects, 44 road management projects, and 39 watershed management projects. Minerals management accounted for 30 projects, heritage management for 26, land management planning for 12, land acquisition/land ownership adjustment for 9, facility management for 8, special area management for 7, and research and grazing projects for 4 projects each.

Monitoring

The Forest Plan provides the framework to project decisions and implementation. As the Plan is implemented, "needs for change" are identified through monitoring and evaluation. Monitoring protocols are in place for measurement of progress toward achieving: (1) desired conditions (2) objectives; and (3) adherence to design criteria at the project level.

A Monitoring and Evaluation Report is completed each year. During the 5-year review, results and findings from the 2006, 2007, 2008, and 2009 Monitoring and Evaluation Reports were revisited together with monitoring results for FY 2010.

No management plan is "active" unless progress is being monitored.

Purpose

The purpose of a 5-year Review is "to review conditions on the land covered by the Plan to determine whether conditions or demands of the public have changed significantly " (36 CFR 219.10(g))

Does the Review make decisions? How will the Review be used to change the Forest Plan?

The review of the Forest Plan does not make decisions. It presents an evaluation of the Forest Plan, conditions of the land, and public expectations. The review provides a framework for proceeding with amending the Forest Plan, as needed.

Purpose of the 5-year Review

The Forest Plan sets out the vision, desired conditions, priorities and objectives as well as design criteria [standards] to achieve the desired conditions and priorities. Each year the Ouachita NF monitors to measure progress toward the desired conditions, priorities, and objectives; however, progress on a landscape scale is usually difficult to ascertain in the short term. The 5-year Review provides a slightly more long-term view and is the process where monitoring information from the past 5 years is accumulated and compared to determine if there are significant trends or new information that would indicate a need to change the management focus.

Implementation Monitoring Reviews

In the past 5 years, two Implementation Monitoring Reviews (IMRs) have been accomplished—one in FY 2006 and one in FY 2007.

FY 2006 Implementation Monitoring Review

For FY 2006, an IMR report of standards monitoring was completed as a special long term soil quality monitoring study/report. The soils report was conducted utilizing 1990 Forest Plan Standards and Guidelines and resulted in design criteria SW007 and MG012 being included in the 2005 Forest Plan (pp. 75 and 94, respectively).

FY 2007 Implementation Monitoring Review

For FY 2007, an Implementation Monitoring Review (IMR) took place at three growing season prescribed fires on the Jessieville-Winona-Fourche Districts. The IMR was undertaken to determine whether growing season prescribed fire projects were planned, documented, and implemented in a safe and appropriate manner. Project consistency not only with Forest Plan direction, but also agency, Region and Forest prescribed fire guidelines was reviewed. Documentation of the review was shared with all Ouachita NF Districts, to aid in the planning and implementation of similar prescribed fire projects.

Each of the three fires contributed to the objectives of reducing fuel volume and continuity, as well as increased production of browse and herbage. Very little mortality (<1 percent) occurred in Bills Branch and South Link Mountain burns; however, hot spots totaling 120 acres occurred in the North Link Mountain burn. Fires that burn in a stand of mature trees without damage may still kill young trees in regeneration areas. To minimize the threat to young stands, pre-burn young stands under milder conditions, if possible. If not possible, limit all firing in plantations to backing fire only, particularly on growing season prescribed fires. Backing fires must be used rather than head or flanking fires. Backing fires, even at relatively high ambient air temperatures, have not been found to cause significant mortality.

Growing season burns take more time and require more personnel. Firing with helicopters mitigates some of the potential risk of crew fatigue from hand ignition, particularly on ridges. The Ouachita NF currently operates under a policy of not burning overnight, although there are times when overnight burns would be more efficient. Relatively large-scale prescribed burns, i.e. several thousand acres, can be implemented in the summer under fairly extreme temperature and atmospheric conditions without undue environmental damage. The general consensus on this Forest prior to these projects was that large-scale summer burns could not be done without causing severe tree mortality, and these projects proved otherwise.

Contribution of the Ouachita National Forest to Social and Economic Sustainability

The Ouachita National Forest comprises approximately 4.2 percent of the land base of the state of Arkansas and less than 1 percent of the total land area in Oklahoma. In Arkansas, Ouachita National Forest System lands occupy a high of 67 percent to a low of 0.08 percent of total lands

by county, while within the two Oklahoma counties, National Forest System lands occupy 22 percent of LeFlore County and 11 percent of McCurtain County. The following tabulation displays the amount and percentage of Ouachita National Forest lands in each county and within each state as a whole:

Lands by State and County, September 2010, ONF

State/County	County Acres	Ouachita NF Acres	Ouachita NF Percent of State or County
Arkansas		**1,434,899**	**4.22**
Ashley	**589,440**	**1,675**	**0.28**
Garland	**433,280**	**120,573**	**27.83**
Hot Spring	**393,600**	**320**	**0.08**
Howard	**375,680**	**1,531**	**0.41**
Logan	**454,400**	**18,586**	**4.09**
Montgomery	**499,840**	**336,840**	**67.39**
Perry	**352,640**	**99,170**	**28.12**
Pike	**385,920**	**13,427**	**3.48**
Polk	**549,760**	**206,441**	**37.55**
Saline	**462,720**	**58,959**	**12.74**
Scott	**572,160**	**369,587**	**64.59**
Sebastian	**343,040**	**18,956**	**5.53**
Yell	**593,920**	**188,834**	**31.79**
Oklahoma		**354,954**	**0.81**
LeFlore	**1,015,040**	**221,949**	**21.87**
McCurtain	**1,185,280**	**133,005**	**11.22**

The Ouachita NF is important to many local economies in terms of providing employment and in providing products, services, recreation visits, contracting, and other sources of revenue that then multiply economically within local communities. Some of these contributions are difficult to quantify. One type of economic contribution to counties, however, is clear, as described in the following section.

Payments to Counties

An important source of revenue for many counties that have National Forest System lands is payments received from the US Forest Service. Because no real estate tax payments are made to counties for land that is federally owned, the Secure Rural Schools and Community Self-Determination Act (or, if a county chooses, the older 25 percent Payment Act) provides rural communities with annual funding for: (1) county roads in or near national forests; (2) local school districts that include National Forest System lands; and (3) local conservation projects on or benefitting National Forest System lands. The tabulation on the following page shows payments to counties under the Secure Rural Schools and Community Self-Determination Act. Hot Spring County, with only320 acres of National Forest System land, is the only county with acreage in the Ouachita NF still receiving the 25 percent payments.

Secure Rural Schools and Community Self-Determination Act
Payments (Titles I and III) to Counties for the Last 5 Years

County	2006	2007	2008	2009	2010
Ashley	3,539	2,869	6,633	6,235	4,970
Garland	454,370	453,437	321,2963	291,494	276,302
Hot Spring	676	548	5713	568	549
Howard	3,235	2,622	5,8201	5,200	5,085
Logan	42,505	42,418	70,754	50,287	45,922
Montgomery	1,243,580	1,241,027	1,467,711	1,325,823	1,290,494
Perry	387,420	328,632	324,278	260,347	237,031
Pike	21,847	22,957	31,344	29,111	25,179
Polk	648,426	687,539	876,424	832,968	890,615
Saline	184,787	216,951	146,405	124,858	112,788
Scott	1,456,962	1,165,618	1,614,725	1,456,841	1,577,973
Sebastian	64,570	64,438	38,467	35,477	34,226
Yell	695,433	694,006	801,940	733,059	666,927
LeFlore	974,175	972,176	956,344	842,016	773,112
McCurtain	264,770	264,226	383,889	350,417	347,835

Source: http://www.fs.fed.us/projects/ under Secure Rural Schools and Community Self-Determination Act: Proclaimed National Forest. All Service Recipients-10-2: Payment Detail

These annual payments (plus additional payments processed through the Department of the Interior) have provided some stability and predictability for funding to the counties. If the Secure Rural Schools and Community Self-Determination Act is not re-authorized (it expires September 30, 2011), payments to States and counties with National Forest System lands will revert to the 25 percent Payment Act but under a definition where the payments are based on a rolling average rather than annual gross revenues (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5103009.pdf, pp. 19-20).

In addition to these payments, the Forest Service worked with many counties to implement millions of dollars' worth of Title II projects under the Secure Rural Schools and Community Self-Determination Act on or near the Ouachita National Forest. Among other mutually beneficial purposes, these projects helped local communities and the Forest Service improve the maintenance of many existing roads, trails, and recreation areas. For a listing of Title II projects on the Ouachita National Forest and the Title II funding associated with each, navigate to: http://www.fs.usda.gov/wps/portal/fsinternet/!ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPwhQoY6BdkOyoCAPkATlA!/?ss=119985&navtype=BROWSEBYSUBJECT&cid=null&navid=111130000000000&pnavid=111000000000000&position=BROWSEBYSUBJECT&ttype=main&pname=Secure Rural Schools-RAC Website, and then click on RAC Website, "RAC," "Ozark-Ouachita," and "Projects." Except for a few projects in Logan and Yell Counties, all Title II projects listed for the counties in the table above occurred on or near the Ouachita National Forest (other counties listed under the Ozark-Ouachita RAC had Title II projects on or near the Ozark-St. Francis National Forests.)

Budget

The Forest Plan management areas, management prescriptions, and design criteria represent statements of long-term management direction. Such direction and the rate of implementation are largely influenced by and dependent on the annual budgeting process. The allocated funds for the Ouachita National Forest in Arkansas and Oklahoma without earmarks or returns on receipts of timber sales under Knutson-Vandenberg (KV)* for the time period FY 2006 through FY 2010 are shown in the following tabulation.

Allocated Funding 2006-2010, ONF

Year	2006	2007	2008	2009	2010
Dollars (in Millions)	8.5	6.8	8.8	11.7	10.5

Source: Ouachita National Forest

*The KV Act of 1930, as amended, established a funding mechanism for wildlife and fisheries, timber, soil, air, and watershed restoration and enhancement projects. Projects are restricted to timber sale areas and are funded from receipts generated on those areas.

Desired Conditions

Desired conditions describe how the Ouachita NF would look and function as management direction in the Forest Plan is implemented over time. Desired conditions are described using the ecological and/or economic and social attributes that characterize or exemplify the anticipated outcomes of land management. Desired conditions are not commitments and may be achievable only over the long term.

The degree to which desired conditions are achieved on the Ouachita NF is evaluated annually. Data are used to determine trends and assess progress. Through repeated measurement, trend lines are established and used to determine if programs should be adjusted or if changes in Forest Plan direction are needed. Annual monitoring results are reported in a monitoring and evaluation report and, every 5 years, in a 5-year review document.

Comparison of Existing Conditions to Desired Conditions

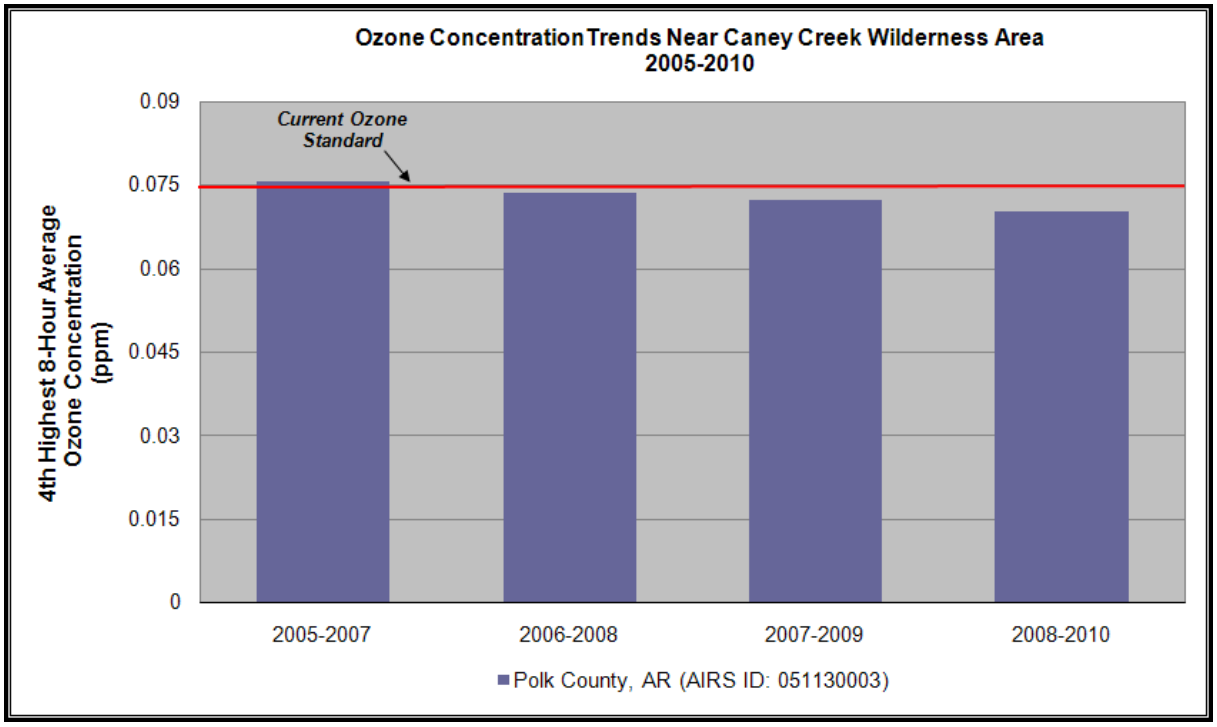
Air Quality

Monitoring of the AQRV for the Class I Area [Caney Creek].
Objective 16 of the 2005 Forest Plan states, "Protect and improve the Air Quality Related Values (AQRV) of the Class I Area." The Air Quality Related Values (AQRVs) for Caney Creek Wilderness are flora, visibility, and water. In order to evaluate whether impacts may be occurring to the AQRVs, ambient ozone concentrations as well as fine particulate matter and visibility are monitored near the Class I area.

Ozone. Exposure to elevated ozone levels can cause human health concerns as well as negative impacts to vegetation. The EPA established ozone NAAQS at 0.075 ppm, as

measured by taking the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitoring site.

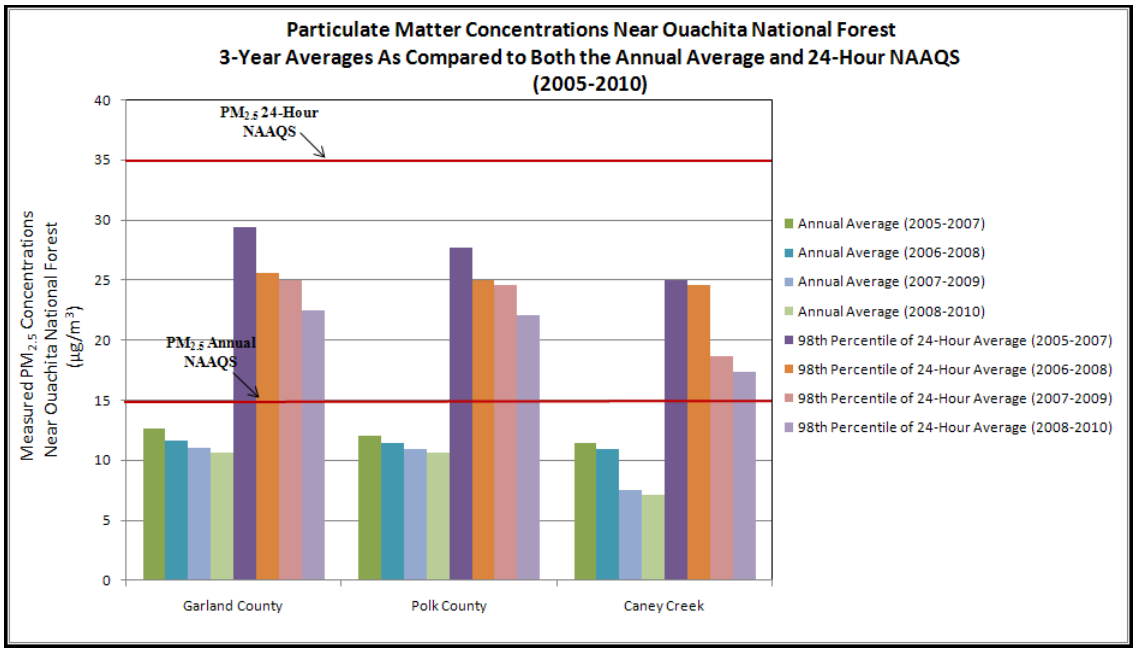
There is one ozone monitor located near Caney Creek Wilderness. The following graph summarizes the 3-year average measured ozone concentrations at that location from 2005 through 2010. The 3-year average exceeded the desired standard for the years 2005-2007; however, since that time, ozone levels have met the standard.



(**Source: http://www.epa.gov/airexplorer/**)

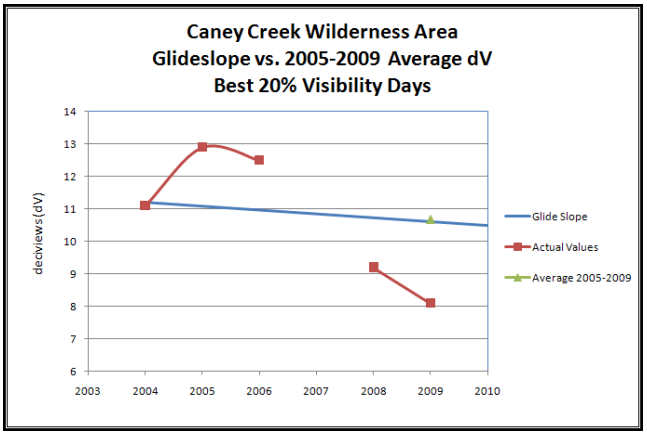
Particulate Matter. Ultra-small particles, called fine particulate matter or $PM_{2.5}$, are the cause of regional haze. An ambient air quality monitoring site to measure fine particulate matter has been situated within the Ouachita National Forest and is operated by the Environmental Protection Agency (EPA) under the Interagency Monitoring of Protected Visual Environments (IMPROVE) program. In addition to this site, there are two additional fine particulate matter monitors operated by the Arkansas Department of Environmental Quality located adjacent to the Forest in Garland and Polk Counties. The measured fine particulate matter concentrations as compared to the daily and annual NAAQS at all three of these monitoring sites for the years 2005 through 2010 are shown in the chart below.

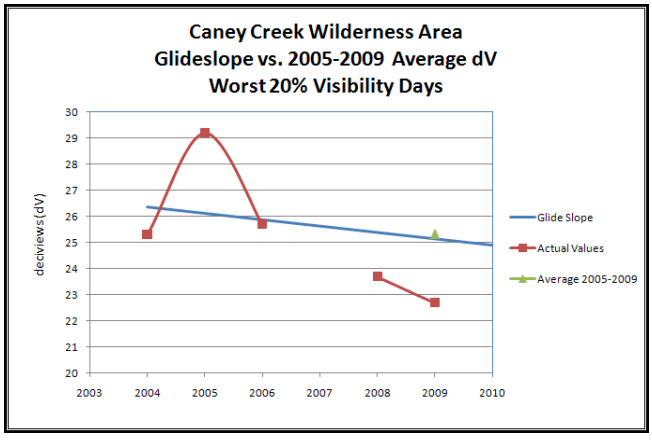
Neither the daily nor annual NAAQS for $PM_{2.5}$ are being exceeded at any of the monitoring sites located on or near the Ouachita NF.



(Source: http://www.epa.gov/airexplorer/)

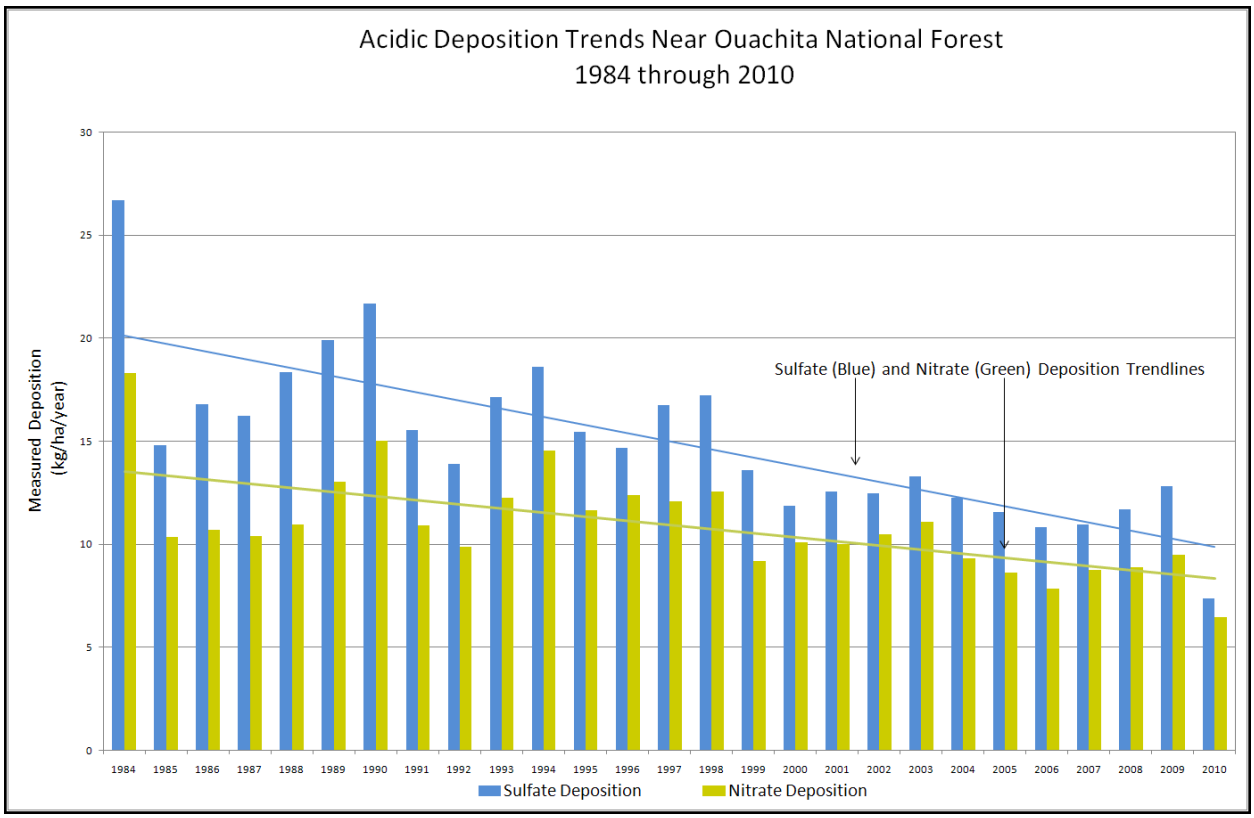
Visibility Monitoring. As discussed above, there is a fine particulate matter and visibility monitoring site located near Caney Creek Wilderness and operated as part of the IMPROVE monitoring program. The results of the monitoring, particularly the haziness index (deciviews) on the 20 percent best and worst days for visibility, are being used to measure progress in achieving the federal goal of natural background visibility conditions at all Class I areas by the year 2064. The graphs below show how the haziness index at Caney Creek compares to the goal intervals, labeled as glideslope, for the best and worst visibility days from 2005 through 2009. Note that data for 2007 were incomplete and therefore missing from the graphs. Based on the data shown, visibility appears to be improving at Caney Creek Wilderness Area. (Source: http://views.cira.colostate.edu/web/)





Acidic Deposition. Deposition of acidic compounds can cause harmful effects to both aquatic and terrestrial ecosystems. Such deposition can occur in three forms: dry, wet, and cloud. Cloud deposition is not expected to be a contributor to acidic deposition on the Ouachita NF as the latter only occurs at high elevations.

There is one Clean Air Status and Trends Network (CASTNET) site measuring dry deposition rates located 30 kilometers southeast of the Ouachita NF in Clark County, Arkansas. Total sulfate and nitrate deposition values are available for the years 1983 through the present. As shown in the graph below, from 1984 to 2010, sulfate and nitrate disposition is trending downward, i.e., improving.



Air Quality Monitoring Findings/Trends

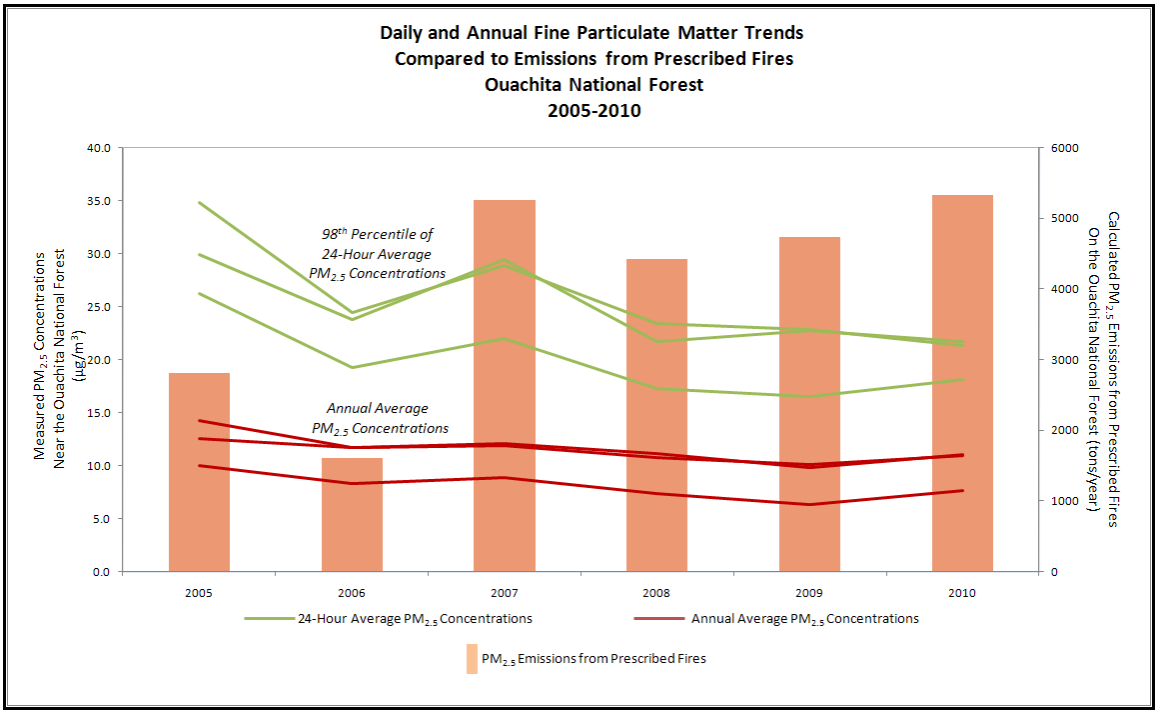
As shown above, fine particulate matter and ozone concentrations near the Ouachita NF have been measured for several years. Although the air quality trends appear to be improving, at this time, the trends are not statistically significant.

IMPROVE Monitoring Network

Except for 2007, the IMPROVE monitoring site has had at least 90 percent data capture for all recent years. **(Source: http://vista.cira.colostate.edu/views/)**

Air Quality Ongoing Issue: Smoke from Prescribed Fires on the Forest

The use of prescribed fire emits $PM_{2.5}$, along with other pollutants. It is important for National Forest managers to be aware of downwind concentrations of fine particulate matter to ensure that prescribed fire emissions are not contributing to any violations of the NAAQS. As noted previously, there are three $PM_{2.5}$ monitors near the Ouachita National Forest. The following graph does not show a strong correlation between monitored fine particulate matter concentrations from these stations and calculated prescribed fire emissions. Moreover, the concentrations of measured fine particulate matter near the Ouachita National Forest, both on a 24-hour average and an annual basis, are less than the NAAQS of 35 and 15 µg/m^3, respectively. Thus, while prescribed fire is contributing to nearby concentrations of $PM_{2.5}$, the area is still meeting the NAAQS for this pollutant.



Soils

Objective 15 of the 2005 Forest Plan states, "Conduct watershed improvement actions on at least 40 acres per year." Progress toward this objective is reported each year as acres of watershed improvement or maintenance accomplished. From FY 2006 – FY 2010 the objective of conducting 40 acres per year has been exceeded each year.

Each year, soil restoration and maintenance activities are implemented on small projects as a part of watershed improvement on the Ouachita NF. These include such activities as rehabilitating abandoned roads and gully stabilization. From 2006 to 2010, there were a total of 312 acres of soil and water improvement accomplished and reported by the Districts. The tabulation below displays that progress for each year. In addition, there were other watershed restoration accomplishments spurred by special needs due to excessive erosion and flooding on

certain areas of the Forest. Those acres were accomplished during Fiscal Year 2010 and totaled 342 acres. The following tabulation displays acres of soil restoration and maintenance accomplished by year:

Acres of Soil Restoration and Maintenance by FY, ONF

	2006	2007	2008	2009	2010
Acres of Soil Restoration and Maintenance	**87**	**45**	**41**	**75**	**64**

Trends Revealed Through Monitoring

Soil quality monitoring on the Ouachita NF for the past 5 years has revealed that the Forest as a whole is staying in compliance with the soil conservation provisions of the Forest Plan. However, there is a need to expand monitoring and collect more data on a wider range of soil conditions and management practices such as pre-harvest soil and site conditions, soil nutrient status, prescribed burning, and perhaps biomass removal. Additional monitoring will be scheduled commensurate with available time, personnel, funds, and current and planned priorities.

Trends Related to Forest Plan Objectives and/or Desired Conditions

The desired condition of Terrestrial, Riparian, and Aquatic Ecosystems on the Ouachita NF is, in great part, dependent upon the health of the soil resources. Therefore, monitoring serves as a check on current conditions of the soils; effects to soils from project implementation; and also, what mitigating measures, if any, will be required to bring the soils to the desired level of health. During the past 5 years, the soil monitoring and observations made have revealed management actions have not had an overall detrimental impact to soil conditions. There are no changes recommended to soils design criteria that provide the standards for project implementation.

Soils—Emerging Issues

Biomass removal for energy utilization could emerge as a forest management issue in the near future. Additional study is recommended to review effects of woody debris removal on soil resource conditions; however experience and current research have shown that its presence in adequate amounts is critical for soil protection, soil productivity, wildlife sustenance, biodiversity, and as a nutrient pool which can be activated through prescribed fire. Any efforts to accelerate woody debris removal on the Ouachita NF should be prefaced by careful planning and analysis and followed-up by monitoring.

Terrestrial Ecosystems

This section describes terrestrial conditions of the Forest, the relationship of these conditions to species of viability concern and management indicator species (MIS), and the biological effects of management activities from the 2005 Forest Plan implementation through 2010 to habitat. The analysis drew upon the best available data concerning existing natural communities; the distribution, abundance, and habitat relationships of species of viability concern and MIS; landtype associations; and watershed conditions. Central to the analysis was a comprehensive Species Viability Evaluation (SVE) that was updated with the 2010 data for comparison to the 2005 SVE values.

Ecological systems recognized within the Ouachita NF are divided by terrestrial ecosystems and riparian and aquatic ecosystems. Progress toward the desired conditions for terrestrial ecosystems is presented first, followed by discussions about terrestrial habitat dependent upon those systems and then vegetation management. Riparian and aquatic ecosystems and their habitat dependent species are presented as a separate discussion.

Habitat condition needs for species of viability concern and MIS were based on the most current science, literature, and expert opinion. The species viability scores represent the average of the weighted "condition scores" (see the following tabulation) of the natural communities and habitat elements associated with a particular species of concern or MIS. For the SVE, each community and habitat element was weighted by how important that community or element is to the species (on a descending scale of "obligate," "optimal," "suitable," or "marginal").

Range of Condition Score	Condition Classification	Definition of SVE Score Applied to Communities and Habitat Elements
3.51 – 4.00	**Very Good**	**Community or Habitat Element conditions are optimal; associated species' populations should remain robust and potentially even expand.**
2.51 - 3.50	**Good**	**Community or Habitat Element conditions are acceptable; associated species' populations should remain stable.**
1.51 – 2.50	**Fair**	**Community or Habitat Element conditions are slightly inadequate; although associated species' populations may persist for some time, they may be subject to gradual decline.**
1.0 - 1.50	**Poor**	**Community or Habitat Element conditions are severely inadequate. Associated species' populations are expected to severely decline; localized extirpations are occurring or are imminent.**

Terrestrial Communities

Terrestrial communities include all non-aquatic Ouachita Mountain and West Gulf Coastal Plain Ecological Community Systems listed by NatureServe (2003). Other terrestrial habitat elements include caves and mines, snags, dens, vertical structure, mature trees/old growth, and large trees near water. The 2005 information included here for the vegetation communities as well as the species viability evaluation is cited in the Final Environmental Impact Statement for the Revised Land and Resource Management Plan for the Ouachita National Forest (USDA FS, 2005b). The sources for all new information that has been collected since then will be cited in the text and included in the references section of this document.

The desired condition for terrestrial ecosystems is a mix of closed-canopy forest, intermittent-canopy woodlands, and open prairie and glade conditions. Forest and/or woodland systems may be dominated by pine, oak, or pine and oak species together. Non-forested systems are primarily dominated by grasses, forbs, and shrubs. Fire, thinning, and other vegetation management practices help sustain the balance of structural and compositional diversity needed to support healthy populations of native plants and animals while maintaining the productivity of the land.

There are ten terrestrial ecosystems (and three subsystems):

- Ouachita Shortleaf Pine-Oak Forest and Woodland, comprised of:
  - Ouachita Shortleaf Pine-Oak Forest
  - Ouachita Shortleaf Pine-Oak Woodland
  - Ouachita Shortleaf Pine-Bluestem (Red-cockaded Woodpecker Habitat)
- West Gulf Coastal Plain Pine-Hardwood Forest
- Ouachita Dry-Mesic Oak Forest
- Ouachita Mesic Hardwood Forest
- Ouachita Montane Oak Forest
- Ouachita Dry Oak Woodland
- Ouachita Novaculite Glade and Woodland
- Central Interior Highlands Dry Acidic Glade and Barrens
- Central Interior Acidic Cliff and Talus
- Calcareous Prairie

Desired conditions by terrestrial ecosystem are described on pages 6-18 of the 2005 Forest Plan.

Data Sources: The vegetation data for the 2005 Forest Plan were derived from the Continuous Inventory of Stand Condition (CISC) vegetation tracking system, the landtype associations, aspect, average annual rainfall, and geology. The fire history was derived from districts' maps/information, and the road density was derived from the 2005 roads layer. The 2010 vegetation data and fire history are derived from the most current and updated inventory within the Forest Service Vegetation (FSVeg) database, the Forest Activity Tracking System (FACTS) and the Geographical Information System (GIS) maps. Additional updates have occurred in the Forest roads layer during the development of the Motorized Use Vehicle Map (MVUM) and the road density was derived from the 2010 roads layer. The areal extent of the terrestrial NatureServe community types are shown in the following table:

Areal Extent of NatureServe Communities, ONF

NatureServe Community	2005 Percent of Forest	2010 Percent of Forest
Ouachita Shortleaf Pine-Oak Forest and Woodland CES202.313 (3 Sub-Communities)		
1) Ouachita Shortleaf Pine-Oak Forest	**53.4**	**42.6**
2) Ouachita Pine-Oak Woodland	**13.6**	**15.7**
3) Ouachita Shortleaf Pine – Bluestem	**<0.1**	**9.7**
West Gulf Coastal Plain Pine-Hardwood Flatwoods CES203.378	**<0.1**	**0.4**
Ouachita Dry-Mesic Hardwood Forest CES202.708	**12.4**	**14.8**
Ouachita Mesic Hardwood Forest CES202.043	**1.8**	**0.7**
Ouachita Montane Oak Forest CES202.306	**0.6**	**0.7**
Ouachita Dry Oak Woodlands CES202707	**0.3**	**0.7**
Ouachita Novaculite Glade and Woodland CES202.314	**<0.1**	**0.2**
Central Interior Acidic Cliff and Talus CES202.689	**0.3**	**<0.1**
Central Interior Highlands Dry Acidic Glade and Barrens CES202.692	**0.2**	**0.3**
Southern Arkansas/Oklahoma Calcareous Prairie CES203.377	**<0.1**	**<0.1**
Ouachita Riparian CES202.703	**13.2**	**13.2**
Ouachita Mountain Forested Seeps CES202.321	**<0.1**	**<0.1**
South-Central Interior Large Floodplain CES202.705	**<0.1**	**<0.1**
West Gulf Coastal Plain Small Stream and River Forest CES203.487	**0.3**	**0.3**
West Gulf Coastal Plain Wet Hardwood Flatwoods CES203.548 (Red Slough WMA)	**0.2**	**0.5**

The scoring thresholds for community conditions were derived for areal extent, canopy closure, vertical structure, fire regime and remoteness/road density, as appropriate. The areal extent of communities is the percent of the Forest each vegetation system represents. Canopy closure is a combination of stem density, basal area, and extent of canopy cover. Canopy closure was used primarily to distinguish a closed-canopy forested condition from an open- to intermittent-canopy woodland condition. Vertical structure within each vegetation community is represented by age or diameter classes:

- Early seral includes the 0-5 year-old grass/forb stage plus the 0-10 year-old seedling/sapling/shrub stage. (In Woodland communities, early seral structure also includes 40 percent of the late seral stage.)
- Mid-seral structure includes all age-classes and diameters in the poletimber stand condition class
- Late seral includes mature and immature sawtimber-size trees with diameters at breast height of greater than 9.5 inches for pine and 12 inches for hardwood

Fire regime includes how frequently fires occur and the season of the burn (dormant or growing season). For purposes of this analysis, the cool or dormant season is considered to be October through February, and the growing season, March through September**.** Most of the natural communities of the Ouachita National Forest are slightly, moderately, or highly dependent on certain fire regimes to restore and maintain "good" conditions. Remoteness refers to the mean density of roads within each community type at the landscape scale.

In the interim years between analysis for the 2005 Forest Plan and the 5-year Plan Review improvements have been made to the datasets used to calculate areal extent, canopy closure, vertical structure, fire regime and remoteness/road density. Such elements as vegetation data, roads data and fire history data have all been incorporated into more comprehensive and accurate databases, which accounts for some differences in the 2005 and 2010 SVE Scores presented in the following community discussions.

Three NatureServe community types comprise the majority (83.2% percent) of the National Forest System lands of the Ouachita NF as well as the majority of MA 14, an area of intensive management: Ouachita Shortleaf Pine-Oak Forest and Woodland; West Gulf Coastal Plain Pine-Hardwood Forest; and Ouachita Dry-Mesic Oak Forest. The 2010 SVE scores for Ouachita Pine-Oak Woodland and Ouachita Pine-Bluestem Woodland, components of the Ouachita Shortleaf Pine-Oak Forest and Woodland have improved slightly from 2005. The Ouachita Pine-Bluestem Woodland 2010 SVE score surpassed the projected 10-year (2015) SVE Score/Condition; however, the scores for Ouachita Pine-Oak Forest, West Gulf Coastal Plain Pine-Hardwood Forest (Flatwoods) and Ouachita Dry-Mesic Oak Forest reflect declines. Throughout all the communities, the early seral vertical structure scored "Poor" with little to no improvement from the 2005 values. Comparison of different datasets, and factors/indicators of road density, fire regime, and canopy closure influenced the decline in SVE scores.

Viability Rank of Terrestrial Communities (2005, 2010, Projected 2015), ONF

NatureServe Community	2005 SVE Score/ Condition	2010 SVE Score/ Condition	2015 Projected (10-year) SVE Score/ Condition
Ouachita Shortleaf Pine-Oak Forest and Woodland			
Ouachita Pine-Oak Forest	**2.38 Fair**	**2.13 Fair**	**2.56 Good**
Ouachita Pine-Oak Woodland	**2.22 Fair**	**2.39 Fair**	**2.58 Good**
Ouachita Shortleaf Pine-Bluestem Woodland	**2.22 Fair**	**2.81 Good**	**2.59 Good**
West Gulf Coastal Plain Pine-Hardwood Forest (Flatwoods)	**2.57 Good**	**2.25 Fair**	**3.4 Good**
Ouachita Dry-Mesic Oak Forest	**1.71 Fair**	**1.57 Fair**	**3.2 Good**

Ouachita Shortleaf Pine-Oak Forest and Woodland

This system represents forests and woodlands of the Ouachita Mountain region of Arkansas and adjacent Oklahoma in which shortleaf pine is an important or dominant component. The shortleaf pine-oak forest and woodland system comprises approximately 69 percent of the Forest. This system has been divided into three subsystems (pine-oak forest, pine-oak woodlands, and pine-bluestem woodlands).

Ouachita Shortleaf Pine-Oak Forest

Ouachita shortleaf pine-oak forest represents the most densely wooded, generally closed-canopy component of the pine-oak system. In 2010, the pine-oak forest subsystem made up approximately 62 percent of the pine-oak system and occupied about 45 percent of the Forest.

The overall SVE condition score for the pine-oak forest community (793,051 acres) range from the 2005 value of 2.38 to 2.13 for 2010, both a "Fair" score. The Key Factors/Indicators that are influencing the declining score include the "Poor" scores for early seral stage and road density as well as the "Fair" scores for fire regime and areal extent.

Ouachita Pine-Oak Forest SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Areal Extent	Percent of pine-oak systems in forested condition	<40 or >75	40-44 or 66-75	45-49 or 61-65	50-60	71.0 Fair	69.0 Fair
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	93.0 Very Good	60.5 Good
Fire Regime	Percent burned every 5-7 years	<25	25-50	51-75	>75	17.4 Poor	26.2 Fair
	Percent of burns in growing season (March- Sept.)	<20	20-40	41-70	>70	42.4 Good	62.3 Good
Remoteness	Road Density in miles/ mile²	>2	1-2	0.5-1	<0.5	2.33 Poor	2.58 Poor
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/Sapling)	<4 or >20	4-6 or 15-20	6-10	10-14	2.48 (24,765 acres) Poor	1.4 (11,103 acres) Poor
	Percent Mid-Seral (Poletimber)	<5 or >45	5-10 or 40-45	10-15 or 30-40	15-30	28.6 (285,597 acres) Very Good	20.3 (160,989 acres) Very Good
	Percent Late Seral (Immature & Mature Sawtimber)	<50 or >95	50-60 or 91-95	60-70 or 81-90	70-80	68.92 (688,229 acres) Good	78.3 (620,959 acres) Good
Composite SVE Score						2.38 Fair	2.13 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Shortleaf Pine-Oak Woodland

Ouachita shortleaf pine-oak woodland (332,681 acres) is one of two relatively open-canopied, fire-dependent subsystems with abundant herbaceous ground cover. Based on an analysis of landtype associations, 20-45 percent of the pine-oak system could be in pine-oak woodland conditions, given an appropriate combination of thinning and burning. Currently, woodland restoration activities have decreased this woodland subsystem to 23 percent of the shortleaf pine-oak communities and to 16 percent of the total Forest.

Overall SVE condition score for the pine-oak woodlands has improved from the 2005 SVE value of 2.22 to a 2010 SVE value of 2.39, both in the "Fair" range. The Key Factors/Indicators that influence the improved score are higher scores for canopy closure as well as fire regime.

Ouachita Pine-Oak Woodland SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Spatial Extent	Percent of pine-oak systems in woodland condition	<15 or >50	15-19 or 46-50	20-25 or 41-45	25-40	23.4 Good	23.0 Good
Canopy Closure	Percent Canopy Closure	>90 or <30	81-90 or 30-40	71-80 or 41-50	51-70	89.0 Fair	64.0 Very Good
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	3.2 Poor	30.9 Fair
	Percent of burns in growing season (March- Sept.)	<20	20-40	41-70	>70	23.8 Fair	61.0 Good
Remoteness	Road Density in miles/ mile²	>2	1-2	0.5-1	<0.5	1.89 Fair	2.41 Poor
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/Sapling)	<4 or >20	4-6 or 15-20	6-10	10-14	0.0 (0 acres) Poor	1.4 (4,658 acres) Poor
	Percent Mid-Seral (Poletimber)	<5 or >45	5-10 or 40-45	10-15 or 30-40	15-30	18.3 (46,674 acres) Very Good	40.4 (134,403 acres) Good
	Percent Late Seral (Immature & Mature Sawtimber)	<50 or >95	50-60 or 91-95	60-70 or 81-90	70-80	81.7 (208,628 acres) Good	58.2 (193,620 acres) Fair
Percent herbaceous ground coverage	Percent of pine-oak woodlands supporting a grass/forb layer	<25	25-40	41-75	>75	32.68 (67,971 acres) Fair	46.6 (131,692 acres) Good
					Composite SVE Score	2.22 Fair	2.39 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Shortleaf Pine-Bluestem Woodland (includes Red-cockaded Woodpecker Habitat)

Ouachita shortleaf pine-bluestem woodland (172,914 acres) represents the most open-canopy, pine-dominated, fire-dependent component of pine-oak systems on the Forest. Currently, this subsystem constitutes approximately 14 percent of the shortleaf pine-oak dominated communities and almost 10 percent of the Forest.

Overall SVE condition score for the pine-bluestem woodlands has improved from the 2005 score of 2.22 ("Fair") to the 2010 SVE score of 2.81 ("Good"). The Key Factors/Indicators that influence the improved score are the spatial extent of the pine-bluestem woodland condition, as well as the fire regime and percent herbaceous ground coverage.

Ouachita Shortleaf Pine-Bluestem Woodland SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Spatial Extent	Percent of pine-oak systems in shortleaf pine-bluestem condition	<4 or >25	4-6 or 21-25	7-9 or 16-20	10-15	5.2 Fair	14.0 Very Good
Canopy Closure	Percent Canopy Closure	>90 or <30	81-90 or 30-40	71-80 or 41-50	51-70	45.0 Good	80.0 Good
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	40.0 Fair	77.7 Very Good
	Percent of burns in growing season (March- Sept.)	<20	20-40	41-70	>70	77.7 Very Good	71.5 Very Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	2.06 Poor	2.72 Poor
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/Sapling)	<2 or >12	2-3 or 9-12	3-5	6-9	2.0 (1,144 acres) Poor	1.4 (2,420 acres) Poor
	Percent Mid-Seral (Poletimber)	>30	21-30	10-20	<10	32.0 (18,308 acres) Poor	20.4 (35,274 acres) Good
	Percent Late Seral (Immature & Mature Sawtimber)	<30 or >95	31-60 or 91-95	60-65 or 75-90	65-75	66.0 (37,761 acres) Very Good	78.2 (135,219 acres) Good
Percent herbaceous ground coverage	Percent of Shortleaf Pine-Bluestem woodlands supporting a grass/forb layer	<25	25-40	41-75	>75	28.4 (10,724 acres) Fair	62.6 (109,300 acres) Good
					Composite SVE Score	2.22 Fair	2.81 Good

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

West Gulf Coastal Plain Pine-Hardwood Forest

This West Gulf Coastal Plain (8,007 acres) ecological system represents 0.4 percent of the Forest and consists of forests and woodlands dominated by shortleaf pine and loblolly pine in combination with a variety of dry to dry-mesic hardwood species.

The overall SVE condition score for the West Gulf Coastal Plain (WGCP) pine-hardwood forest has declined from the 2005 score of 2.57 ("Good") to the 2010 score of 2.25 ("Fair"). The Key Factors/Indicators that influenced the lower score are the early seral vertical structure, road density, and fire regime.

West Gulf Coastal Plain Pine-Hardwood Forest SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent canopy closure	<25	25-50	51-75	>75	93.0 Very Good	81.6 Very Good
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	6.3 Poor	52.7 Good
	Percent of burns in growing season (March-Sept.)	<25	25-50	51-75	>75	53.2 Good	19.7 Poor
Remoteness	Road density in miles/mile²	>2	1-2	0.5-1	<0.5	2.39 Poor	2.26 Poor
Vertical Structure	Percent early seral (grass/forb and seedling/sapling)	<4 or >20	4-6 or 15-20	6-10	10-14	1.7 (136 acres) Poor	3.2 (256 acres) Poor
	Percent mid-seral (poletimber)	<5 or >45	5-10 or 40-45	11-15 or 30-40	16-30	23.6 (1,899 acres) Very Good	19.4 (1,553 acres) Very Good
	Percent late seral (immature & mature sawtimber)	<50 or >95	50-60 or 91-95	60-70 or 81-90	70-80	74.7 (6,015 acres) Very Good	77.4 (6,197 acres) Very Good
Composite SVE Score						2.57 Good	2.25 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Dry-Mesic Oak Forest

This system, found throughout the Ozark and Ouachita Highlands, constitutes almost 15 percent of the Forest (316,476 Acres). Natural mortality through oak decline, wind, drought, occasional fires, and infrequent ice storms influence this system.

Overall SVE condition score of 1.71 for the dry-mesic oak forest declined from 2005 to a 2010 score of 1.57, both "Fair." The Key Factors/Indicators that influence the slightly declining SVE score are vertical structure, fire regime, canopy closure, and road density.

Ouachita Dry-Mesic Oak Forest SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	93.0 Very Good	37.9 Fair
Fire Regime	Percent burned every 5-7 years	<25	25-50	51-75	>75	11.9 Poor	30.5 Fair
	Percent of burns in growing season (March- Sept.)	<25	25-50	51-75	>75	34.8 Fair	17.5 Poor
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	1.07 Fair	1.41 Fair
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/ Sapling)	<2 or >14	2-4 or 10-14	7-10	4-6	0.79 (1,828 acres) Poor	1.2 (3,798 acres) Poor
	Percent Mid-Seral (Poletimber)	<10 or >45	0 -15 or 35-45	15-20 or 30-35	20-30	52.1 (120,583 acres) Poor	45 (142,414 acres) Fair
	Percent Late Seral (Immature & Mature Sawtimber)	<50 or >95	50-60 or 91-95	60-70 or 81-90	70-80	47.1 (109,035 acres) Poor	53.8 (170,264 acres) Fair
Composite SVE Score						1.71 Fair	1.57 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Rare Upland Communities

The seven relatively rare upland communities described in this section comprise approximately 2.6 percent of the total Forest area. These systems are usually small, isolated, and/or disjunct and are generally "embedded" in a larger landscape matrix. These communities are maintained primarily through naturally occurring circumstances such as elevation, soil moisture conditions, and soil productivity. Historically, wildfire was a major influence in all but the mesic hardwood forest; decades of fire suppression and human-influenced changes in fuel loads and fire behavior in Ouachita National Forest landscapes have altered the rare upland communities.

Given the emphasis on restoration of the health of all communities, inventories regarding rare upland communities' distributions across the Forest are becoming more comprehensive. Cumulatively, the effects of Forest Plan implementation, including inventory, restoration, maintenance, and protection of rare upland communities are critical to the sustainability of these habitats and to the viability of those associated species.

The seven rare upland communities are Ouachita Mesic Hardwood Forest; Ouachita Dry Oak Woodland; Ouachita Montane Oak Forest; Ouachita Novaculite Glade and Woodland; Central Interior Highlands Dry Acidic Glade and Barrens; Central Interior Acidic Cliff and Talus; and Southern Arkansas Calcareous Prairie. The 2010 SVE scores for Ouachita Mesic Hardwood Forest and Ouachita Dry Oak Woodland have improved slightly but are still far lower than the 10-year (2015) projected scores. Southern Arkansas Calcareous Prairie has been burned appropriately and is improved to a "Very Good" score. Scores for Ouachita Montane Oak Forest, Central Interior Acidic Cliff and Talus, Central Interior Highlands Dry Acidic Glade and Barrens, and Ouachita Novaculite Glade and Woodland reflect slight declines in habitat conditions. Key Factors/Indicators that influence the declining and/or low SVE scores are road density and fire regime.

Viability Rank of Rare Upland Communities (2005, 2010, Projected 2015), ONF

Rare Upland Community	2005 SVE Score/ Condition	2010 SVE Score/ Condition	2015 Projected (10-year) SVE Score/ Condition
Ouachita Mesic Hardwood Forest	2.29 Fair	2.63 Fair	3.25 Good
Ouachita Dry Oak Woodland	1.29 Poor	1.64 Fair	2.75 Good
Ouachita Montane Oak Forest	2.33 Fair	1.83 Fair	3.50 Good
Ouachita Novaculite Glade and Woodland	3.00 Good	2.00 Fair	3.50 Good
Central Interior Highlands Dry Acidic Glade and Barrens	1.67 Fair	1.33 Poor	2.40 Fair
Central Interior Acidic Cliff and Talus	2.33 Fair	2.17 Fair	3.50 Good
Southern Arkansas Calcareous Prairie	3.33 Good	4.00 Very Good	3.80 Very Good

Ouachita Mesic Hardwood Forest

The Ouachita Mesic Hardwood Forest system (12,685 Acres) is found on toeslopes and valley bottoms, as well as on north-facing and other protected slopes and ravines. In this system, mesic tree species dominate. A decline in canopy closure was noted during this SVE evaluation, and this decline can be attributed to the transition to different datasets (FSVeg) as well as some oak decline impacts. Overall SVE condition score for the mesic hardwood forests has improved from the 2005 score of 2.29 ("Fair") to the 2010 SVE score of 2.63 ("Good").

Ouachita Mesic Hardwood Forest SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	98.0 Very Good	42.44 Fair
Fire Regime	Percent burned every 25-35 years	<25	25-50	51-75	>75	0.3 Poor	51.9 Good
	Percent of burns in growing season (March- Sept.)	<25	25-50	51-75	>75	57.3 Good	24.6 Fair
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.8 Good	1.0 Good
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/Sapling)	>8	9<0.5 or 5-8	0.5-1 or 2-5	1-2	0.7 (249 acres) Good	1.3 (164 acres) Very Good
	Percent Mid-Seral (Poletimber)	>24	<1.5 or 15-24	1.5-3 or 6-15	3-6	57.2 (19,570 acres) Poor	28.3 (3,590 acres) Poor
	Percent Late Seral (Immature & Mature Sawtimber)	<68 or 100	68-79 or 99	80-91.5 or 96-98	91.6-96	42.1 (14,338 acres) Poor	70.4 (8,930 acres) Fair
Composite SVE Score						2.29 Fair	2.63 Good

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Dry Oak Woodland

Oak species dominate the Ouachita Dry Oak Woodland system (12,755 acres), which has an understory of herbaceous and shrub species. Drought stress and associated landscape fire are the major natural influences on this system. Overall SVE condition score for Ouachita Dry Oak Woodland has improved from the 2005 score of 1.29 ("Poor") to a 2010 score of 1.64 ("Fair"). Key Factors/Indicators that influence the low SVE score are road density, vertical structure, fire regime and canopy closure.

Ouachita Dry Oak Woodland SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	22.9 Poor	23.7 Poor
	Percent of burns in growing season (March- Sept.)	<20	20-40	41-70	>70	65.6 Good	14.9 Poor
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	2.02 Poor	2.7 Poor
Vertical Structure	Percent Early Seral (Grass/Forb & Seedling/Sapling)	<2 or >14	2-4 or 10-14	7-10	4-6	1.8 (85 acres) Poor	0.5 (64 acres) Poor
	Percent Mid-Seral (Poletimber)	<10 or >45	10-15 or 35-45	15-20 or 30-35	20-30	76.3 (3,630 acres) Poor	47.8 (6,097 acres) Poor
	Percent Late Seral (Immature & Mature Sawtimber)	<50 or >95	50-60 or 91-95	60-70 or 81-90	70-80	22.0 (1,045 acres) Poor	51.7 (6,594 acres) Fair
Percent herbaceous ground coverage	Percent of dry oak woodlands supporting a grass/forb layer	<25	25-40	41-75	>75	32.3 Fair	41.4 Good
					Composite SVE Score	1.29 Poor	1.64 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Montane Oak Forest

This system of Ouachita Montane Oak Forest (12,451 acres) represents oak-dominated forests of the highest elevations in the Ouachita Mountains. Canopy trees are often stunted due to the effects of ice, wind and cold conditions, in combination with shallow, rocky soils, fog, occasional fire, and periodic severe drought. Some stands form almost impenetrable thickets ("elfin forests"). The current vertical structure condition is a self-maintaining scrubby or stunted, oak-dominated system maintained by naturally occurring processes and, when needed, prescribed fire. Overall SVE condition score of 2.33 ("Fair") for the montane oak forest declined from 2005 to 1.83 for the 2010 value. The Key Factors/Indicators that influence the declining SVE score are fire regime and road density.

Ouachita Montane Oak Forest SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 10 years	<25	25-50	51-75	>75	1.67 Poor	49.2 Fair
	Percent of burns in growing season (March- Sept.)	<25	25-50	51-75	>75	67.7 Good	22.2 Poor
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.75 Good	1.35 Fair
Composite SVE Score						2.33 Fair	1.83 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Ouachita Novaculite Glade and Woodland

The Ouachita Novaculite Glade and Woodland system (3,245 acres) represents a mosaic of glades and woodlands found on novaculite substrates in the central Ouachita Mountains of western Arkansas. Examples of this system generally occupy ridgetops at 1,476 - 2,100 feet elevation. They are a mosaic of small woodlands along ridges and upper slopes, with rock outcrops and patches of talus scattered throughout. In general, soils are shallow with exposed bedrock, although woodland occurrences rely on somewhat deeper soils. In all cases, growing conditions are extreme.

The structure of this system is controlled by a combination of periodic fire and severe drought. Based on the SVE, the vertical structure needed to support good/very good conditions is open glade/woodland maintained by prescribed fire and other naturally limiting factors. Overall SVE condition score of 3.0 ("Good") for the novaculite glade and woodland declined from 2005 to 2.0 ("Fair") for the 2010 value. Comparison using different datasets and fire regime influenced the decline in SVE score.

Ouachita Novaculite Glade and Woodland SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	0.3 Poor	12.8 Poor
	Percent of burns growing season (March- Sept.)	<25	25-50	51-75	>75	82.8 Very Good	8.3 Poor
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.0 Very Good	0.1 Very Good
Composite SVE Score						3.00 Good	2.0 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Central Interior Highlands Dry Acidic Glades and Barrens

This Central Interior Highlands Dry Acidic Glades and Barrens system (5,908 acres) is found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions, occurring along moderate to steep slopes or valley walls of rivers along most aspects. Grasses dominate this system, with stunted oak species and shrub species occurring on variable depth soils. This system is influenced by drought and infrequent to occasional fires.

Based on the SVE, the vertical structure needed to support good/very good conditions is an open glade condition maintained by prescribed fire. Overall SVE condition score of 1.67 ("Fair") for the Central Interior Highlands Dry Acidic Glades and Barrens community declined from 2005 to 1.33 ("Poor") for the 2010 value. The Key Factors/Indicators that influence the declining SVE score are fire regime (percent burned every 5-10 years) and road density.

Central Interior Highlands Dry Acidic Glades and Barrens SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 5-10 years	<25	25-50	51-75	>75	23.8 Poor	22.9 Poor
	Percent of burns growing season (March- Sept.)	<30 or >90	30-50 or 86-90	51-70 or 81-85	71-80	57.3 Good	67.1 Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	2.51 Poor	3.34 Poor
Composite SVE Score						1.67 Fair	1.33 Poor

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Central Interior Acidic Cliff and Talus

This system is found primarily in the Interior (Ozark-Ouachita) Highlands and Interior Low Plateau ecoregions (4,755 acres). Sandstone outcrops and talus ranging from moist to dry typify this system, which is usually sparsely vegetated; however, on moister sites with more soil development, several fern species and sedges (*Carex* spp.) may become established. Wind, fire, and water erosion are the major forces influencing this system. Based on the SVE, the vertical structure needed to support good/very good conditions is an open, fire-maintained, herbaceous-dominated system with sparse woody vegetation.

Overall SVE condition score of 2.33 ("Fair") for the Central Interior Acidic Cliff and Talus community declined from 2005 to 2.17 ("Fair") for the 2010 value. The Key Factors/Indicators influencing the declining SVE score are likely the fire regime indicators (percent burned every 5-10 years and percent of burns in growing season (March-September).

Central Interior Acidic Cliff and Talus SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 5-7 years	<25	25-50	51-75	>75	3.6 Poor	43.1 Fair
	Percent of burns growing season (March- Sept.)	<30 or >90	30-50 or 86-90	51-70 or 81-85	71-80	52.7 Good	16.6 Poor
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.91 Good	0.8 Good
					Composite SVE Score	2.33 Fair	2.17 Fair

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

Southern Arkansas Calcareous Prairie

This Calcareous Prairie system (277 acres) includes natural grassland vegetation and associated woody vegetation in a relatively small natural region of the Upper West Gulf Coastal Plain of Oklahoma. Although other calcareous prairies are found west of the Mississippi River, this system represents some of the largest known and highest quality remaining examples. Based on the SVE, the vertical structure needed to support good/very good conditions is an open, fire-maintained grassland with sparse to absent woody vegetation.

Overall SVE condition score for Calcareous Prairie community has improved from the 2005 score of 3.33 ("Very Good") to a 2010 score of 4.0 ("Very Good"). Key Factors/Indicators that are influencing the SVE score are likely road density and fire regime.

Calcareous Prairie SVE Values, 2005 and 2010, ONF*

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Fire Regime	Percent burned every 3-5 years	<25	25-50	51-75	>75	55.0 Good	100 Very Good
	Percent of burns in growing season (March- Sept.)	<25	25-50	51-75	>75	60.0 Good	90.1 Very Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.0 Very Good	0.4 Very Good
					Composite SVE Score	3.33 Very Good	4.0 Very Good

* Prior to the 5-year Review, vegetation, roads and fire history databases were updated and refined, which accounts for some of the differences between the 2005 and 2010 SVE scores.

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Terrestrial Habitats and Elements

The following five habitat elements are considered to be critically important to provide for the natural diversity of plant and animal species found to occur on the Forest. All of the NatureServe vegetation communities have been used to determine the Species Viability Evaluation (SVE) scores for the following habitats and habitat elements.

Viability Rank of Terrestrial Habitat and Elements for 2005, 2010, and 2015 (10-year projected), ONF

Habitat Element	2005 SVE Score/ Condition	2010 SVE Score/ Condition	2015 Projected SVE Score/Condition
Vertical Structure			
Early Seral	**1.94 Fair**	**1.56 Fair**	**6 to 14 Good/Very Good**
Mid-seral	**Pine-Good Hardwood-Fair/Poor**	**Pine-Good Hardwood-Fair/Poor**	**Good**
Late Seral	**Pine-Good Hardwood-Poor**	**Pine-Good Hardwood-Fair**	**Good**
Caves and Mines	**4.0 Very Good**	**4.0 Very Good**	**4.0 Very Good**
Snags, Den Trees, Large Trees Near Water, Downed Logs & Woody Debris	**4.0 Very Good**	**4.0 Very Good**	**4.0 Very Good**
Mast Production	**2.62 Good**	**2.29 Fair**	**2.51-3.5 Good**
Old Growth Habitat	**2.62 Good**	**2.29 Fair**	**2.51-3.5 Good**

Vertical Structure

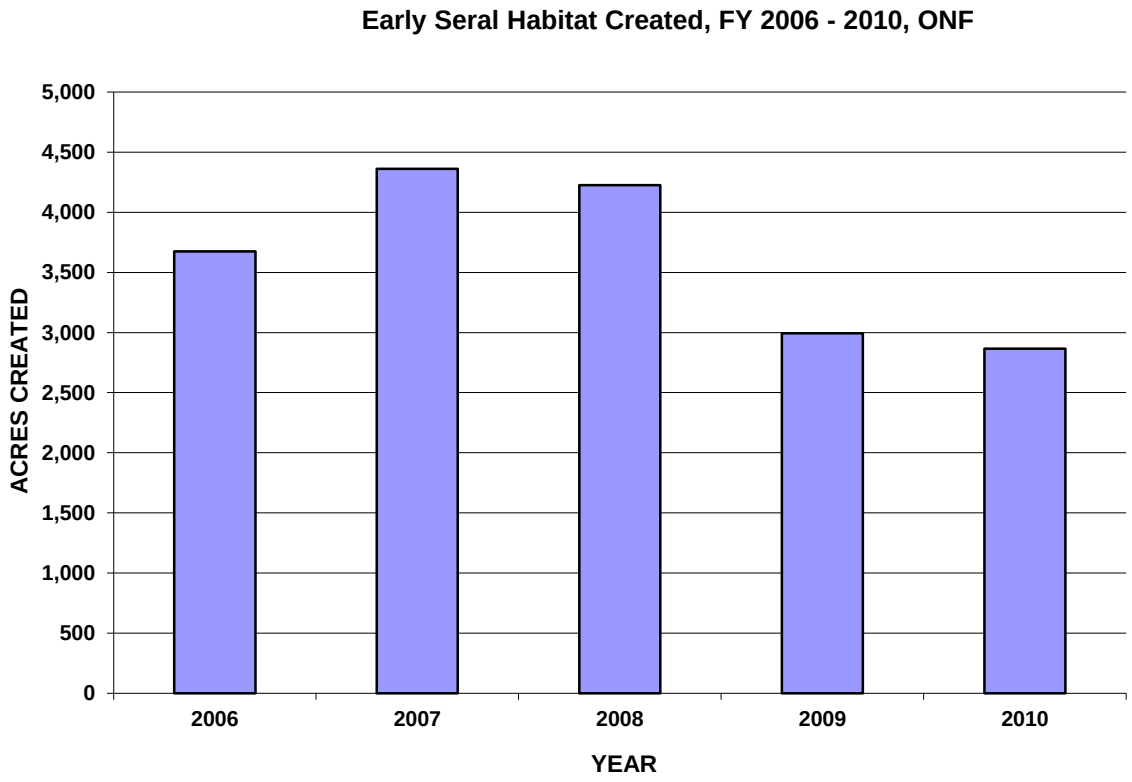
Vertical structure within each vegetation community is represented by age or diameter classes. Some plant and animal species can do well within any of the seral stages; however some species are obligates for or can only survive in certain stages. The early seral stage is particularly important to many species, such as white-tailed deer, Northern Bobwhite, Prairie Warbler, and snakes seeking small mammals as food sources.

- Early seral structure includes the 0-5 year-old grass/forb stage plus the 0-10 year-old seedling/sapling/shrub stage. (In Woodland communities, early seral stage also includes 40 percent of the late seral stage).
- Mid-seral structure includes all age-classes and diameters in the poletimber stand condition class
- Late seral structure includes mature and immature sawtimber-size trees with diameters at breast height of greater than 9.5 inches for pine and 12 inches for hardwood

Early Seral Stage

Based on 2005 Forest Plan projections, early seral stage habitat should continue to increase and then stabilize at approximately 50,000 to 60,000 acres after 10 years (USDA Forest Service 2005b, p. 175.) The 2005 Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year. Since FY 2006, the annual Ouachita NF monitoring and evaluation report has noted that the Forest has failed to meet that objective.

The following graph illustrates that the Forest is lagging behind Forest Plan Objective 006, "*Establish 5,500 acres per year in grass/forb condition within the pine-oak forest subsystem while maintaining 60-90 percent in mature to late seral condition."*



Inadequate levels of early seral stage habitat creation are also implicated by the 2010 Species Viablity Evaluation (SVE). The forest-wide SVE condition score for the grass/forb and seedling/sapling habitat in 2005 was 1.94, but by FY 2010 it had declined to 1.56 (still in the "Fair" range). Throughout the communities evaluated, the early seral vertical structure component scored "Poor," with little to no improvement from the 2005 values. A silviculture/wildlife study is recommended to review why the level of early seral habitat creation remains so far below the Forest Plan objective. Lack of creation of early seral habitat is not a new issue for the Ouachita NF. Review of older monitoring and evaluation reports shows a 1990 Forest Plan goal of creating 5,800 acres annually to meet Forest Plan minimum management requirements. The following tabulation presents acres of early seral stage habitat created by timber harvesting since 2000.

Acres of Early Seral Stage Habitat Created by Timber Harvesting Since 2000

1990 Forest Plan		2005 Forest Plan	
Fiscal Year	Acres of Early Seral Habitat Created	Fiscal Year	Acres of Early Seral Habitat Created
2000	2,246		
2001	953	2006	2,602
2002	772	2007	4,363
2003	2,268	2008	3,869
2004	1,866	2009	2,151
2005	3,031	2010	2,676

The early seral condition has an ephemeral lifespan and is often in short and/or declining supply. Current forest management has resulted in a forest that is growing older, because the suitable acreage regenerated from the older age groups is less than the acreage of timber entering into these age classes. This will ultimately result in a forest well over the desired rotation age and far too little acreage in the early seral stages to achieve species viability for dependent species.

Ouachita NF communities that maintain an herbaceous ground-cover and/or shrub habitat component within the Forest are pine-bluestem and pine-oak woodland, as well as several of the rare upland vegetation communities-dry oak woodland, acidic cliff and talus, acidic glades and barrens, novaculite glade and woodland, montane oak, and calcareous prairie. These communities cover approximately 30 percent of the Forest. The herbaceous and shrub habitat is annually maintained in a forest-wide mosaic on approximately 540,000 acres.

In the pine woodland communities, thinning and frequent prescribed burns support approximately 40 percent of those communities with a herbaceous ground cover. Naturally limiting factors such as elevation, rainfall, aspect, slope, and/or thin soils, maintain primarily an early successional condition within the acidic cliff and talus, acidic glades and barrens, novaculite glade and woodland, and dry oak woodland communities. Montane oak naturally provides a high elevation shrub condition, and the calcareous prairie provides herbaceous groundcover and shrubby vegetation. A frequent to occasional fire treatment is essential to discourage the woody encroachment and to maintain the early successional condition within all these systems.

Some of the species that are highly dependent upon early seral (grass/forb and shrubland) habitat are listed in the following table with their 2005 and 2010 SVE scores. The SVE Scores declined from 2005 to 2010 early seral stage-dependent species for 14 of the 16 species known on the Forest. This reflects lack of development of early seral stage habitat.

Comparison of 2005 and 2010 SVE Scores for Early Seral Stage-Dependent Species, ONF

Common Name	*Scientific Name*	Status	2005 SVE Score	2010 SVE Score
American Burying Beetle	*Nicrophorus americanus*	Federally Endangered	1.97 Fair	1.97 Fair
Diana Fritillary	*Speyeria diana*	RF Sensitive	2.5 Fair	1.92 Fair
A Twistflower	*Streptanthus squamiformis*	RF Sensitive	2.46 Fair	1.65 Fair
Prairie Warbler	*Dendroica discolor*	MIS	2.5 Fair	2.15 Fair
Northern Bobwhite	*Colinus virginianus*	MIS	2.5 Fair	2.09 Fair
White-tailed deer	*Odocoileus virginianus*	MIS	2.21 Fair	2.19 Fair
Wild Turkey	*Meleagris gallopavo*	MIS	2.25 Fair	2.25 Fair
American Kestrel	*Falco sparverius*	Viability Concern	2.75 Good	2.2 Fair
Painted Bunting	*Passerina ciris*	Viability Concern	2.56 Good	2.39 Fair
Orchard Oriole	*Icterus spurius*	Viability Concern	2.5 Fair	2.3 Fair
Bewick's Wren	*Thryomanes bewickii*	Viability Concern	2.5 Fair	1.93 Fair
White-eyed Vireo	*Vireo griseus*	Viability Concern	2.5 Fair	2.11 Fair
Southern Prairie Skink	*Eumeces septentrionalis obtusirostris*	Viability Concern	2.5 Fair	2.09 Fair
Timber Rattlesnake	*Crotalus horridus*	Viability Concern	2.5 Fair	2.12 Fair
Great Plains Skink	*Eumeces obsoletus*	Viability Concern	2.5 Fair	2.02 Fair
Western Diamondback Rattlesnake	*Crotalus atrox*	Viability Concern	2.4 Fair	2.0 Fair

2005, 2010 and Projected 2015 Percent/Early Seral Stage and Condition by Community Type, ONF

Community	2005 Percent/Early Seral Stage and Condition by Community	2010 Percent/Early Seral Stage and Condition by Community	2015 Projected Early Seral Stage and Condition by Community
Ouachita Shortleaf Pine-Oak Forest and Woodland			
Ouachita Pine-Oak Forest	2.48 Poor	1.4 Poor	6-14 Good/Very Good
Ouachita Pine-Oak Woodland	0.0 Poor	1.4 Poor	6-14 Good/Very Good
Ouachita Pine/Bluestem Woodland	2.0 Poor	1.4 Poor	3-9 Good/Very Good
West Gulf Coastal Plain Pine-Hardwood Forest (Flatwoods)	1.7 Poor	3.2 Poor	6-14 Good/Very Good
Ouachita Dry-Mesic Oak Forest	0.79 Poor	1.2 Poor	4-10 Good/Very Good

Mid-Seral Stage

The mid-seral immature vertical structure condition (poletimber) is perhaps the least beneficial to wildlife species without management manipulation. This seral stage provides important cover for nesting birds and other animals looking for bedding and/or thermal cover. The closed canopy prevents sunlight from reaching the forest floor, limiting the development of herbaceous groundcover and shrubby understory. This condition does provide some foraging and cover for a few species. For the majority of wildlife, this vertical structure condition provides lower quality habitat than early or late seral stages. According to the SVE scores, the pine dominated communities are maintaining a “Good “or “Very Good” condition; however the dry-mesic hardwood community is still in a “Poor” condition.

2005, 2010, and Projected 2015 Percent/Immature Mid-Seral Stage and Condition by Community, ONF

Community	2005 Percent/ Immature Mid-Seral Stage and Condition by Community	2010 Percent/ Immature Mid-Seral Stage and Condition by Community	2015 Projected Percent Immature Mid-Seral Stage and Condition by Community
Ouachita Shortleaf Pine-Oak Forest and Woodland			
Ouachita Pine-Oak Forest	28.6 Very Good	20.3 Very Good	10-40 Good/Very Good
Ouachita Pine-Oak Woodland	18.3 Very Good	40.4 Good	10-40 Good/Very Good
Ouachita Pine/Bluestem Woodland	32.0 Good	20.4 Good	<10-20 Good/Very Good
WGCP Pine-Hardwood Forest (Flatwoods)	23.6 Very Good	19.4 Very Good	11-40 Good/Very Good
Ouachita Dry-Mesic Oak Forest	57.2 Poor	28.3 Poor	15-35 Good/Very Good

Late Seral Stage

The late seral vertical structure condition (immature and mature sawtimber) provides habitat and forage for a suite of habitat specialists such as the Scarlet Tanager and Cerulean Warbler that specifically require tall trees, as well as habitat generalists. This condition provides important habitat for high canopy nesting and roosting, suitable structure for cavity development and excavation, and relatively large volumes of seed and hard mast. Components of this condition include snags, large and small diameter hollow trees used as den trees, downed woody debris, and large trees near water that provide critical habitat for many wildlife species. Mature pine forest consists of pines greater than 80 years old.

Acres of Late Seral Stage by Year, ONF

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Mature Pine Forest (Acres)	435,112	565,683	495,176	507,068	553,923	588,733
Change from Previous Year (Acres and %)	N/A	+130,600 + 30	-73,500 - 12	+11,892 + 2	+46,855 +9	+34,810 +6
Change from 2005 (Acres and %)	N/A	+130,600 + 30	+ 60,100 + 14	+71,956 +14	+118,811 +27	+153,621 +35

According to the September 2003 Continuous Inventory of Stand Conditions database used for the 2005 SVE, approximately 62 percent of the Ouachita NF was in the late (mature) vertical structure condition. The 2010 SVE indicates that 73 percent of the Ouachita NF is now in late seral structure stage, an increase.

2005, 2010, and Projected 2015 Percent Late Seral Stage and Condition by Community, ONF

Community	2005 Percent Late-Seral Stage and Condition by Community	2010 Percent Late-Seral Stage and Condition by Community	2015 Projected Percent Late-Seral Seral Stage and Condition by Community
Ouachita Shortleaf Pine-Oak Forest and Woodland			
Ouachita Pine-Oak Forest	68.9 Good	78.3 Good	60-90 Good/Very Good
Ouachita Pine-Oak Woodland	81.7 Good	58.2 Fair	60-90 Good/Very Good
Ouachita Pine/Bluestem Woodland	66 Good	78.2 Good	60-90 Good/Very Good
WGCP Pine-Hardwood Forest (Flatwoods)	74.7 Very Good	77.4 Very Good	60-90 Good/Very Good
Ouachita Dry-Mesic Oak Forest	47.1 Poor	53.8 Fair	60-90 Good/Very Good

SVE – Other Habitat Components

In addition to community types that are rated during the SVE, five other habitat components area also rated: Cave and Mine Habitat; Large Trees Near Water; Snags, Cavity/Den Trees, Down Logs/Woody Debris; Mast Production; and Old Growth Habitat. A short discussion of each habitat component and a comparison of the 2005 and 2010 SVE scores are included below.

Cave and Mine Habitat

The forest-wide SVE condition score for cave and mine habitat in 2005 was 4.00 and remains at 4.00 for the 2010 SVE, both "Very Good". Mine and cave openings have been gated to provide additional protection to this habitat type. Cave and mine habitat provides obligate habitat for three species considered in the Species Viability Evaluation including the federally endangered Indiana bat, plus the southeastern myotis and Eastern small-footed bats. Cave and mine habitat condition is evaluated in the SVE accounting for access protection and management activities

Bear Den Survey
Source: USFS

Large Trees near Water

Current direction provides for the conservation of streamside management areas as unsuitable for timber management. Large trees near water have, therefore, been retained within the riparian and floodplain areas forest-wide. Some of the bird species that benefit from this habitat include the Bald Eagle, Cerulean Warbler, and the Pileated Woodpecker, as well as the federally endangered Indiana Bat, and two Regional Forester Sensitive Species, the Southeastern Myotis and Eastern Small-footed Bat. Forest-wide SVE condition score in 2005 for the large trees near water habitat was 4.00 and remains at 4.00 ("Very Good") for 2010.

Snags, Cavity/Den Trees, Down Logs/Woody Debris

Snags, cavity or den trees, and down woody debris on the forest floor are important natural, structural habitat components. The dependency of cavity-nesting wildlife species on an adequate and continuous supply of snags and cavity trees is well documented. Primary excavators (*e.g.*, most woodpeckers) require snags of certain size and hardness to create nesting and roosting cavities. Secondary cavity-nesting species are, in turn, dependent on the cavities created by the primary excavators. Most cavity-nesting birds are insectivores and play an important role in forest ecology and in the control of insect pests.

Some 38 species of Arkansas and Oklahoma birds excavate nesting holes, use cavities resulting from decay, or use holes created by other species in dead or deteriorating trees. Fifty-eight species of amphibians, reptiles and mammals are known to use snags or the resulting dead and down material. Snags also provide perches for birds of prey and foraging substrate for a wide variety of wildlife. The 2005 forest-wide SVE condition score for snags, cavity (den) trees and down woody debris was 4.00 ("Very Good") and remains at 4.00 ("Very Good") for 2010.

Mast Production

Hard mast (acorns and hickory nuts) is an important habitat element for several wildlife species including white-tailed deer, Eastern Wild Turkey, squirrel, and black bear. Mid- to late successional oak, hickory, and pine-hardwood forests provide an important source of hard mast on the Forest. The availability of acorns has been demonstrated to strongly influence population dynamics of demand species and non-game animals such as white-footed mice.

The mast production SVE score is an average of all hardwood and pine-hardwood community SVE scores. The forest-wide 2005 SVE condition score for mast production was 2.62 ("Good"); the 2010 SVE shows a slight decline to a high "Fair" score of 2.46. Early seral, fire regime and road density are the Key Factor/Indicators that influenced the SVE score. The SVE score was also influenced by comparison of datasets that had changed from the data used in the 2005 analysis. Management activities critical to mast producing tree species and predominately hardwood communities are thinning and prescribed burning.

Hardwoods greater than 50 years old are used to determine hard mast capability. The apparent reduction in hardwood mast acres for 2010 could be due to better identification of stand conditions (hardwood vs. pine types) and/or hardwood incorporated into pine stands.

Acres of Mast Capability by Year on the ONF

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Mast Capability (Acres)	433,250	468,172	474,384	452,111	454,787	394,357
Change from Previous Year (Acres and %)	N/A	+35,000 + 8	+>6,000 + 1	- 22,273 - 5	+2,676 +1	-60,430 -13
Change from 2005 (Acres and %)	N/A	+35,000 + 8	+>41,000 + 9	+ 18,861 + 4	+21,537 +5	-38,893 -9

Hardwoods greater than 100 years old are used to measure mature hardwood forests. The acres of mature hardwood forest and mature pine forest indicate that the Ouachita National Forest is slowly becoming an older forest.

Acres of Mature Hardwood Forest by Year on the ONF

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Mature Hardwood Forest (Acres)	50,959	51,873	130,343*	52,553	58,689	73,830
Change from Previous Year (Acres and %)	N/A	+>900 + 2	+78,500 + 251	-77,790 - 59	+6,136 +12	+15,141 +26
Change from 2005 (Acres and %)	N/A	+>900 + 2	+79,400 + 255	+1,594 + 3	+7,730 +15	+22,871 +45

* Data for FY 2007 appear to be in error. No major storm events, insect infestations or timber treatments or harvest have occurred that would have caused a decrease of 59% from FY 2007 to FY 2008. Acres of Mature Hardwood Forest in FY 2008 are consistent with acreages reported for FY 2005 and FY 2006.

Old Growth Habitat

Approximately 79,000 acres of the Ouachita NF are managed with an emphasis on pine-grass old growth restoration within Management Area 21, Old Growth Restoration. Thirty-six separate units of between 600 and nearly 6,000 acres are managed for pine-bluestem old growth forests and other old growth conditions associated with frequent fire. Maintenance or restoration of upland mixed hardwood old growth and of pine-oak and oak-pine old growth forests are accomplished in these Ouachita and West Gulf Coast Plains vegetation systems: Mesic Hardwood Forests, Montane Oak Forests, Pine-Oak Forests, Pine-Oak Woodlands, Shortleaf Pine-Bluestem Woodlands, Riparian, Large Floodplains, Dry Oak Woodlands, Dry–Mesic Oak Forests, Small Stream and River Forests, Forested Seeps and Novaculite Glade and Woodland.

The old growth habitat SVE score is an average of the SVE scores of all the communities containing old growth as previously listed. The 2005 forest-wide SVE condition score for 'old growth' conditions was 2.62 ("Good"). The 2010 SVE score declined to 2.29 ("Fair"). The Key

Factors/Indicators that influenced the SVE score were early seral, fire regime and road density. The SVE score was also influenced by comparison of datasets that had changed from the data used in the 2005 analysis. Management activities critical to old growth habitat are thinning and prescribed burning.

Habitat Capability Modeling

Modeling habitat capability using the Computerized Project Analysis of Timber Sales (CompPATS) wildlife model and vegetative data from the Field Sampled Vegetation (FSVeg) is a tool to evaluate and estimate acres of suitable habitat to sustain healthy populations of native and desired non-native wildlife species on the Ouachita NF. Estimated suitable habitat acres for MIS are shown for FY 2005, current habitat capability for FY 2010 and projected capability for FY 2015.

Forest-wide habitat capability modeling shows that terrestrial MIS species are moving toward or have passed the projected desired habitat capability for FY 2015, with a few exceptions. Habitat for such early successional species as Northern Bobwhite and Prairie Warbler is improving at a much slower rate than projected in 2005. Habitat capability for Prairie Warbler, although above the 2009 level, is below the habitat capability estimated in the 2005 Plan. Habitat for such late successional species as Pileated Woodpecker remains above levels projected for 2015. However, habitat capability for Scarlet Tanager has steadily declined to below the 2015 projected level. This is an indication that the Ouachita National Forest is becoming a late seral forest, in need of additional regeneration, thinning, prescribed burning, and other habitat improvement to meet desired conditions.

Terrestrial Management Indicator Species	Estimated Habitat Capability FY 2005	Habitat Capability FY 2006	Habitat Capability FY 2007	Habitat Capability FY 2008	Habitat Capability FY 2009	Habitat Capability FY 2010	Projected Desired Habitat Capability FY 2015
Eastern Wild Turkey	18,461	17,601	18,316	18,370	16,204	14,610	9,177
Northern Bobwhite	65,002	62,571	69,349	74,223	68,888	76,690	101,748
Pileated Woodpecker	17,842	17,371	14,647	15,555	13,628	11,580	11,265
Prairie Warbler	90,313	85,691	93,830	87,788	71,582	75,531	112,590
Scarlet Tanager	90,583	86,455	85,046	84,040	73,136	66,744	69,500
White-tailed Deer	58,395	50,840	51,898	50,325	42,442	41,775	38,105

Management Indicator Species and Wildlife Habitat Management

Management indicator species (MIS) are analyzed separately from the threatened and endangered species and the sensitive and other species of viability concern. Northern Bobwhite and Red-cockaded Woodpecker were included as both threatened and endangered Species and MIS. National Forest Management Act regulations, adopted in 1982 require selection of MIS during development of forest plans (36 CFR 219.19(a)). Maintenance and improvement of habitat for MIS are addressed by objectives, design criteria, and Management

Area allocations; however specific information for each of the species is collected and reported here and in periodic Management Indicator Species Reports. The tabulation that follows shows the 24 MIS for the Ouachita National Forest under the 2005 Forest Plan.

The Forest Plan identified 7 terrestrial MIS—all are bird species, with the exception of white-tailed deer. There are 14 fish MIS associated with stream and river habitat, and 3 pond, lake and waterhole MIS (17 fish species total). Management indicator species (MIS) serve as indicators of habitat condition for species occurring on the Ouachita NF and allow measurement of a select few to represent other wildlife species in a variety of habitats across the ONF. MIS are monitored to determine if changes in the species indicate the effects of management activities. Periodically, the specialists of the Ouachita NF prepare a Management Indicator Species Report. The last such report was completed in November 2008 and is available at the following location: www.fs.usda.gov/ouachita.

MIS Species for the Ouachita NF			
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Terrestrial MIS - 7		***Stream and River MIS - 14***	
Eastern Wild Turkey	***Meleagris gallapavo***	**Yellow bullhead***	***Ameiurus natalis***
Northern Bobwhite	***Colinus virginianus***	**Pirate perch***	***Aphredoderus sayanus***
Pileated Woodpecker	***Dendroica discolor***	**Central stoneroller***	***Campostoma anomalum***
Prairie Warbler	***Dryocopus pileatus***	**Creek chubsucker***	***Erimyzon oblongus***
Red-cockaded Woodpecker	***Picoides borealis***	**Orangebelly darter***	***Etheostoma radiosum***
Scarlet Tanager	***Piranga olivacea***	**Redfin darter***	***Etheostoma whipplei***
White-tailed deer	***Odocoileus virginianus***	**Northern studfish***	***Fundulus catenatus***
Aquatic MIS -17		**Northern hog sucker***	***Hypentelium nigricans***
Pond, Lake and Waterhole MIS - 3		**Green sunfish***	***Lepomis cyanellus***
		Longear sunfish*	***Lepomis megalotis***
Bluegill	***Lepomis macrochirus***	**Striped shiner***	***Luxilus chrysocephalus***
Largemouth bass	***Micropterus salmoides***	**Smallmouth bass***	***Micropterus dolomieu***
Redear sunfish	***Lepomis microlophus***	**Johnny darter** [1]	***Etheostoma nigrum***
		Channel darter [1]	***Percina copelandi***

*These fish species are monitored as a part of the Basin Area Stream Survey, which occurs roughly every 5 years, while pond and lake species (bluegill, largemouth bass and redear sunfish) are monitored annually.
[1]Only within the range of leopard darters.

Terrestrial MIS and their SVE scores are presented below. The section on aquatic MIS begins on page 95. All terrestrial species were rated "Fair" in 2005 and all species remain rated "Fair" in 2010. With the exception of the Pileated Woodpecker and the Eastern Wild Turkey, which remained the same, scores for terrestrial MIS declined slightly.

Terrestrial MIS Comparison of 2005 and 2010 SVE Scores and Ranks

Common Name	*Scientific Name*	2005 SVE Score	2010 SVE Score
Management Indicator Species*			
Eastern Wild Turkey	***Meleagris gallopavo***	**2.25 Fair**	**2.25 Fair**
Northern Bobwhite	***Colinus virginianus***	**2.5 Fair**	**2.09 Fair**
Pileated Woodpecker	***Dryocopus pileatus***	**2.37 Fair**	**2.37 Fair**
Prairie Warbler	***Dendroica discolor***	**2.5 Fair**	**2.15 Fair**
Scarlet Tanager	***Pirange olivacea***	**2.28 Fair**	**2.24 Fair**
White-tailed deer	***Odocoileus virginianus***	**2.21 Fair**	**2.19 Fair**

*Red-cockaded Woodpecker is reported with Proposed, Threatened and Endangered Species Habitat

Eastern Wild Turkey *(Meleagris gallopavo)*

Eastern Wild Turkey

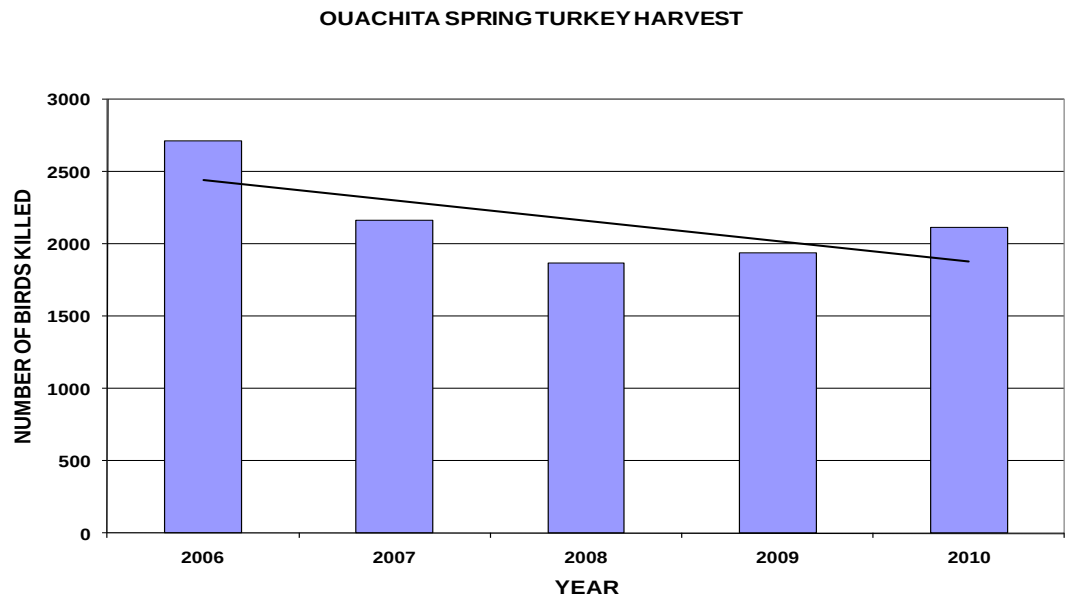
Source: USFS

The Eastern Wild Turkey is a management indicator species selected to indicate the effects of management on meeting public hunting demand (USDA Forest Service 2005b, p165.)

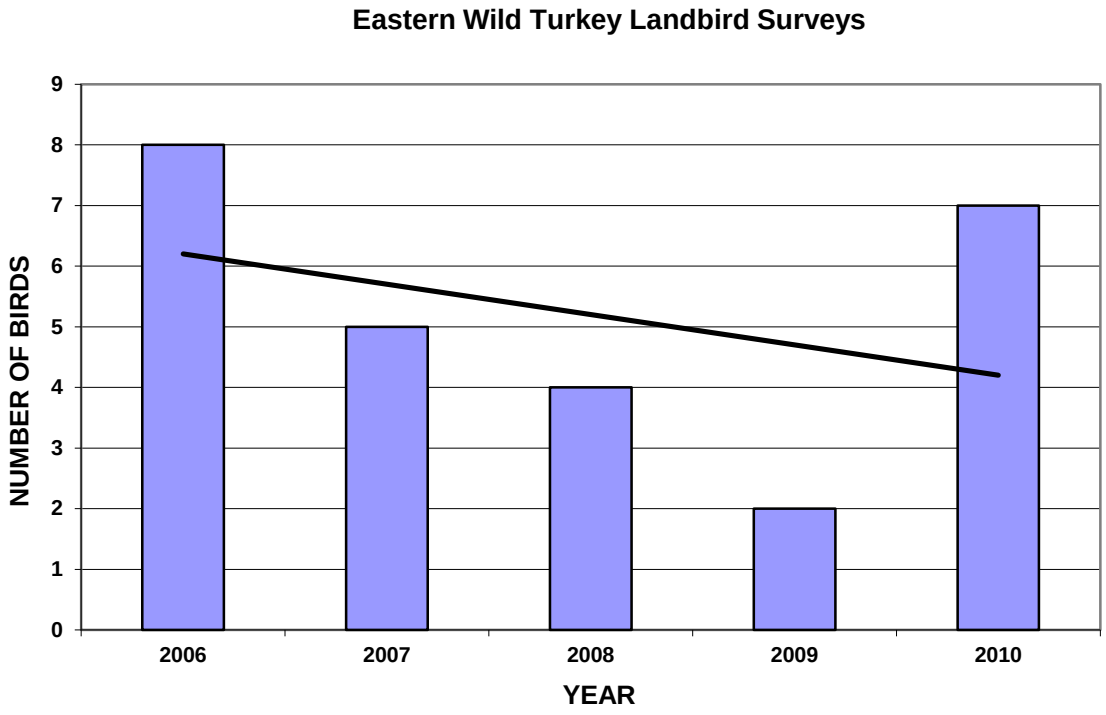
Data Sources: Sources of data include turkey poult surveys, spring turkey harvest data, habitat capability modeling using CompPATS and Landbird point survey data. In the 2005 Forest Plan, the minimum population objective is 3.3 turkeys per square mile (9,177 turkeys Forest-wide) after 10 years and 3.9 per square mile at 50 years (USDA Forest Service 2005b, p166.)

Population Trends for Eastern Wild Turkey: The number of turkey poults per hen has varied from 1.99 in 2006 to 1.4 poults per hen in 2009 in the Ouachita region of Arkansas. There is a clear downward trend for successful turkey reproduction.

Spring turkey harvest achieved a high of about 2,718 birds in FY 2006. Spring 2010 harvest was slightly more than the 2009 harvest. The Arkansas Game and Fish Commission addressed the turkey decline by adjusting the hunting season and eliminating the fall season entirely.

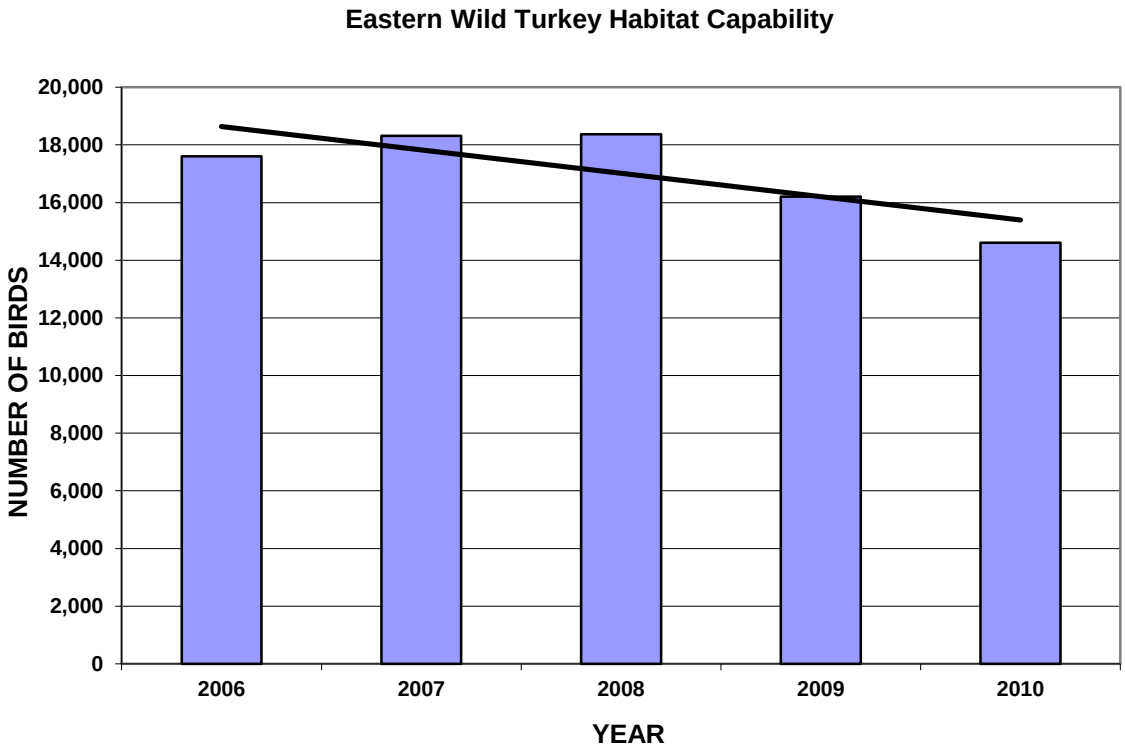


Landbird point surveys are conducted on many acres within the Ouachita NF. Although the 2010 totals were higher than the previous 3 years, the Eastern Wild Turkey trend detected on the Ouachita NF Landbird point surveys is similar to the drop in harvested birds and poults per hen and is statistically showing a declining trend.



Habitat capability for 2010 is estimated at 14,610 turkeys compared to an estimated 16,204 turkeys in 2009, 18,370 in 2008, and 18,316 in 2007, showing a downward trend in habitat capability for the years FY 2006 to FY 2010. Although the estimated habitat capability is exhibiting a downward trend, it should support numbers exceeding the minimum population

objective of 3.3 turkeys per square mile (9,177 turkeys) for the first period (10 years) of the Forest Plan.



Interpretation of Trends for Eastern Wild Turkey: A negative trend is suggested for the turkey population based on habitat capability modeling. In addition, the drop in turkey harvest, poults per hen, and birds detected on the Landbird points would indicate a reduction in the number of turkey. Still, habitat capability remains above the level projected in the 2005 Forest Plan. The sustained high levels of habitat capability would indicate that the drop in harvest levels, reductions in poults per hen, and birds detected on the Landbird points are due to factors other than habitat.

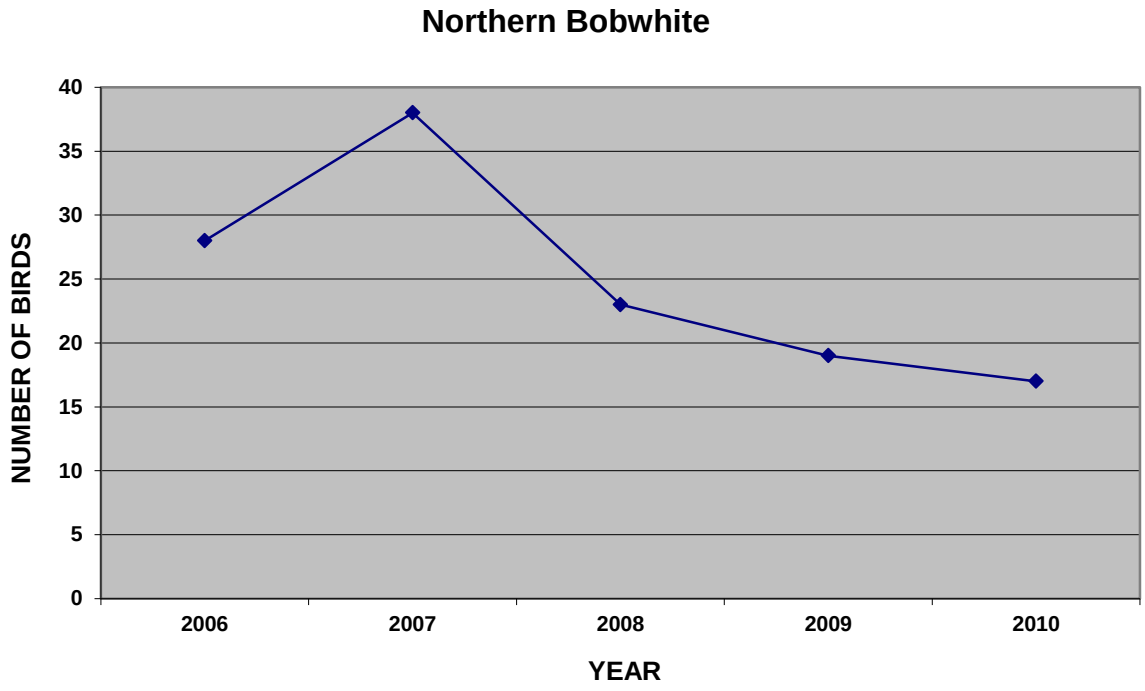
Implications for Management: Poult production, harvest, birds detected on Landbird point counts, and habitat capability all show a downward trend. Insufficient data exist to suggest that Eastern Wild Turkey may be in danger of losing population viability or falling below the desired population levels. The Arkansas Game and Fish Commission has shortened the spring season and eliminated the fall season to stimulate more positive responses. Data are contradictory, with habitat projections reflecting a positive trend but poult production, harvest, and Landbird point counts trending downward. Due to conflicting indicators, additional data should be collected to determine if additional management changes are warranted. Research across the South has shown that prescribed fire treatments, including the growing season burns, improve turkey habitat by opening up dense forest, reducing shrub and brush, and improving nesting and brood rearing habitat (Cox 2008). In addition, areas that were not burned for more than two years were almost devoid of turkey hens. No management changes are warranted at this time. In addition, research is currently ongoing on the Forest to look at habitat preferences of the Eastern Wild Turkey.

Northern Bobwhite (*Colinus virginianus*)

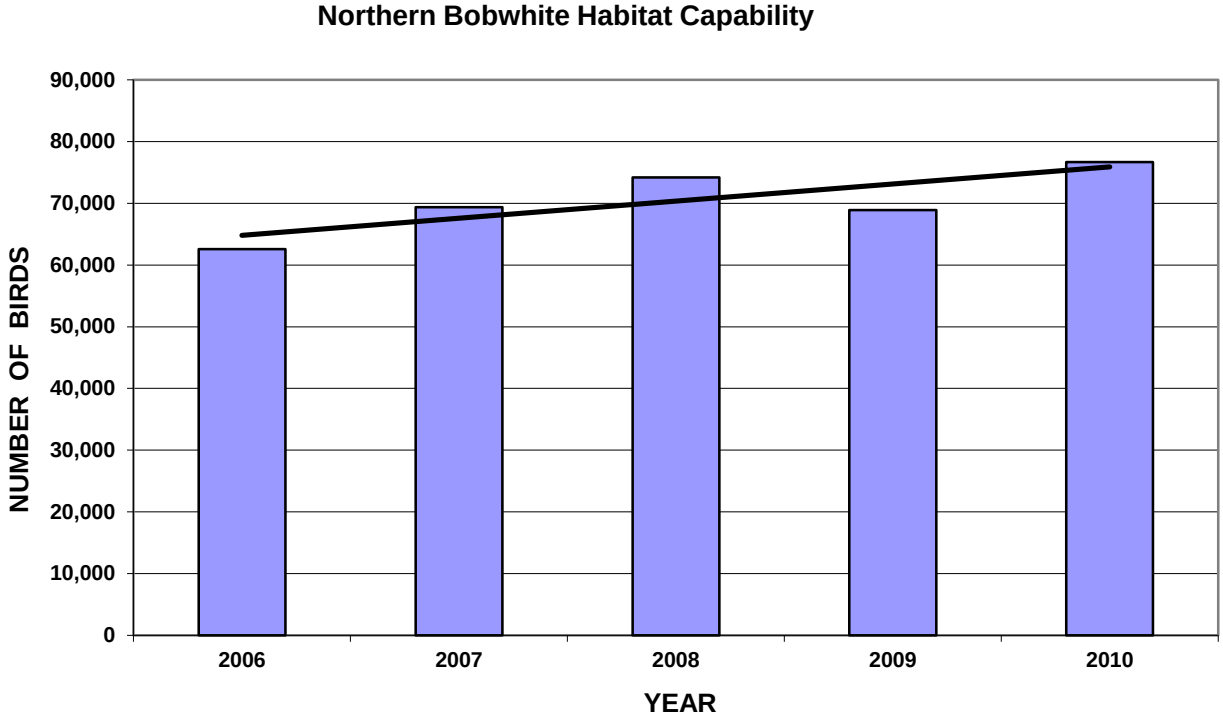
Northern Bobwhite
Source: USFS

The Northern Bobwhite is a MIS for the Ouachita NF, selected to indicate the effects of management on meeting public hunting demand, and to indicate effects of management on the pine-oak woodland and pine bluestem communities (USDA Forest Service 2005b, p165.) Data Sources: Data sources and monitoring techniques for this species include Northern Bobwhite call counts (Arkansas Game and Fish Commission); the CompPATS Habitat Capability Model; and the Ouachita NF Landbird monitoring data collected from 1997 – 2009. Data collected using call counts are presented as 'bird calls heard per stop.' In the 2005 Forest Plan, the population objective for the Northern Bobwhite is an average of 36.6 birds per square mile (USDA Forest Service 2005b, p166.)

Population Trends: Since FY 1997, the Ouachita NF has been conducting bird surveys on over 300 Landbird monitoring points. Northern Bobwhite data indicate a slight downward trend in birds detected over this 13-year period. During the past 5 years, this trend has continued.



Estimated habitat capability for the Northern Bobwhite shows a modest increase in the last 5 years; however, it is still far from reaching the projected FY 2015 desired forest-wide habitat capability of 101,748 based on 2005 Forest Plan. One major factor is that early seral habitat creation has never attained the 2005 Forest Plan objective of 5,500 acres per year.



Interpretation of Trends for Northern Bobwhite: Northern Bobwhite Landbird point data indicate a decreasing trend in Northern Bobwhites for the Ouachita NF, while the estimated habitat capability shows a modest increasing trend. Regional declining population trends for the Ozark-Ouachita Plateau region are reported. Regional and range-wide declines are primarily attributed to the loss of habitat on private and agricultural lands and changes in agricultural practices. The Ouachita NF has pursued aggressive prescribed fire and thinning programs that are providing habitat improvements, and it is expected that these management actions will soon positively act to overcome the downward trends.

Implications for Management: The Northern Bobwhite population viability on the Ouachita NF is not expected to be threatened and populations are expected to improve through 2005 Forest Plan implementation. Increases in thinning and prescribed fire, especially associated with some 200,000 acres of shortleaf pine-bluestem grass ecosystem restoration, will benefit Northern Bobwhite populations by improving habitat.

Pileated Woodpecker (*Dryocopus pileatus)*

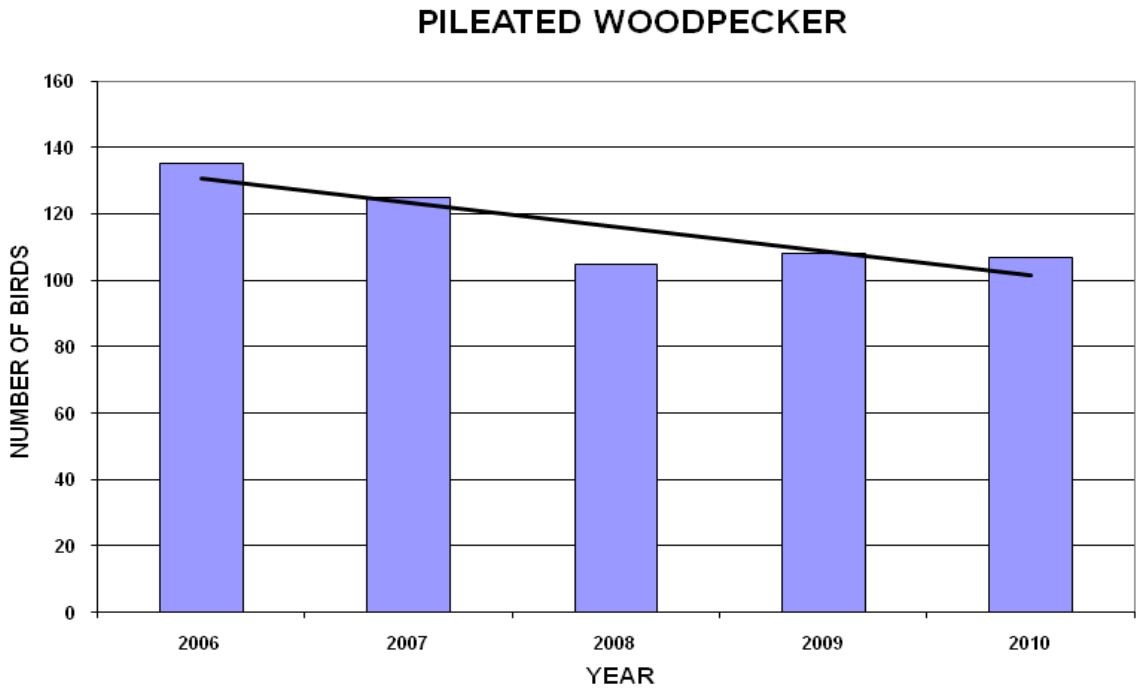
The Pileated Woodpecker is a management indicator species for the Ouachita NF, selected to indicate the effects of management on snags and snag-dependent species (USDA Forest Service 2005b, p166.) This species prefers dense, mature to over-mature hardwood and hardwood-pine forest types. It is a primary excavator of cavities important to obligate secondary cavity nesters, and is a key indicator for the retention of a complete community of cavity nesting species.

Data Sources: The Ouachita NF Landbird point count data, and habitat capability predictions using CompPATS wildlife model and Field Sampled Vegetation (FSVeg) data were used as data sources for evaluating Pileated Woodpecker population trends.

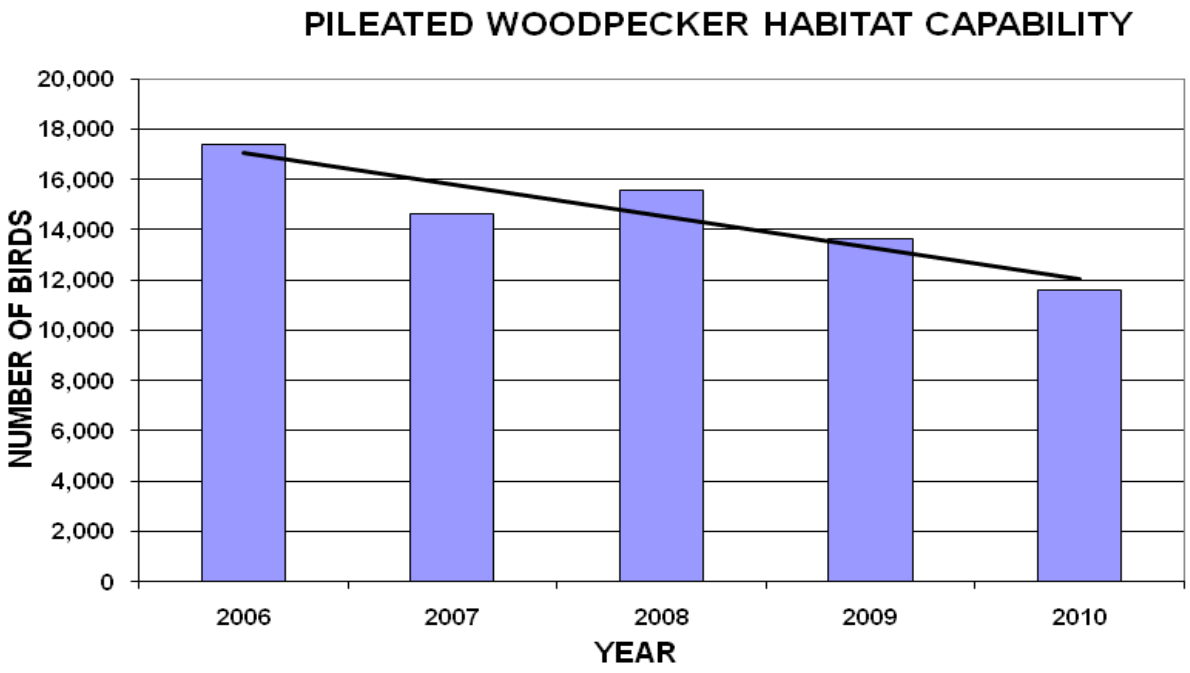
Population Trends: Population trends for the Pileated Woodpecker as indicated by Ouachita NF Landbird data and habitat capability data are mixed.

Pileated Woodpecker
Source: www.enature.com

Landbird monitoring data on the Ouachita NF indicate the long term trend to be stable to slightly decreasing for Pileated Woodpecker.



The CompPATS wildlife model estimates for the habitat capability, using all forest types, indicate a more defined decreasing trend for the last 5 years than Landbird data. These CompPATS wildlife model data are for pine, pine-hardwood, hardwood, and hardwood-pine stands with the greatest value being for stands greater than or equal to 41 years old. As these stands age, the habitat capability to support the Pileated Woodpecker should begin to stabilize.



Interpretation of Trends for the Pileated Woodpecker: The CompPATS wildlife model takes into account the conditions in all forest types, and it factors in management practices including prescribed fire and thinning. These data show a downward trend for the last 5 years, but a long-term upward trend. The overall situation should continue to improve as the unmanaged hardwood and hardwood-pine and the managed pine stands age. The current habitat capability that is estimated to support 11,580 birds exceeds the 2005 Forest Plan bird population objectives of 11,265 for FY 2015 (USDA Forest Service 2005b) but is trending towards the FY 2015 desired capability.

Implications for Management: The Pileated Woodpecker and its habitat appear to be secure within the Ouachita NF. There are no indications of a need to alter management direction.

Prairie Warbler *(Dendroica discolor)*

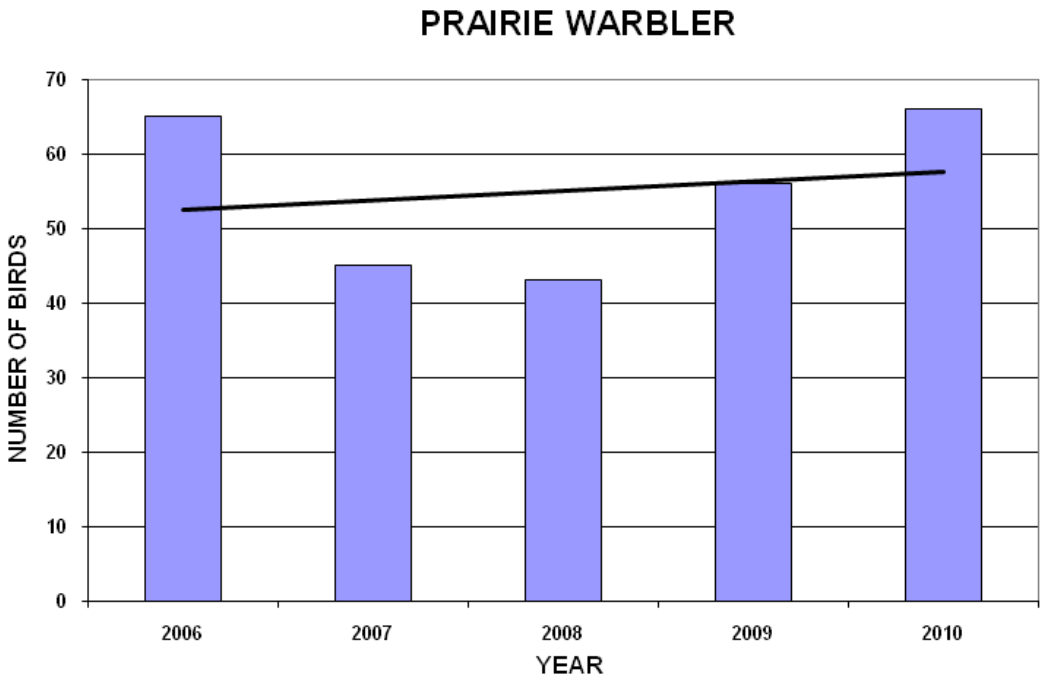
The Prairie Warbler is a MIS on the Ouachita NF, selected to help indicate the effects of management on the early successional component of forest communities. As a neotropical migrant, the Prairie Warbler is an international species of concern. This species uses early successional habitats such as regenerating old fields, pastures, and young forest stands. The vegetation selected may be deciduous, conifer, or mixed types.

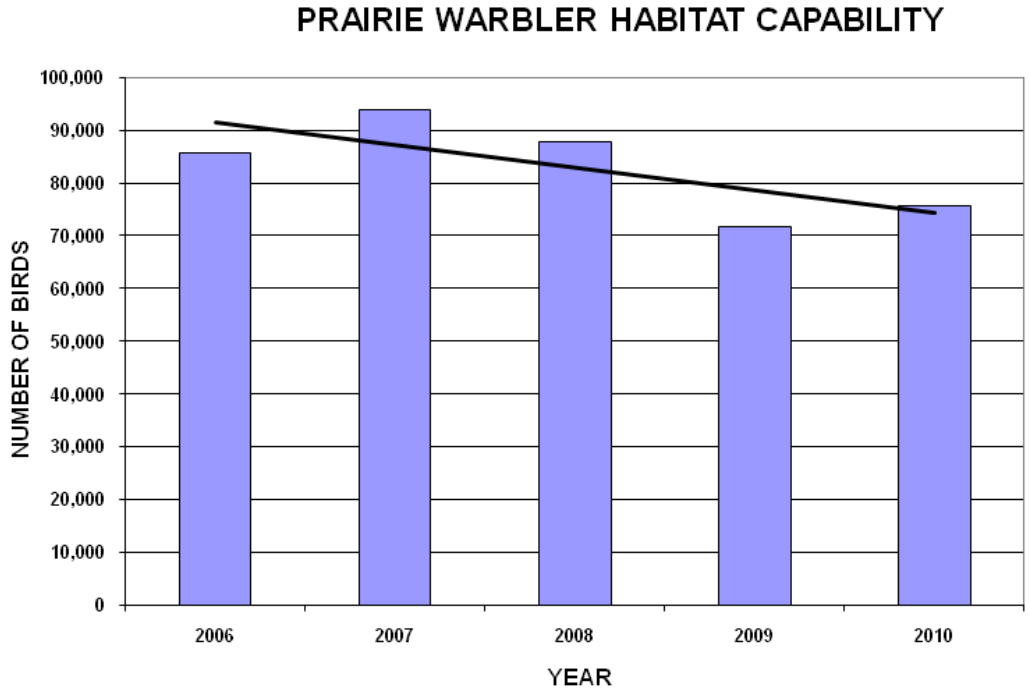
Prairie Warbler
Source: www.enature.com

Habitats with scattered saplings, scrubby thickets, cutover or burned over woods, woodland margins, open brushy lands, mixed pine and hardwood, and scrub oak woodlands are most often selected.

Data Sources: Ouachita NF Landbird point data (1997 – 2009) and the Habitat Capability data are sources for evaluating Prairie Warbler population trends.

Population Trends: Based on the data available, the Prairie Warbler shows a slight upward trend for the last 5 years; however, the long term trend remains downward. The Landbird point count data for the warbler show a slight increase in numbers for FY 2010 over the previous 4 years, but throughout the Prairie Warbler range, a downward trend is indicated.





Interpretation of Trends for Prairie Warbler: The Prairie Warbler has demonstrated a slight increase for the past 5 years based on Landbird surveys and but a decline in habitat capability. Under the 2005 Forest Plan implementation, early seral stage habitat should continue to increase and then stabilize at approximately 50,000 to 60,000 acres after 10 years (USDA Forest Service 2005b, p175.) Data support a declining population trend for the Prairie Warbler on the Ouachita NF and survey-wide for the long-term, with such decline considered to be related to the decline in habitat in acres of early seral stage habitat available.

Implications for Management: The Prairie Warbler has a declining population trend within the Ouachita NF and throughout its overall range. Although declining, the population viability on the Ouachita NF should not be threatened. The population decline has been exacerbated by the fact that the quantity of early seral habitat expected to be produced annually (5,500 acres), largely by seed tree and shelterwood cutting, has not yet been realized. There will be a lag time between implementation of the 2005 Forest Plan, the increase in early seral habitat, and an associated Prairie Warbler response. Meanwhile, increases in thinning and prescribed fire in the pine and pine-hardwood types especially that associated with approximately 200,000 acres of shortleaf-bluestem ecosystem restoration, will benefit Prairie Warbler populations.

Red-cockaded Woodpecker (*Picoides borealis*)

The Red-cockaded Woodpecker (RCW) is a management indicator species for the Ouachita NF because it has Federal endangered species status. It was selected to indicate the effects of management on recovery of this species and to help indicate effects of management on shortleaf pine-bluestem woodland community (USDA Forest Service 2005b, p166.) The RCW is discussed in more detail previously in the 'Proposed, Endangered, and Threatened Species Habitat' Section (page 59) of this report.

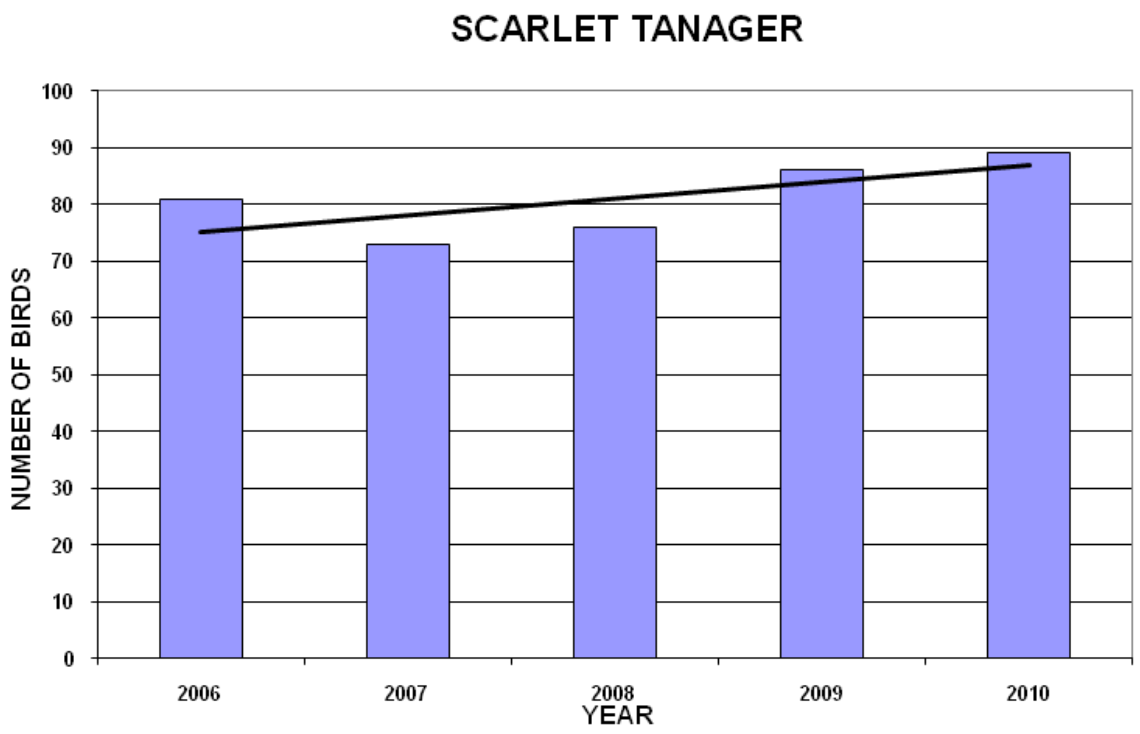
Scarlet Tanager *(Piranga olivacea)*

The Scarlet Tanager is a MIS for the Ouachita NF, selected to help indicate the effects of management on mature forest communities. This species favors mature hardwood, and hardwood-pine, and is less numerous in mature mixed pine-hardwood and pine habitat types. It is relatively common in all of these habitats in the Ouachita Mountains.

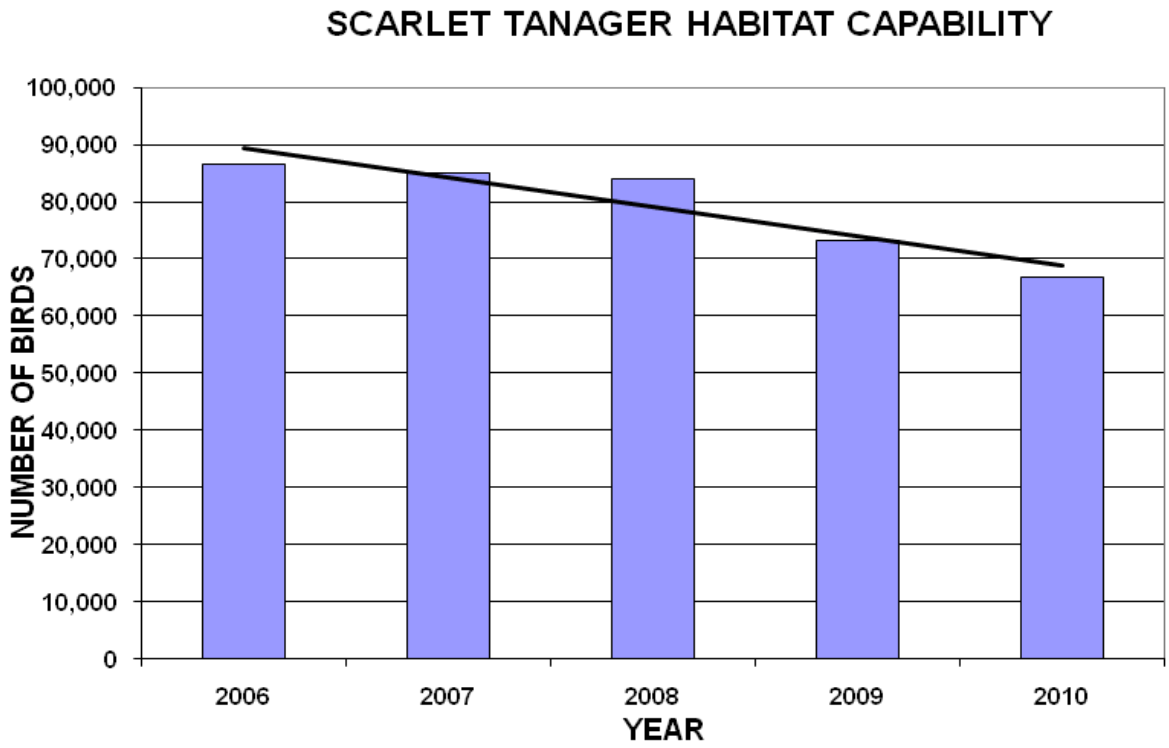
Scarlet Tanager
Source: www.enature.com

Data Sources: The Ouachita NF Landbird point data and habitat capability predictions using CompPATS wildlife model, and Field Sampled Vegetation (FSVeg) data were used to make a trend assessment.

Population Trends: The Landbird point data collected from 2006-2010 indicate an overall stable to increasing trend for the Scarlet Tanager.



As opposed to Landbird point data, Ouachita NF habitat capability data do not support a stable trend for the Scarlet Tanager.



Interpretation of Trends for the Scarlet Tanager: Data support a stable trend on the Ouachita NF and the Ozark-Ouachita Plateau where mature hardwood and mixed types are represented. On the Ouachita NF, there are over 200,000 acres of hardwood and hardwood/pine forest types greater than 41 years old. The Scarlet Tanager and its habitat are secure within the Ouachita NF, and the continued long-term viability of this species is not in question.

Implications for Management: The Scarlet Tanager has an apparent gradual, increasing trend within the Ouachita NF and the Ozark and Ouachita Plateau and appears secure within its overall range. The viability of this species is not in question; however, it will be retained as an indicator species and monitoring will continue.

White-tailed deer *(Odocoileus virginianus)*

The white-tailed deer is a management indicator species (MIS) that was selected to help indicate the effects of management on meeting the public hunting demand (USDA Forest Service 2005, p165). In the 2005 Forest Plan, the desired habitat condition is to sustain healthy populations of native and desired non-native wildlife and fish species.

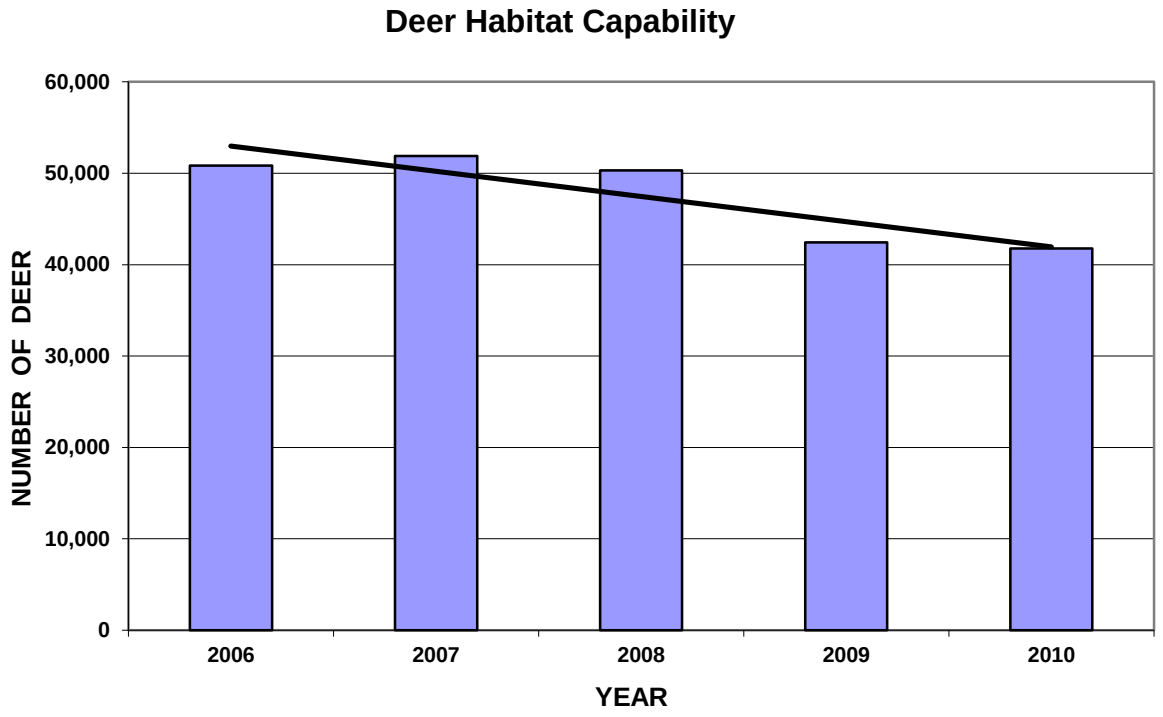
White-tailed Deer
Source: www.enature.com

Data sources: Data sources and monitoring techniques for this species include deer spotlight survey counts (Urbston 1987), harvest and population trend data from the Arkansas Game and Fish Commission and Oklahoma Department of Wildlife Conservation, CompPATS deer habitat capability model, and acreage of early successional habitat created by year.

Deer Population Trends: The estimated habitat capability for deer for fiscal years 2006-2010 shows a downward trend; yet, it still exceeds the desired habitat capability of 48,250 acres for FY 2015. Habitat carrying capacity is calculated using acres within the Ouachita NF and is influenced by the amount of prescribed fire and early seral habitat created, including regeneration, thinning, timber stand improvement, mid-story removal, wildlife stand improvement, wildlife openings, and site preparation.

For deer, the CompPATS habitat capability model places a greater value on early seral stage habitat and gives lesser value to habitat created by thinning and prescribed fire. In contrast to the declines in even-age regeneration cutting, the acres of thinning and prescribed fire have increased.

The Final Environmental Impact Statement for the 2005 Forest Plan (September 2005) indicates in Table 3.59 (p. 166), a desired terrestrial habitat capability to support an average of 13.7 deer per square mile within the Ouachita NF after 10 years. This is calculated on a land base of 1,780,101 acres (2,780 square miles) for a habitat capability that would support 38,105 deer. The habitat capability as estimated by the CompPATS wildlife model exceeds the 2005 Forest Plan projections for every year in the period 2006 -2010 but is showing a decreasing trend. The deer harvest data indicate increasing deer density. The 2005 Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year, and 2,676 acres were created by regeneration harvests and wildlife habitat improvement in FY 2010.



Interpretation of Trends for White-tailed Deer: The decreasing habitat capability for the past few years as estimated by the CompPATS wildlife model is related to fewer acres than anticipated in grass/forb habitat (forest types ages 0-10 years) preferred by deer. Although acres of created early successional habitat have not matched the desired levels, deer densities (based on spotlight surveys) for FY 2008 are the highest in the last 9 years and double the FY 2000 deer density. While FY 2010 results are the lowest since FY 2003, overall deer harvest is showing an upward trend.

Implications for Management: Deer are widespread, abundant, and the habitat capability still remains above the Forest Plan projection. There are no indications of a need for adjustment in current management practices.

Terrestrial MIS Summary

This review of monitoring information for seven terrestrial management indicator species was conducted to determine the status of the species and management needs. The following tabulation displays the expected population trends, apparent population trends, risk for conservation of species, and management changes needed. This review shows poor habitat conditions and capability for three species: Eastern Wild Turkey, Northern Bobwhite, and Prairie Warbler. Additional management activities to increase the development of early seral habitat through shelterwood and seedtree stand development for early seral species are needed. Also an increase in prescribed burning and thinning is needed for the development and improvement of Northern Bobwhite habitat. All three of these species are showing declines on the Ouachita NF within Arkansas and Oklahoma and throughout the region.

Status of Terrestrial Management Indicator Species, ONF

Species	Expected Population Trends	Apparent Population Trends	Risk for Conservation of Species	Management Changes Needed
Eastern Wild Turkey (*Meleagris gallopavo*)	**Stable**	**Decreasing**	**None**	**Increase early seral habitat development**
Northern Bobwhite (*Colinus virginianus*)	**Increase**	**Decreasing**	**None**	**Increase prescribed burning, thinning and early seral habitat development**
Pileated Woodpecker (*Dryocopus pileatus)*	**Stable**	**Stable**	**None**	**None**
Prairie Warbler *(Dendroica discolor)*	**Increase**	**Decreasing**	**None**	**Increase early seral habitat development**
Red-cockaded Woodpecker (*Picoides borealis*)	**Increasing**	**Increasing**	**None**	**None**
Scarlet Tanager *(Piranga olivacea)*	**Stable**	**Stable**	**None**	**None**
White-tailed Deer (Odocoileus virginianus)	**Stable**	**Increasing**	**None**	**None**

In this report, terrestrial MIS and aquatic MIS are presented separately. Discussions about aquatic management indicator species (MIS) begin on page 95.

Terrestrial Proposed, Endangered, and Threatened Species Habitat

The Endangered Species Act of 1973 requires that all threatened and endangered species and their habitats be protected on federally managed land. Within the Ouachita NF, five terrestrial, federally endangered species and one species listed as threatened occur or have the potential to occur on the Forest. At present, no species known to occur on the Forest are proposed for federal listing. For the three listed birds, one mammal, one insect, and one reptile species, SVE scores indicate that the American burying beetle and Indiana Bat are stable and that the Red-cockaded Woodpecker has improved. A list of species, species status, and a comparison of 2005 and 2010 SVE scores follow.

Federally Listed Species on the ONF and SVE Scores 2005, 2010

Common Name and Scientific Name	Federal Listing	2005 SVE Score	2010 SVE Score
American Burying beetle (*Nicrophorus americanus*)	**Endangered**	**1.92 Fair**	**1.97 Fair**
Indiana Bat (*Myotis sodalis*)	**Endangered**	**2.86 Good**	**2.52 Good**
Least Tern (*Sterna antillarum*)	**Endangered**	**NA- Not evaluated- Red Slough only**	**NA- Not evaluated- Red Slough only**
Piping Plover (*Charadrius melodus*)	**Endangered**	**NA- No known occurrences on the Forest**	**NA- No known occurrences on the Forest**
Red-cockaded Woodpecker (*Picoides borealis*)	**Endangered**	**2.50 Fair**	**2.72 Good**
American Alligator (*Alligator mississippiensis*)	**Threatened** by similarity of appearance (to other listed crocodilians)	**NA**	**4.00 Very Good**

American Burying Beetle (*Nicrophorus americanus*)

American Burying Beetle
Source: Frances Rothwein, USFS

In May 2010, the Ouachita National Forest was issued a revised Biological Opinion for the American Burying Beetle (ABB) that remapped the ABB areas on the Forest and incorporated the joint Ouachita and Ozark-St. Francis ABB Conservation Plan.

This Conservation Plan used the most current research and data from the US Fish and Wildlife Service (USFWS) and the three National Forests. The Conservation Plan addresses conservation and improvement of habitat for ABB rather than just protecting individual beetles from human disturbances, which was the focus of earlier work.

A Conservation Plan has also been created for Ft. Chaffee, near Ft. Smith, AR, and all parties are communicating, comparing data, and assisting each other for the benefit of this endangered species. Results from implementation of the new Conservation Plan are not yet evident due to the short implementation time (1 year) and extreme high temperatures, resulting in poor trapping success.

Within the 2005 Forest Plan, at Design Criteria, TE005, the following requirement is listed, *"Potential project level impacts on individual American Burying Beetles will be reduced by using the U.S. Fish and Wildlife Service's current bait-away or trap-and-relocate protocols."* The bait-away and trap-and-relocate protocols are no longer the method of conservation endorsed by the USFWS. The Forest Plan should be amended to show the two new American Burying Beetle conservation areas (AR and OK) along with a revised Design Criteria similar to the following "Follow the most current ABB Conservation Plan and comply with the 2010 Revised Programmatic Biological Opinion, or the most current biological opinion."

Indiana Bat (*Myotis sodalis*)

Indiana Bat
Source: www.enature.com

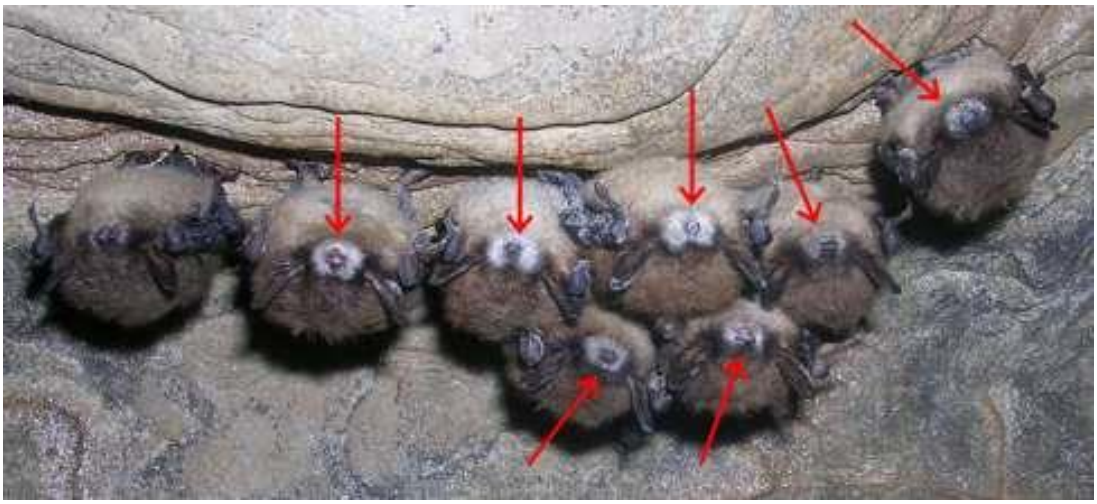
All current habitat use and distribution data for the Indiana bat, in combination with extensive District, Forest and regional surveys, a recent Anabat (acoustic detection) survey conducted during the maternity period, and captures during the Ouachita Mountain Bat Blitz have located only a few of this species in the Forest or on adjacent lands. A Bear Den Cave bat survey was conducted on January 13, 2005, and two female endangered Indiana bats were found; however subsequent surveys at Bear Den Cave did not find any Indiana bats using this winter hibernaculum from 2006 – 2009. The 2010 surveys, however, did find 25

Indiana bats hibernating at Bear Den Cave. According to the 5-year review on the status of the Indiana bat, white-nose syndrome has reduced the range-wide population estimates by approximately 50 percent, with expectations of even greater mortality impacts expected (USFWS 2009).

Data from the Indiana Bat Recovery Team and other sources in the scientific literature show there are no records of this species reproducing in Arkansas or Oklahoma and that Indiana bats typically travel north from winter hibernacula (located in the Ozarks and in southeastern Oklahoma), not south into the Ouachita Mountains. Indiana bats occasionally hibernate in small numbers (25 in 2010) in Bear Den Cave on the Forest in eastern Oklahoma but have not been detected there during the breeding season. Bear Den Cave represents the only natural cave habitat occurring on the Forest, occurring within the congressionally designated areas associated with Winding Stairs National Recreation Area. Very little active management occurs near the caves other than protection of the cave habitat by gating. Based on the 2005 SVE, the Indiana bat habitat score was 2.86 ("Good") on the Forest. The 2010 SVE indicates that the Indiana bat habitat SVE score has declined to 2.52, which is still in the "Good" range, but near the break-point of "Fair." This decline is likely related to the decline in the vegetation conditions for Indiana bat habitat outside and near the cave/mine habitat. All known cave and mine habitat has restrictive gating to prevent harmful access.

Bats and White-Nosed Syndrome (WNS) – Emerging Issue

In 2007, around 10,000 bats died in several New York caves, which was a large portion (approximately one-half) of the bats that customarily over-wintered in the protective caves. Upon investigation, most of the dead bats had a white powdery substance around their noses, later found to be a cold-loving fungus that grew around the nose and in some cases, ears, and to a lesser extent, wings of hibernating bats. Bats that contract the fungus, now known as *Geomyces destructans,* suffer high mortality because their fat reserves are exhausted due to a change in their hibernation activity. Bats with the fungus wake more often; leave their protective habitat, usually a cave; and try to forage for flying insects that are not prevalent during winter. The bats use precious energy, suffering starvation due to frequent awakenings and additional activity.



Arrows point to unusual white noses on bats in a New York cave during the winter, 2006, apparently caused by a fungus and possibly related to an unusual number of bat deaths.

Since white-nose syndrome was discovered, it has been confirmed in 19 states, including Missouri and Tennessee. The Oklahoma Division of Wildlife Conservation reports that a Cave Myotis (*Myotis velifer)* bat collected alive on May 3, 2010, from a cave in northwest Oklahoma has tested positive for WNS. Although genetic tests indicate that the bat from Oklahoma was harboring the fungus, the pattern of infection was not consistent with the WNS infection observed in bats in the eastern United States, and there has not been a mortality event attributable to WNS in Oklahoma to date. Officials from the Arkansas Game and Fish Commission (AGFC) and the U.S. Forest Service have completed monitoring surveys in Arkansas for WNS and have not identified it in any monitored caves in Arkansas. White-nose syndrome is responsible for the mortality of more than one million bats in the northeastern United States since it was first identified in 2006. If WNS becomes more prevalent, additional steps may be required to protect bat populations on the Ouachita National Forest in Arkansas and Oklahoma.

Least Tern (*Sterna antillarum*) and Piping Plover (*Charadrius melodus*)

Most Least Terns and Piping Plovers that occur on the Ouachita National Forest in Arkansas and Oklahoma are passing migrants and are only occasionally seen foraging within the Red Slough Wildlife Management Area.

Least Tern
Source: www.enature.com

Piping Plover
Source: www.enature.com

The Least Tern and Piping Plover are not known to occur as reproducing populations on the Forest (James and Neal, 1986; Peterson, 1980). There are no known element occurrence records (breeding locations) on the Forest; therefore, these species were not included in the 2005 or the 2010 SVE. The tabulation below for Least Terns and Piping Plovers observed during migration in Red Slough shows that Least Terns are observed much more often than Piping Plovers, although there is a very occasional sighting of a Piping Plover.

	2006	2007	2008	2009	2010
Least Terns	**17**	**56**	**81**	**21**	**63**
Piping Plovers	**1**	**0**	**0**	**0**	**0**

Red-cockaded Woodpecker (*Picoides borealis)*

The Red-cockaded Woodpecker (RCW) is both an endangered species and a management indicator species for the Ouachita NF. Over the past decade, the number of active territories and number of adult birds have increased.

Red-cockaded Woodpecker
Source: www.enature.com

Management Area 22, Renewal of the Shortleaf Pine-Bluestem Grass Ecosystem and Red-cockaded Woodpecker Habitat with approximately 188,002 acres, was established as an area for the renewal of the Shortleaf Pine-Bluestem Grass Ecosystem and Red-cockaded Woodpecker habitat. This MA is located on National Forest System land on the Poteau/Cold Springs, Mena, and Oklahoma Ranger Districts. These lands consist primarily of extensive blocks of Ouachita Pine-Oak Forest, Ouachita Pine-Oak Woodlands, and intermingled stands of Ouachita Dry-Mesic Oak Forest. In addition to providing extensive areas in which restoration of pine-bluestem ecosystems is featured, MA 22 incorporates two Habitat Management Areas (HMAs; one in Arkansas, one in Oklahoma) for the endangered Red-cockaded Woodpecker (RCW).

As required by the 1995 Red-cockaded Woodpecker EIS, HMAs (MA 22a) have been designated. The HMA acres on the Ouachita NF are shown by Ranger District in the following tabulation:

Habitat Management Areas
Acres by District, ONF

District	Total
Cold Springs	6,581
Mena	11,147
Poteau	66,584
Tiak	50,945
Total	135,257

The remaining part of MA 22 (entirely in Arkansas) is the Extended Area, or MA 22b. The Extended Area provides for renewal of the shortleaf pine-bluestem grass ecosystem and future expansion habitat for RCWs.

The 2005 Forest Plan has a management objective to *"maintain or improve the population status of all species that are federally listed or proposed for listing."* The Red-cockaded Woodpecker (RCW) is a management indicator species for the Ouachita NF because it has Federal endangered species status. It was selected to indicate the effects of management on

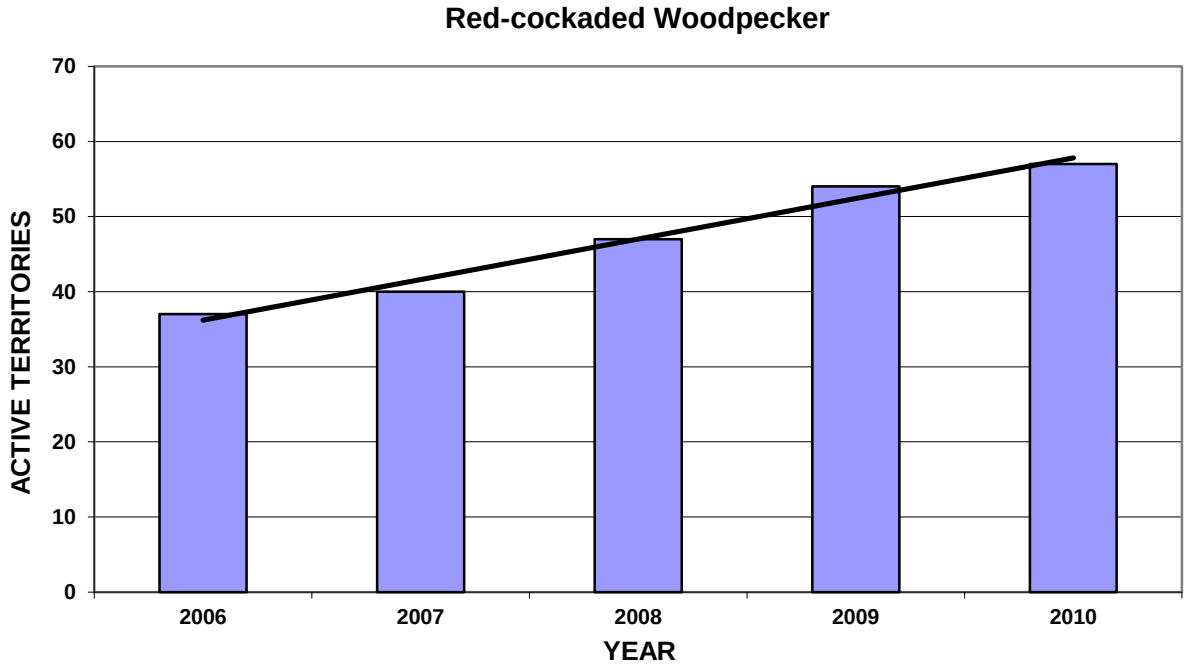
recovery of this species and to help indicate effects of management on shortleaf pine-bluestem woodland community (USDA Forest Service 2005b, p166.)

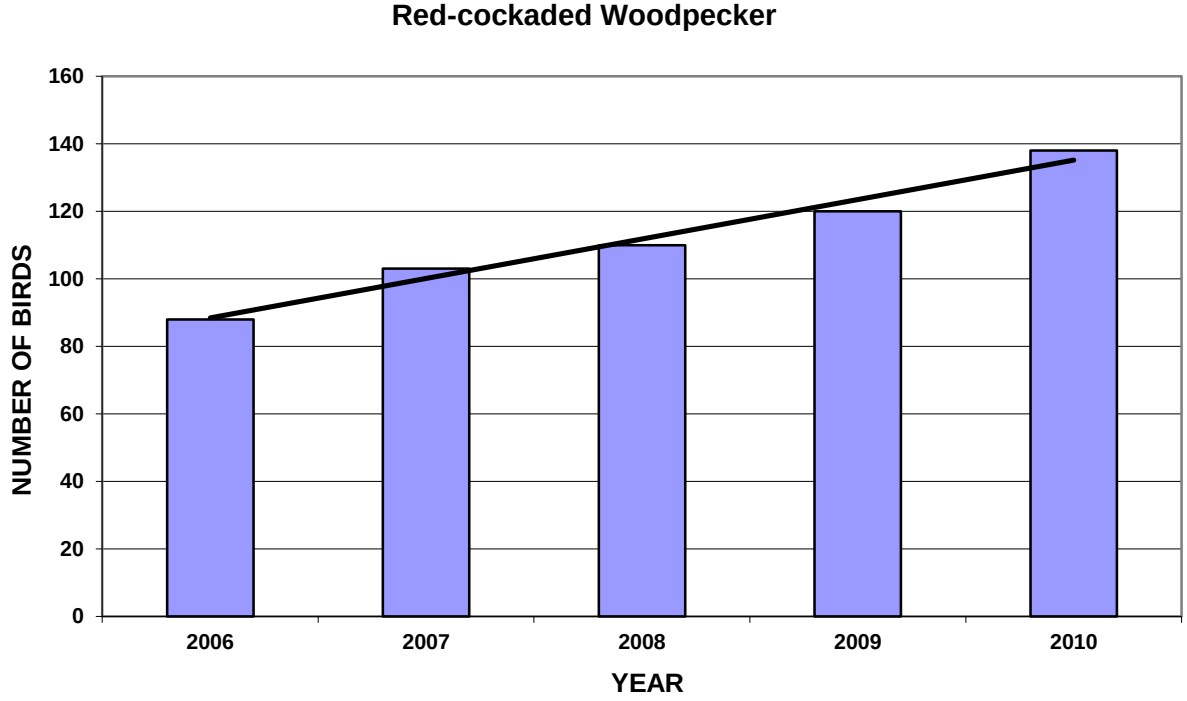
Data Sources: Because the Red-cockaded Woodpecker is an endangered species, it is one of the most intensively monitored species on the Ouachita NF. Monitoring is conducted with high precision, intensity, and reliability. Active territories, nesting attempts, fledgling estimates, banding, augmentation, and the number of adults are tracked and reported annually to the USFWS.

Definitions:
Active Territories: A territory is determined to be active when nesting or roosting RCW are present.
Nesting Attempts: A nest attempt is recorded when a pair of RCW exhibits nesting behavior which results in at least 1 egg being laid.
Estimated Fledglings: Birds fledge when they leave their nests after hatching, and estimated fledglings refers to the number of young RCWs that leave the natal cavity.
Number of Adult Birds: Estimated number of adult RCW present in population prior to nesting season.

Red-cockaded Woodpecker Population Trends: Over the 5-year review period, the number of active territories and number of adult birds have increased.

Red-cockaded Woodpecker: RCW active territories have increased from a low of 11 territories in FY 1996 to 54 active territories in FY 2009. The RCW data for FY 2010 indicated 138 adult birds and 87 fledglings compared to 128 adults and 77 fledglings in FY 2009. Also during FY 2010, there were 51 RCW nest attempts, up from 47 the previous year.





Implications for Management: The population of this species exhibits an increasing trend. Barring any major catastrophic events, this species should continue to improve under the present management intensity. A large-scale ecosystem restoration project was initiated in Management Area 22 to restore the shortleaf pine-bluestem grass ecosystem on over 200,000 acres. This project will eventually provide sufficient habitat for a recovery population of the endangered Red-cockaded Woodpecker (USDA Forest Service 2005b). As the pine/bluestem ecosystem is restored and the acres of quality habitat are increased, the main factors influencing species population and recovery will be the limitations of population dynamics and uncontrollable natural influences. Ouachita NF management intensity should be maintained and intensive monitoring continued.

Management Area 22, Renewal of the Shortleaf Pine-Bluestem Grass Ecosystem and Red-cockaded Woodpecker Habitat - Emerging Issues

Boundaries of the Management Area: When Management Area (MA) 22, the Ouachita National Forest's Red-cockaded Woodpecker (RCW) habitat management area (HMA) was created in the mid-1990's, the boundary was established based upon historical records of confirmed RCW territories. This documented species distribution, along with the estimated number of acres of pine and pine-hardwood forest types required to support the 2005 Forest Plan population objective of 400 potential RCW breeding groups, was used to delineate the current boundary. Since 1990, the RCW population on the Forest has increased from 13 to 59 active territories and the distribution of these territories has shifted northward.

To accommodate the probable near term expansion of RCW territories further northward into nearby high quality habitat, it may be necessary to adjust the HMA and MA 22 boundary. Approximately 13,000 acres are proposed to be swapped with other forest management areas, and the adjustment in the HMA boundaries would require a Forest Plan amendment. This adjustment would accomplish two desirable outcomes:

- It would substitute better quality contiguous stands of mature shortleaf pine habitat for the current more fragmented National Forest System land ownership dominated by a higher percentage of mixed forest types. This change would also result in replacing MA 22 acres which already contain a major highway (US 71) and is slated to accommodate a major interstate highway corridor (proposed I-49) expansion.
- It would facilitate the intensive forest management activities (i.e. timber management and prescribed burning), essential to provide optimum quality RCW habitat. Existing acres are more difficult to manage due to complications of rough terrain, adjacent RARE II and Semi-Primitive Motorized (SPM) land designations, private land in-holdings, and of high volume motor vehicle traffic on a major highway corridor which traverses the current MA 22. The replacement acres would be more distant from potential high risk smoke targets, have more gentle topography, and have better rural road access for necessary fire and timber related projects.

Interstate 49 (Highway 71) New Orleans to Kansas City: The US Highway 71 relocation approved by the Federal Highway Administration in 1997 may impact RCW colonies through the loss or fragmentation of suitable habitat. Construction of this project has begun on the south end of highway 71, north of Texarkana.

American alligator (*Alligator mississippiensis*)

The American alligator ranges across southeastern North America. With enforcement of protective legislation, populations have shown rapid recovery from habitat loss and over-hunting and are stable or increasing in most of its range. Even though the American alligator is no longer biologically endangered or threatened, it is still listed by the USFWS as "Threatened" throughout its entire range due to the similarity of appearance to other endangered or threatened crocodilians. It now seems secure from extinction and was pronounced fully recovered in 1987.

American Alligators at Red Slough
Photo Courtesy of David Arbour

Surveys of the American alligator on the Oklahoma Ranger District in 2010 located 19 alligators in Red Slough and Ward Lake, a record high, as opposed to 7 alligators counted in FY 2009, 4 alligators counted in FY 2008, eight in FY 2007 and 12 alligators counted in FY 2006.

Alligators Counted, FY 2006 – 2010, ONF

	2006	2007	2008	2009	2010
Alligators counted	**12**	**8**	**4**	**7**	**19**

The only suitable or potential habitat for this species occurring on the Forest is within the West Gulf Coastal Plain Wet Hardwood Flatwoods of the Red Slough Wildlife Management Area (WMA) of southeastern Oklahoma, where it has been seen in streams and ditches that run through the WMA. At least one alligator has also been observed in Broken Bow Lake in

Oklahoma, but there is little, if any suitable habitat for this species on nearby National Forest System land. This species was not known to reproduce on the Forest during the 2005 plan revision efforts; therefore, this species was not included in the 2005 SVE. However, the American alligator has been known to reproduce sporadically in the Red Sough WMA in recent years, and the SVE score for this species is 4.00 ("Good").

R8 Sensitive Species and Terrestrial Species of Viability Concern

The comprehensive list of "species of viability concern" pertaining to the Forest was compiled from all species that may occur or are known to occur on the Forest from the Region 8 Proposed, Endangered, Threatened, and Sensitive (PETS) species list; Partners in Flight Birds of Conservation Concern as identified by the US Fish and Wildlife Service; declining species of high public interest; and all known endemic and/or locally rare species.

Species viability and habitat condition thresholds (scoring) were derived using the most current science, literature, and expert opinion that best reflect the natural processes at work within the natural diversity of native plant and animal communities and best support the viability of associated species and their habitat needs. Species viability scores were determined as a reflection of the condition scores of the combined associated Conservation Targets or habitat condition, weighted by how important the habitat is to that species (obligate, optimal, marginal, suitable).

Ranks and Classifications of Terrestrial Species SVE Scores

Ranges of Condition Score	Condition Classification	Definitions of Terrestrial Species SVE Score
3.51 – 4.00	**Very Good**	**(VIABLE) Habitat and/or population conditions are optimal. Species should remain robust and potentially even expand within suitable habitat.**
2.51 - 3.50	**Good**	**(VIABLE) Habitat and/or population conditions are acceptable. Species should remain stable.**
1.51 – 2.50	**Fair**	**(NON-VIABLE) Habitat and/or population conditions are slightly inadequate. Although species may persist for some time, they may be subject to gradual declines.**
1.0 - 1.50	**Poor**	**(NON-VIABLE) Habitat and/or population conditions are severely inadequate. Species are expected to decline rapidly and localized extirpations are occurring or are imminent.**

Species of viability concern were analyzed separately from the threatened and endangered species. This list was derived based on recommendations from local flora and/or fauna experts, from the most current Partners In Flight and/or Birds of Conservation Concern lists, and from the Region 8 Regional Forester's sensitive species list. Species are categorized as being "sensitive" due to their endemic or restricted ranges, and/or current or predicted downward trends in population numbers and/or available habitat, which raises concern about long-term viability. Four species listed on the Regional Forester Sensitive Species list are regularly

monitored: the Bald Eagle, the Caddo Mountain salamander, the Rich Mountain slit-mouth snail, and certain sensitive bats.

Terrestrial Sensitive Species on the ONF subject to regular Monitoring Protocols

Sensitive Species and Species of Viability Concern		
Common Name	**Scientific Name**	**Listing**
Bald Eagle	***(Haliaeetus leucocephalus)***	**Regional Forester Sensitive Species**
Caddo Mountain Salamanders	***(Plethedon caddoensis)***	**Regional Forester Sensitive Species**
Rich Mountain Slit-mouth Snail	***(Stenotrema pilsbryi)***	**Regional Forester Sensitive Species**
Sensitive Bats (Eastern small-footed bat)	***(Myotis leibii*)**	**Regional Forester Sensitive Species**

Bald Eagle (*Haliaeetus leucocephalus*)

Bald Eagles were removed from the endangered species list in June 2007 because their populations recovered sufficiently. When the Bald Eagle was delisted, the Fish and Wildlife Service prepared National Management Guidelines that the Forest Service implements. Other federal laws, including the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act still apply to this species. It is currently listed as a Regional Forester's Sensitive Species. The 2010 SVE score was lower than the 2005 score but still ranks in the "Good" category.

Bald Eagle
Source: www.enature.com

Caddo Mountain Salamander *(Plethedon caddoensis)*

Since FY 2007, studies have been conducted to identify and define species and species boundaries of the Caddo Mountain, Rich Mountain, and Fourche Mountain salamanders, using modern DNA sequence techniques.

Surveys were conducted in FY 2009 and 2010 for the Caddo Mountain Salamander. The 2005 SVE score for this species declined from a "Good" to a "Fair" ranking in 2010.

Caddo Mountain Salamander
Source: Dr. Stan Trauth

The Caddo Mountain Salamander is composed of four highly divergent, geographically distinct lineages. The distributions of lineages abut each other primarily along an east-west axis, but did not appear to be separated by any physical or environmental barrier. Based on the observed phylogeographic structure, it was hypothesized that historic climatic changes resulted in range contraction toward streamside talus slopes that serve as retreats thereby isolating populations in different river drainages. In support of this hypothesis that connectivity of talus habitats would be important in determining patterns of interpopulation gene flow, it was found that a significant amount of genetic variation was partitioned among river drainage systems; although many cases were found where individuals had crossed drainage boundaries for short distances in high-elevation headwater regions (Burbrink *et. al.* 2009).

Rich Mountain Slit-mouth Snail *(Stenotrema pilsbryi)*

In 2010, the Mena Ranger District found six live Rich Mountain slit-mouth snails on two new sites, and the Oklahoma sites revealed one live individual during eight 30-minute surveys. No Rich Mountain slit-mouth snail individuals were discovered in FY 2009 during six 30-minute surveys (three hours). In FY 2008, nine 30-minute surveys (4.5 hours) were conducted at nine sites over three days. Live snails were found at three sites with a total of 16 snails found. Six 30-minute surveys (3 hours) were conducted at each of the five sites over three days in FY 2007 with a total of 15 live snails found. Five 30-minute surveys (2.5 hours) were conducted at each of the five sites over four days in FY 2006, and four contained snails (eight total live snails were found). The 2005 SVE score for the Rich Mountain slit-mouth snail improved from "Fair" to "Good" ranking in 2010.

Year of Surveys	2006	2007	2008	2009	2010
# Rich Mountain Slit-mouth Snails	8	15	16	0	7
# 30-Minute Surveys	5	6	9	6	8

Sensitive Bats (Eastern small-footed bat and Southeastern Myotis)

The Ouachita NF initiated a bat acoustic survey protocol in FY 2009 to monitor bat population trends and assess the impacts of White Nose Syndrome (WNS) on the summer distribution of bats. During fourteen survey nights in the first year the Ouachita NF captured calls from seven bats species. *Myotis leibii* (Eastern small-footed bat), an R8 sensitive species rarely found to occur on the Ouachita NF, was identified during four of the survey nights on two separate survey routes. The SVE scores for both bat species remain in the "Good" category.

Eastern Small-footed Bat
Source: www.enature.com

R8 Sensitive Species and Other Species of Viability Concern Summary

The Bald Eagle, Caddo Mountain salamander, Rich Mountain slit-mouth snail and sensitive bat species are monitored every year or at least periodically on the Forest, but most of the Sensitive as well as other species of viability concern are scored through the species viability evaluation (SVE) according to the health of the habitat identified as utilized by each species. Those species that are monitored regularly were discussed in some detail, while those using habitat health indicators and not direct monitoring, were ranked using SVE analysis.

The 79 sensitive species and species of viability concern are listed with the 2005 and 2010 SVE scores in the following tabulation and divided into catgories of mammals, birds, amphibians and reptiles, inverterates, and plants. The 2005 SVE scores reflected no species with a condition ranking of "Very Good" and that has improved to 3 species for 2010. In 2005, 46 species were ranked as "Good" while in 2010 only 35 ranked as "Good." In 2005, 33 species were in "Fair" condition, which increased to 41 species in "Fair" condition for 2010. Many of these species are dependent or are associated with the early seral condition of the vegetation communities, and the early seral condition ranked "Poor" for every community in 2010. Road densities within communities remained high from 2005 to 2010, and the fire regime frequently ranked "Poor" or "Fair" for most communities.

2005 and 2010 SVE Scores for Sensitive and Other Species of Viability Concern, ONF			
Common Name	***Scientific Name***	**2005 SVE Score**	**2010 SVE Score**
RF Sensitive and Other Species of Viability Concern Species			
Mammals			
Southeastern Myotis	***Myotis austroriparius***	**3.36 - Good**	**3.4 - Good**
Eastern Small-Footed Bat	***Myotis leibii***	**3.31 - Good**	**2.56 - Good**
Plains Spotted Skunk	***Spilogale putorius interrupta***	**2.86 - Good**	**2.19 - Fair**
Birds			
Bald Eagle	***Haliaeetus leucocephalus***	**2.75 - Good**	**2.65 - Good**
Prothonotary Warbler	***Protonotaria citrea***	**2.88 - Good**	**2.94 - Good**
Red-headed Woodpecker	***Melanerpes erythrocephalus***	**2.82 - Good**	**2.47 - Fair**
American Kestrel	***Falco sparverius***	**2.75 - Good**	**2.2 - Fair**
Chimney Swift	***Chaetura pelagica***	**2.71 - Good**	**2.66 - Good**
Worm-eating Warbler	***Helmitheros vermivorus***	**2.59 - Good**	**2.23 - Fair**
Bachman's Sparrow	***Aimophila aestivalis***	**2.59 - Good**	**2.4 - Fair**
Swainson's Warbler	***Limnothlypis swainsonii***	**2.56 - Good**	**2.75 - Good**
Yellow-throated Vireo	***Vireo flavifrons***	**2.56 - Good**	**2.78 - Good**
Painted Bunting	***Passerina ciris***	**2.56 - Good**	**2.39 - Fair**
Acadian Flycatcher	***Empidonax virescens***	**2.5 - Fair**	**2.78 - Good**
Chuck-will's-widow	***Caprimulgus carolinensis***	**2.5 - Fair**	**2.28 - Good**
Cerulean Warbler	***Dendroica cerulea***	**2.5 - Fair**	**2.63 - Good**
Orchard Oriole	***Icterus spurius***	**2.5 - Fair**	**2.3 - Fair**
Brown-headed Nuthatch	***Sitta pusilla***	**2.5 - Fair**	**2.48 - Fair**
Bewick's Wren	***Thryomanes bewickii***	**2.5 - Fair**	**1.93 - Fair**

2005 and 2010 SVE Scores for Sensitive and Other Species of Viability Concern, ONF			
Common Name	***Scientific Name***	**2005 SVE Score**	**2010 SVE Score**
Birds			
White-eyed Vireo	*Vireo griseus*	2.5 - Fair	2.11 - Fair
Wood Thrush	*Hylocichla mustelina*	2.5 - Fair	2.4 - Fair
Kentucky Warbler	*Oporornis formosus*	2.5 - Fair	2.39 - Fair
Whip-poor-will	*Caprimulgus vociferus*	2.48 - Fair	2.13 - Fair
Hooded Warbler	*Wilsonia citrina*	2.5 - Fair	2.4 - Fair
Amphibians and Reptiles			
Razorback Musk Turtle	*Sternotherus carinatus*	3.5 - Good	3.25 - Good
Northern Crawfish Frog	*Rana areolata circulosa*	3.48 - Good	3.43 - Good
Strecker's Chorus Frog	*Pseudacris streckeri streckeri*	3.42 - Good	3.43 - Good
Many-ribbed Salamander	*Eurycea multiplicata multiplicata*	3.1 - Good	3.0 - Good
Mississippi Green Water Snake	*Nerodia cyclopion cyclopion*	3 - Good	3.0 - Good
Ringed Salamander	*Ambystoma annulatum*	2.94 - Good	2.91 - Good
Mole Salamander	*Ambystoma talpoideum*	2.86 - Good	2.38 - Fair
Ouachita Dusky Salamander	*Desmognathus brimeylorum*	2.67 - Good	3.0 - Good
Rich Mountain Salamander	*Plethodon ouachitae*	2.67 - Good	2.67 - Good
Caddo Mountain Salamander	*Plethodon caddoensis*	2.59 - Good	2.23 - Fair
Fourche Mountain Salamander	*Plethodon fourchensis*	2.59 - Good	2.23 - Fair
Sequoyah Slimy Salamander	*Plethodon sequoyah*	2.59 - Good	2.25 - Fair
Kiamichi Mountain Salamander	*Plethodon kiamichi*	2.59 - Good	2.23 - Fair
Four-toed Salamander	*Hemidactylium scutatum*	2.59 - Good	2.5 - Fair
Southern Prairie Skink	*Eumeces septentrionalis obtusirostris*	2.5 - Fair	2.09 - Fair
Southern Redback Salamander	*Plethodon serratus*	2.5 - Fair	2.23 - Fair
Bird-voiced Tree Frog	*Hyla avivoca*	2.5 - Fair	2.88 - Good
Timber Rattlesnake	*Crotalus horridus*	2.5 - Fair	2.12 - Fair
Great Plains Skink	*Eumeces obsoletus*	2.5 - Fair	2.02 - Fair
Western Diamondback Rattlesnake	*Crotalus atrox*	2.4 - Fair	2.0 - Fair
Collared Lizard	*Crotaphytus collaris*	2 - Fair	1.67 - Fair
Invertebrates			
Ouachita Slitmouth	*Stenotrema unciferum*	2.93 - Good	2.51 - Good
An Isopod	*Lirceus bicuspidatus*	2.9 - Good	3.14 - Good
Diana Fritillary	*Speyeria diana*	2.5 - Fair	1.92 - Fair
Rich Mountain Slitmouth	*Stenotrema pilsbryi*	2 - Fair	2.67 - Good

2005 and 2010 SVE Scores for Sensitive and Other Species of Viability Concern, ONF			
Common Name	***Scientific Name***	**2005 SVE Score**	**2010 SVE Score**
Plants			
Arkansas Meadow-Rue	***Thalictrum arkansanum***	**3.5 - Good**	**4.00 - Very Good**
Threadleaf Bladderpod	***Lesquerella angustifolia***	**3.5 - Good**	**4.00 - Very Good**
Golden Glade Cress	***Leavenworthia aurea***	**3.5 - Good**	**4.00 - Very Good**
Narrowleaf Ironweed	***Vernonia lettermannii***	**3.5 - Good**	**3.25 - Good**
A Sandgrass	***Calamovilfa arcuata***	**3.5 - Good**	**3.25 - Good**
Sand Grape	***Vitis rupestris***	**3.5 - Good**	**3.25 - Good**
Moore's Larkspur	***Delphinium newtonianum***	**3.08 - Good**	**2.67 - Good**
Ouachita Bluet	***Houstonia ouachitana***	**2.67 - Good**	**2.71 - Good**
Bush's Poppymallow	***Callirhoe bushii***	**2.67 - Good**	**1.86 - Fair**
Wolf Spikerush	***Eleocharis wolfii***	**2.67 - Good**	**1.67 - Fair**
Butternut	***Juglans cinerea***	**2.67 - Good**	**2.71 - Good**
Rayless Crown-Beard	***Verbesina walteri***	**2.67 - Good**	**2.51 - Good**
Ozark Spiderwort	***Tradescantia ozarkana***	**2.67 - Good**	**2.71 - Good**
Small-headed Pipewort	***Eriocaulon kornickianum***	**2.67 - Good**	**1.67 - Fair**
A Corn-Salad	***Valerianella palmeri***	**2.63 - Good**	**2.42 - Fair**
Browne's Waterleaf	***Hydrophyllum brownei***	**2.58 - Good**	**2.71 - Good**
A Goldenrod	***Solidago ouachitensis***	**2.53 - Good**	**2.14 - Fair**
Large-leaved Grass-of-Parnassus	***Parnassia grandifolia***	**2.5 - Fair**	**2.51 - Good**
Ouachita Leadplant	***Amorpha ouachitensis***	**2.5 - Fair**	**2.53 - Good**
Ozark Chinquapin	***Castanea pumila var ozarkensis***	**2.5 - Fair**	**1.96 - Fair**
Southern Lady's-Slipper	***Cypripedium kentuckiense***	**2.5 - Fair**	**2.80 - Good**
Waterfall's Sedge	***Carex latebracteata***	**2.5 - Fair**	**2.33 - Fair**
Heartleaf Leafcup	**Polymnia cossatotensis**	**2.5 - Fair**	**2.0 - Fair**
Dryopteris	**Dryopteris x australis**	**2.5 - Fair**	**2.8 - Good**
Ozark Least Trillium	***Trillium pusillum var ozarkanum***	**2.47 - Fair**	**1.95 - Fair**
A Twistflower	***Streptanthus squamiformis***	**2.46 - Fair**	**1.65 - Fair**
Shinners' Sunflower	***Helianthus occidentalis ssp plantagineus***	**2.44 - Fair**	**2.47 - Fair**
Nuttall's Corn-Salad	***Valerianella nuttallii***	**2 - Fair**	**1.67 - Fair**
Maple-leaved Oak	***Quercus acerifolia***	**2 - Fair**	**1.67 - Fair**
Open-ground Whitlow-grass	***Draba aprica***	**2 - Fair**	**1.67 - Fair**

Other Wildlife Considerations

In addtion to managing for species viability and health, the Ouachita NF maintains a very active role in coordinating with the Arkansas Game and Fish Commission and the Oklahoma Department of Wildlife Conservation. Hunting, Wildlife Management Areas, and Walk-In Turkey Areas are discussed below.

Hunting

Hunting is permitted anywhere on the Ouachita National Forest except within developed recreation sites or otherwise posted areas. All state hunting and fishing regulations, fees, and seasons apply on National Forest System lands. Hunting with dogs is not allowed on Ouachita National Forest System lands within WMAs managed by either the Arkansas Game and Fish Commission or the Oklahoma Department of Wildlife Conservation. Hunting with dogs is still allowed on the general forest area of the Ouachita National Forest in Arkansas. By contrast, hunting with dogs is not allowed on the Ozark-St. Francis National Forests.

Wildlife Management Areas

In Arkansas, on the Ouachita NF, there are three Wildlife Management Areas (WMAs), each established by Memorandum of Understanding between the land owning parties in 1968: Caney Creek, Muddy Creek and the Winona Wildlife Management Areas. These WMAs are managed by the Arkansas Game and Fish Commission for the benefit of the hunting public. Within the state of Arkansas, there are a total of 127 Wildlife Management Areas created for the public for hunting.

Caney Creek WMA (85,000 acres) is primarily located on lands within the National Forest, although there is some privately owned land within the management area boundary. The Caney Creek WMA occupies portions of Howard, Montgomery, Pike, and Polk Counties.

Muddy Creek WMA (150,000 acres) is located on National Forest System land and lands owned by other cooperators in Montgomery, Scott, and Yell Counties.

The Winona WMA (160,000 acres) is located on lands jointly owned by Green Bay Packaging and the Ouachita National Forest in Garland, Perry, and Saline Counties.

In Oklahoma, on the Ouachita NF, there are four Wildlife Management Areas. In total, the Oklahoma Department of Wildlife Conservation operates 89 WMAs statewide. Oklahoma is unique for the Ouachita NF in that all National Forest System lands within the two counties in Oklahama are contained within Wildlife Management Areas.

All of the National Forest System lands within LeFlore County are contained within either the Ouachita LeFlore Unit WMA (212,836 acres) or the Cucumber Creek WMA (12,627 acres with 3,514 owned by The Nature Conservancy).

All of the National Forest System lands within McCurtain County are contained within either the McCurtain Unit WMA (127,191 acres) or the Red Slough WMA (5,814 acres).

Walk-In Turkey Areas

There are nine Walk-In Turkey Areas on the Ouachita NF, seven in Arkansas and two in Oklahoma: Sharptop Mountain, Leader Mountain, Hogan Mountain, Fourche Mountain, Deckard Mountain, Shut-In Mountain, Chinquapin Mountain, Blue Mountain (OK), and Well Hollow (OK). Walk-In Turkey Areas were established at the request of turkey hunters that

desired opportunities to hunt on public lands managed by the USDA Forest Service in a place free of disturbance from motor vehicles. The Ouachita Mountains, with high turkey populations compared to other areas, have seen the number of hunters increase dramatically during the last 20 years, making it challenging for serious turkey hunters to find an area to hunt away from traffic and noise.

The Ouachita NF Walk-In Turkey Hunting Areas are a joint partnership between the USDA Forest Service, Arkansas Game and Fish Commission, and the Arkansas Wild Turkey Federation as a part of the Making Tracks Program. It began in 1989 as a way to improve wild turkey habitat on National Forest System lands.

The Arkansas Game and Fish Commission (AGFC) manages Arkansas' fish and wildlife populations for their ecological values and for their use and enjoyment by the public. The Oklahoma Department of Wildlife and Conservation (ODWC) does the same for Oklahoma.

Hunting is not permitted in developed recreation areas or other posted sites. Otherwise, hunting is permitted throughout the Ouachita NF during hunting seasons designated by the AGFC and the ODWC. All state hunting and fishing regulations, fees, and seasons apply on National Forest System lands.

Vegetation Management

Management Area 14, Ouachita Mountains-Habitat Diversity Emphasis, consisting of approximately 740,583 acres, and Management Area 15, West Gulf Coastal Plain-Habitat Diversity Emphasis, consisting of approximately 13,066 acres, were established within the Forest Plan for varied intensities of vegetation management. Management Area 14 consists of extensive blocks of upland (non-riparian) forest located throughout the Ouachita Mountains. The primary community types, each of which also occurs in other MAs, are Ouachita Pine-Oak Forest; Ouachita Pine-Oak Woodland; and Ouachita Dry-Mesic Oak Forest. The Ouachita Mountains-Habitat Diversity Emphasis MA includes all National Forest System lands in the Ouachita Mountains not assigned to special areas. Management Area 15 consists of lands in the West Gulf Coastal Plain of southeastern Oklahoma that are available for varied intensities of timber, wildlife, fisheries, range management and roaded-natural recreational opportunities. The primary community type represented within MA 15 is West Gulf Coastal Plain Pine-Hardwood Forest.

Fire

There are two forest-wide design criteria (or standards) that guide fire suppression actions on the Ouachita NF. These standards coupled with the Fire Management Plan guide the fire management program for the Ouachita National Forest and provide comprehensive guidelines for the suppression of wildland fire

> *FS001 The full range of wildland fire suppression tactics (from immediate suppression to monitoring) may be used, consistent with Forest and resource management objectives and direction.*
>
> *FS002 Suppress wildfires at minimum cost, considering firefighter and public safety, benefits and values to be protected, consistent with resource objectives. All human-caused wildland fires will be suppressed.*

Fire Management activities across the Forest are relatively stable with a general trend of less than 100 wildland fires occurring annually, with the majority of those being human-caused, burning an average of less than 100 acres per fire (calculated adding average acres/fire/year and dividing by 5 years). Lightning activity as a source of fire ignitions plays an important but relatively small role in fire cause, with about one lightning fire occurring every month.

Fire Activity by FY 2006 - 2010, ONF

Objective or Activity	Unit of Measure	FISCAL YEAR				
		2006	2007	2008	2009	2010
Wildland Fire	Number of Fires	187	68	41	60	75
Wildland Fire	Number of Acres	23,185	14,347	460	2,247	2,029
Wildland Fire	Average Acres/ Fire	124	211	11	37	27
Lightning caused	Number of Fires	46	20	4	7	12

At the time the Forest Plan was approved, wildland fire was a general term describing any non-structural fire that occurred in wildland. Wildland fire was categorized into three types:

Wildfire – Unplanned ignitions or prescribed fires declared a wildfire. All wildfires were managed with the single objective of controlling/confining the fire so as to provide protection to the public and firefighters and to limit damages to the extent possible

Fire Use Fires – Unplanned ignitions ignited from a natural source managed to achieve resource benefit objectives

Prescribed Fires – Planned ignitions to achieve resource goals, objectives, and benefits

The Secretary of the Interior and the Secretary of Agriculture, to provide advice for coordinated national-level wildland fire leadership, direction, and program oversight in support of the Wildland Fire Leadership Council, established the Wildland Fire Executive Council (WFEC). On February 13, 2009, the WFEC approved guidance for implementation of federal wildland fire management policy. This guidance provides for consistent implementation of the Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001). The guidance clarifies and directs that a wildfire can be managed for more than one objective and that objectives can change as the fire spreads. It recognizes that objectives are affected by changes in fuels, weather, topography, and involvement of other government jurisdictions having differing missions and objectives. All responses to wildland fire continue to be based on objectives and constraints in the Forest Plan. The guidance still defines wildland fire as a general term describing any non-structural fire that occurs in wild land; however, the policy now directs that there be only two categories of wildland fire:

> Wildfires – unplanned ignitions and prescribed fires declared a wildfire, and
> Prescribed Fires – planned ignitions.

The fuels treatment program has resulted in gains toward restoration of ecosystems, reduction in risk of unwanted wildfires, and wildlife habitat improvement. Legal mandates, congressional intent expressed in annual budgets, natural disturbance events, and other issues or factors beyond the control of the fire program all influence performance.

Opportunities to move toward desired conditions through the management of wildfires for multiple objectives have been increased; however, the goal to treat 180,000 acres of the Forest each year with prescribed fire has not been reached in any of the last 5 years. Efforts are made to utilize all opportunities to increase treatments. Partnering with state agencies, non-governmental organizations, and private land owners through agreements, fire regime condition class and ecosystem condition improvements are being achieved on a landscape scale that includes crossing agency boundaries. Treatment activities across the Forest to move landscapes toward desired conditions, through prescribed fire, mechanical methods, and integrated activities have remained fairly constant the last few years. This trend is expected to continue.

Acres of Prescribed Fire, ONF, 2006 - 2010

Objective or Activity	Unit of Measure	FISCAL YEAR				
		2006	2007	2008	2009	2010
Prescribed Fire	Acres	47,486	83,136	89,197	92,262	101,173
Prescribed Fire Wildlife Habitat Improvement	Acres	5,760	61,299	30,106	22,894	33,464


Post-burn: Open understory in mixed pine/hardwood stand (left) herbaceous growth (right).

While the number of acres treated through prescribed burning utilizing the Wyden Amendment and the Stevens Act is not large, these acres critically influence the Forest's ability to conduct prescribed fire projects safely and efficiently. Ability to include the lands of willing partners allows for landscape treatment projects and projects that go beyond lands within the National Forest System. Typically, lands burned though the agreements are small tracts of an in-holding or an adjacent parcel that aid in designing the project to take advantage of natural or pre-existing features for control lines. The tabulation below shows acres treated with prescribed fire under the Stevens Act. (As for the past 4 years, there have been no treatments attributable to the Wyden Amendment.)

Acres of Prescribed Fire accomplished under Agreement, ONF, 2006 - 2010

Objective or Activity	Unit of Measure	FISCAL YEAR				
		2006	2007	2008	2009	2010
Prescribed Fire Agreements	Acres	>4,000	>9,000	2,563	>3,000	2,728

The Forest Plan recognizes the importance of prescribed fire mimicking the role that wildfire played in the development of the fire-dependant ecosystem of the Ouachita NF and established a goal of reintroducing fire onto the landscape. Prescribed fires conducted during the growing season, generally described as period of time from leaf emergence to beginning of plant dormancy, are to be an integral part of the functioning ecosystem. Although fire reports generally include fires from April through September as "growing season," analysis under SVE counted fires March through September as growing season. For compatibility with the SVE analysis, prescribed burns accomplished from March through September annually are reported here. Implementing prescribed burns during the growing season to achieve the desired ecological conditions will be continued as a management practice.

Acres of Prescribed Fire during March – September, ONF, 2006 - 2010

Acres of Prescribed Fire during Growing Season March – September	Unit of Measure	FISCAL YEAR				
		2006	2007	2008	2009	2010
Growing Season Prescribed Fire	Acres	18,162	17,327	92,614	57,102	112,957

All wildland fires have the potential to pose a threat to communities and developments adjacent to the Ouachita NF. These identified "At Risk Communities" and the Wildland Urban Interface (WUI) areas receive the highest priority of fuels reduction treatments. Wildfire hazard reductions, to enhance protection of homes and human lives in the interface areas, are coordinated with the state forestry agencies through programs such as FireWise. The FireWise program works with fire departments and civic organizations to make communities safer from the threat of wildfire through mitigation projects and community education initiatives. Through funding from the US Forest Service, the Arkansas Forestry Commission and Oklahoma Forestry Services educate homeowners in the WUI about proactive steps they can take to protect their homes. Both states encourage communities to participate in the FireWise program by offering grants and free community assistance. Assistance to complete Community Wildfire Protection Plans is a key feature of the FireWise program.

Fire – Emerging Issue

As discussed in the Air Quality Section at the beginning of this report, smoke from prescribed fire is recognized as an emerging issue because of the potential for conflicts. Wildland and prescribed fires produce smoke which is a problem when it creates an annoyance, nuisance, or negatively affects human health and safety. Managing smoke production from prescribed fires is one of the biggest challenges for fire managers. However, through scientific modeling and developed smoke management guidelines, the Forest Service is able to make predictions about smoke production. Additionally smoke production is monitored, using portable real-time beta

gauge monitors to measure Particulate Matter $_{2.5}$. Two portable Environmental Beta Attenuation Mass Monitors are used to gather real time information pre-burn, during burns and post burns, across the Ouachita NF.

To manage impacts of smoke, the Ouachita NF has agreed, through regional guidelines, to follow Arkansas Department of Environmental Quality smoke guidelines in the planning and implementation of prescribed burns. (Oklahoma is working to produce a similar set of guidelines, and the Ouachita NF will work with the state in complying with those smoke management guidelines when they become final.) The Arkansas guidelines use reference weather data to determine a daily category rating (allowable smoke production) for each air-shed where a prescribed burn was conducted. The total number of acres allowed to be burned each day in an air-shed is based on fuel loadings and fuel types. States have no jurisdiction over the Forest Service, and the Forest Service observance of the guidelines is voluntarily. The Regional Prescribed Fire Manual guidance allows for variance waivers to state guidelines. During previous years, about 10 percent of prescribed fire was conducted with regional waiver approval.

Forest Regeneration

The Ouachita NF predominately uses natural regeneration to propagate stands of mature timber and provide early seral stage vegetation. Seedtree and shelterwood cuts in Shortleaf pine/Shortleaf pine-Oak planned and contracted through commercial timber sales between 2005 -2010 resulted in 12,815 acres of regeneration. Additionally, uneven age harvests occurred on 8,896 acres resulting in approximately one-seventh of those acres (1,270 acres) in regeneration. Natural regeneration systems are very successful with less than 10 percent of the area in need of supplemental planting.

Artificial regeneration occurs on the Forest in cases of storm damage, fire, and insect or disease damage. Artificial regeneration also occurs where off-site species (loblolly) are removed through clearcut to restore shortleaf pine and on cut-over acquired lands. There were 7,309 acres planted in shortleaf pine during the 5-year review period.

The Ouachita NF has had moderate-to-good success in planting shortleaf pine in the past. In the 5-year review period, the Forest has used containerized seedlings grown by contract nurseries using seed from the Ouachita Seed Orchard. An increase in initial survival is one result of using the containerized seedlings. As can be seen in the following pictures, increased growth rates and potentially eliminating release treatments have also occurred.

To Right:
Seedlings planted January 2005 on Caddo Ranger District acquired lands.

Source: USFS, November 2010

Containerized seedling on left. Natural regeneration on right. Containerized seedlings planted in 2007, Mena Ranger District.

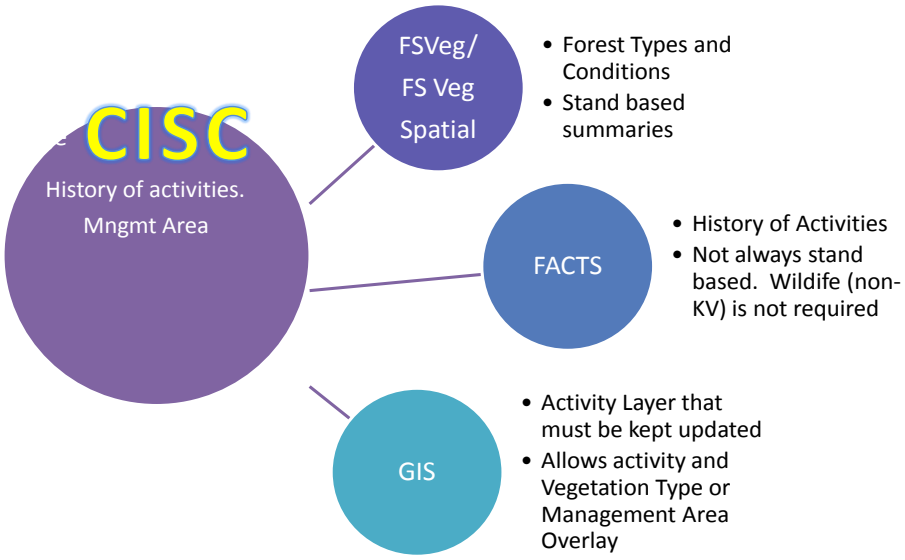
Source: USFS, April 2010

Monitoring will continue on these plantations for any signs of “toppling”, a condition observed by Forest Research on containerized longleaf plantations where saplings are more easily downed in strong winds.

Restoration of pine-grass old growth forests and woodlands fills a missing component (an ecological gap) among existing communities of the Ouachita Mountains, created largely by decades of fire suppression and large-scale logging in the 1920’s and 1930’s. Pine-grass old growth systems will provide habitat for a wide range of wildlife, including both late seral stage species and some open area associates. Portions of this area (replacement stands) are suitable for timber production under long rotations.

The historic database, Forest Continuous Inventory of Stands (CISC), included forest conditions and activities based on stands. The Forest now has databases for that information, but in order to get the same information included in CISC, a GIS layer of activities is required. Coordination with GIS is improving and better data are populating the activities layer since FY 2010 – 2011.

Evolving Data



Forest

Regeneration Trends

Silvicultural treatments involving commercial timber sales are less than half of what was proposed and probable in the Forest Plan. Under current workloads, sale preparation requirements and workforce, it is unlikely that this trend will be altered. This trend affects the priorities and objectives of the plan including: OBJ06, OBJ08, OBJ09, OBJ10 and OBJ11.

- 0-60 Year Age Class = 28 percent
- 60+ Age Class = 72 percent
- 1 percent Early Seral added (5 Yrs) thru Harvest Cuts

Acres Harvested by Method of Cut, FY 2006 – FY 2010, ONF

Harvest Type	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Clearcut	74	0	193	134	32
Seedtree/ Shelterwood	2,602	3,414	3,186	2,351	2,086
Uneven-Age Management	3,216	1,325	1,246	1,568	1,336
Thinning	13,046	10,601	10,981	10,409	8,120

Regeneration through Single-Tree Selection (Uneven age) Cuts

Available stumpage for KV Funds drops sharply when specified road construction or reconstruction is required. The Forest is experiencing a downward trend in KV dollars available for wildlife, fisheries, invasive, and erosion control projects.

Forest Products and Timber Harvest

Allowable Sale Quantity (ASQ)

A priority of the timber sale program is to contribute to the economic base of local communities by providing a sustained yield of high-quality wood products at a level consistent with sound economic principles, local market demands, and desired ecological conditions. To this end, the Ouachita NF has sold an average of 71.44 percent of ASQ over the last 5 years, as shown in the following tabulation. Timber removed from lands unsuitable for timber production and volume harvested by salvage (non-chargeable volume) are excluded when calculating timber volumes chargeable to the allowable sale quantity. The ASQ for the Ouachita NF is 27 million cubic feet per year (270,000 CCF).

Chargeable (CV) and Non-Chargeable (Non-CV) Volume Sold (CCF), FY 2006 – FY 2010, ONF

FY	Green		Salvage		Total	
	CV	Non-CV	CV	Non-CV	CV	Non-CV
2006	193,672	0	3,447	0	197,119	0
2007	204,311	0	1,995	0	206,306	0
2008	189,276	4,983	7,545	54	196,821	5,037
2009	162,929	0	12,459	0	175,388	0
2010	182,438	76	6,375	394	188,813	470
5-Year Average	186,525	1,012	6,364	89	192,889	1,101
5-Year Average Total	187,537		6,454		193,991	

Source: CDW – PTSAR - Reports PTSR201F & PTSR202F

Restore Native Shortleaf Pine and Hardwoods

Forest Plan Objective 11 is as follows: ***"****Apply management practices to begin replacing off-site loblolly pine plantations with shortleaf pine and native hardwoods where such plantations were installed outside the natural range of loblolly pine (i.e., most of the Ouachita Mountains); treat at least 500 acres per year."* Based on acres clearcut of off-site loblolly pine, the Ouachita NF is only converting an average of 84 acres per year, compared to the objective of 500 acres per year. Constraints may be age and acreage/spacing limitations. The tabulation below displays acres of off-site loblolly pine sold by fiscal year.

Acres of Off-Site Loblolly Pine Plantations Sold by the Clearcut Method for Conversion to Shortleaf Pine and Native Hardwoods, FY 2006 – FY 2010, ONF

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	5-Year Average
Acres Sold by Clearcut	74	0	193	0	152	84

Source: TIM

Timber Volume Offered and Sold

Forest Plan Objective 41 is as follows: *"Sell an average of at least 200,000 hundred cubic feet (ccf) of timber per year."* Over the past 5 years, the Ouachita NF has sold an average of 97 percent of the 200,000 CCF objective, as shown in the following tabulation. The Forest Plan objective was exceeded in two of the 5 years, FY 2007 and FY 2008.

Comparison of Timber Volume Offered & Sold (CCF) to Net Budget Allocation for All Timber Dollars, FY 2006 – FY 2010, ONF

	FY 2006*	FY 2007	FY 2008	FY 2009	FY 2010	5-Year Average
Volume Offered	75,699	198,606	215,206	161,741	204,688	171,188
Volume Sold	197,119	206,306	201,858	175,388	189,283	193,991
Timber Budget ($)	6,722,677	7,182,961	7,216,888	7,093,596	7,960,905	7,235,405
$/CCF Offered	88.81	36.17	33.53	43.86	38.89	42.27
$/CCF Sold	34.10	34.82	35.75	40.45	42.06	37.30

Source: Timber Cut and Sold Reports

*During FY 2006, the Ouachita NF reverted to Sold Volume as the target vs. Volume Offered. Volume Offered in FY 2005 but not sold until FY 2006 was credited towards the Sold target in FY 2006 and the offered target in FY 2005.

**If FY 2006 is not considered, the average $/CCF Sold for FY 2007 through FY 2010 is $38.11.

Improve Utilization of Hardwood Products

A stated priority of the Forest Plan is, *"Develop local economy marketing opportunities to improve utilization of hardwood products."* The Ouachita NF has limited alternatives to develop local economy marketing opportunities to improve utilization of hardwood products. One district cluster, the Mena/Oden unit, consistently offers hardwood in their timber sales, and purchasers are willing to take hardwood products if offered as a part of timber sales. The volume of hardwood sold by product is shown in the tabulation below.

Hardwood Sawtimber and Pulpwood Volume Sold (CCF) – Excluding Firewood, FY 2006 – FY 2010, ONF

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	5-Year Average
Hardwood Sawtimber	**1,918**	**945**	**2,992**	**623**	**1,803**	**1,656**
Hardwood Pulp	**2,775**	**1,485**	**10,712**	**2,005**	**5,492**	**4,494**
Total Hardwood	**4,693**	**2,430**	**13,704**	**2,628**	**7,295**	**6,150**

Source: Timber Cut and Sold Reports

Based on the Range of Annual Proposed/Probable Acres by Method of Cut in the Forest Plan - the Ouachita NF is selling:

- 52 percent of the proposed acres of Regeneration by the Shelterwood/Seedtree Methods
- 18 percent of the proposed acres of Uneven-aged Management by the Single-tree and Group Selection Methods
- 47 percent of the proposed acres of Commercial Thinning

Actual Acres Sold as compared to Proposed and Probable Activities, ONF

Activity	Unit of Measure	Range of Proposed/ Probable Annual Activity	Actual Annual Activity FY 2006	Actual Annual Activity FY 2007	Actual Annual Activity FY 2008	Actual Annual Activity FY 2009	Actual Annual Activity FY 2010	5-Year Average
Regeneration harvest (by modified seedtree/ shelterwood methods)	Acres	5,000-6,000	2,658	4,363	3,186	1,848	2,270	2,865
Management Area 14	Acres sold	4,000-4,700	1,374	3,981	2,968	1,685	2,033	2,408
Management Area 15	Acres sold	140	0	0	179	0	0	36
Management Area 16	Acres sold	--	401	97	39	0	21	112
Management Area 17	Acres sold	250	52	0	0	78	0	26
Management Area 21	Acres sold	160	232	0	0	0	0	46
Management Area 22	Acres sold	1,000-1,200	599	285	0	85	216	237
Other MAs	Acres sold	250	0	0	0	0	0	0
Uneven-aged management	Acres sold	9,000-12,500	3,216	3,065	1,246	1,291	715	1,907
Management Area 14	Acres sold	7,200-7,850	1,307	1,972	1,031	508	378	1,039
Management Area 16	Acres sold	1,000-1,300	1,841	676	114	0	0	526
Management Area 17	Acres sold	--	19	0	0	636	0	131
Management Area 19	Acres sold	800-850	0	417	101	147	337	200
Other MAs	Acres sold	--	49	0	0	0	0	10
Commercial Thinning	Acres sold	20,000-28,500	13,060	9,922	10,981	12,407	10,864	11,447
Management Area 14	Acres sold	10,000-13,700	5,946	7,368	9,070	7,722	5,700	7,161
Management Area 15	Acres sold	1,000	0	0	288	0	0	58
Management Area 16	Acres sold	--	845	608	0	0	764	443

Actual Acres Sold as compared to Proposed and Probable Activities, ONF

Activity	Unit of Measure	Range of Proposed/ Probable Annual Activity	Actual Annual Activity FY 2006	Actual Annual Activity FY 2007	Actual Annual Activity FY 2008	Actual Annual Activity FY 2009	Actual Annual Activity FY 2010	5-Year Average
Management Area 17	Acres sold	400-500	60	0	67	415	0	108
Management Area 21	Acres sold	1,500-1,600	493	0	615	1,099	1,000	641
Management Area 22	Acres sold	7,000-8,200	5,571	1,946	534	3,171	2,294	2,703
Other MAs	Acres sold	--	145	0	0	0	1,106	332

Source for Actual Acres: TIM

Forest Products Emerging Issue - Biomass

The Forest has modified some contracts to utilize trees smaller than typical utilization standards. There is also the possibility that the AES–Shady Point coal fired electrical plant (north of Poteau, OK) will start to utilize biomass. Consideration should be given to the following:
-Address utilization of biomass in NEPA documents. Currently some documents specifically state that "no whole tree harvest" will be done, which may preclude biomass utilization
-The Ouachita NF should address where biomass may be utilized especially related to soil productivity

It is recommended that biofuels be addressed with specific guidelines, quantified, incorporated within the SW Guidelines, and addressed with accountability measures such as the following: "Biofuels: Woody vegetation on the forest floor is often seen only or primarily within the context of fuel for fire. However, the ecological value of such material is immense. There is a concern that in the potential haste and expeditiousness of woody debris removal for economic reasons, the effects on soil health could be overlooked or, at the very least, underestimated. While some removal of fuels is ecologically acceptable, their presence in adequate amounts is critical for soil protection and productivity, wildlife population, biodiversity, water quality and quantity, carbon storage, and as a nutrient pool which can be activated through the prescribed fire process. In addition, where debris removal doesn't coincide with other ongoing field operations, there will be opportunity for additional ground disturbance activities which can potentially increase soil compaction and erosion."

Insects and Disease

The Forest, as a whole, manages many acres of timber that are more than 80 years old. The acreage thinned in the older age groups is less than the timber acreage entering the next 10-year age class. In the long term, this is not tenable management and will ultimately result in a forest with far too much timber over 80 years of age that has not been thinned and far too little acreage in the early seral stages of growth. This increases the risk to catastrophic insect or disease attack and penalizes certain wildlife species that have habitat and cover needs more closely aligned with early seral stage development.

Ips species are currently at high population levels on the Ouachita NF. This is a reflection of both 2 dry years and the high density of timber found on the Ouachita NF. Ips activity, while not as severe (yet) as the more recognized southern pine beetle, is causing significant losses in certain stands on the Ouachita NF. Rainfall alone will not solve the problem when many stands are over 80 years of age and have basal areas of more than 120 sq ft/acre.

Corresponding risks are associated with hardwood components of the Ouachita NF. Oak decline and red oak borer damage occurred extensively during 2000-2003, and removed some of the oak component of the Ouachita NF. While the amount of hardwood acreage that is capable of producing merchantable timber is relatively small, the consequences of low level maintenance, or no management at all, could be severe. The red oak borer infestation mentioned earlier was a wakeup call for hardwood management on the Ouachita NF. Thinning and cultural management of these stands is encouraged and will ultimately lead to a healthier, more resilient, and more productive forest.

Insects and Disease - Emerging Issues

Climate change in the form of higher temperatures has the capacity to change the ecological scenario in many ways. One way would be that seemingly innocuous insects become pests, because instead of the one annual life cycle they had previously, they now can have two or perhaps three. This has proven to be the case with the mountain pine beetle in the West where it has gone from a single generation per year to 2 per year. Another change might be the weather patterns relating to rainfall and when it is received. Certainly high temperature summers and low corresponding rainfall can be a detriment to existing forests and could cause some change in competitive advantage between species with those most drought- tolerant being the best survivors in this scenario. It is not likely that species on the Ouachita NF or threats to species will change dramatically over the next 5 years due to climate change, but if summers continue dry and hot for a longer period, the Forest could experience stresses and or changes. It is difficult on a grand scale to quantify such changes. The Forest will need to be flexible enough with Forest management to begin taking advantage of the changes when they become inevitable.

Non-native Invasive Species

In response to the 1999 “Southern Region Noxious Weed Strategy” the Ouachita NF designated a Forest Non-native Invasive Species (NNIS) Coordinator and also one for each District. In 2009, the Ouachita NF developed a prioritization process to address, as funding becomes available, the prevention and control of Non-native Invasive Species. A Desired Condition for Terrestrial Ecosystems as stated in the Forest Plan is, *“Where native species have been displaced by non-native or off-site species, systems will be restored over time to native species composition.”*

The Ouachita NF has treated, on average, 440 acres of non-native invasive species per year. This exceeds the treatment of 300 acres per year in Objective 3 of the Forest Plan. Treatment of non-native invasive species relates to priorities of improving forest health by reducing invasive species on National Forest System lands. The Forest Plan also provides for use of an integrated pest management approach to prevent or reduce damage to forest resources from non-native, invasive species.

Forest Plan Objective 29 requires the following: "*Conduct inventories to determine the presence and extent of non-native invasive species in wildernesses by 2010; based on results of these inventories, develop and implement appropriate monitoring and treatment programs.*"

The Ouachita NF has been collecting data on invasive species infestations and entering that data into the Natural Resource Information System (NRIS) corporate database. There have been NNIS inventories completed on Dry Creek, Poteau Mountain, Blackfork, and Flatside wilderness areas. The Ouachita NF continually enters new information on non-native species infestations into NRIS as watershed assessments are completed. There have been 35,466 acres of wilderness inventory completed on four of the six wildernesses. The most common invasive species is S*ericea lespedeza*. Infestations appear to be limited to roads and trails. There have been no treatments of non-native invasive species in any of the wildernesses as required prerequisite work (NEPA) has not been completed.

Watershed Function

There is a specific objective that relates to watershed function: *OBJ 14. Maintain or improve watershed health.*

Healthy forests, the watersheds, and headwaters they support, and the clean water they supply are often taken for granted. One of the most important aspects of forest management is the protection of watersheds and public water supplies. The pro-active management of watersheds within the Forest has a direct correlation to clean drinking water. Nationally, federal forests provide about 20 percent of our drinking water.

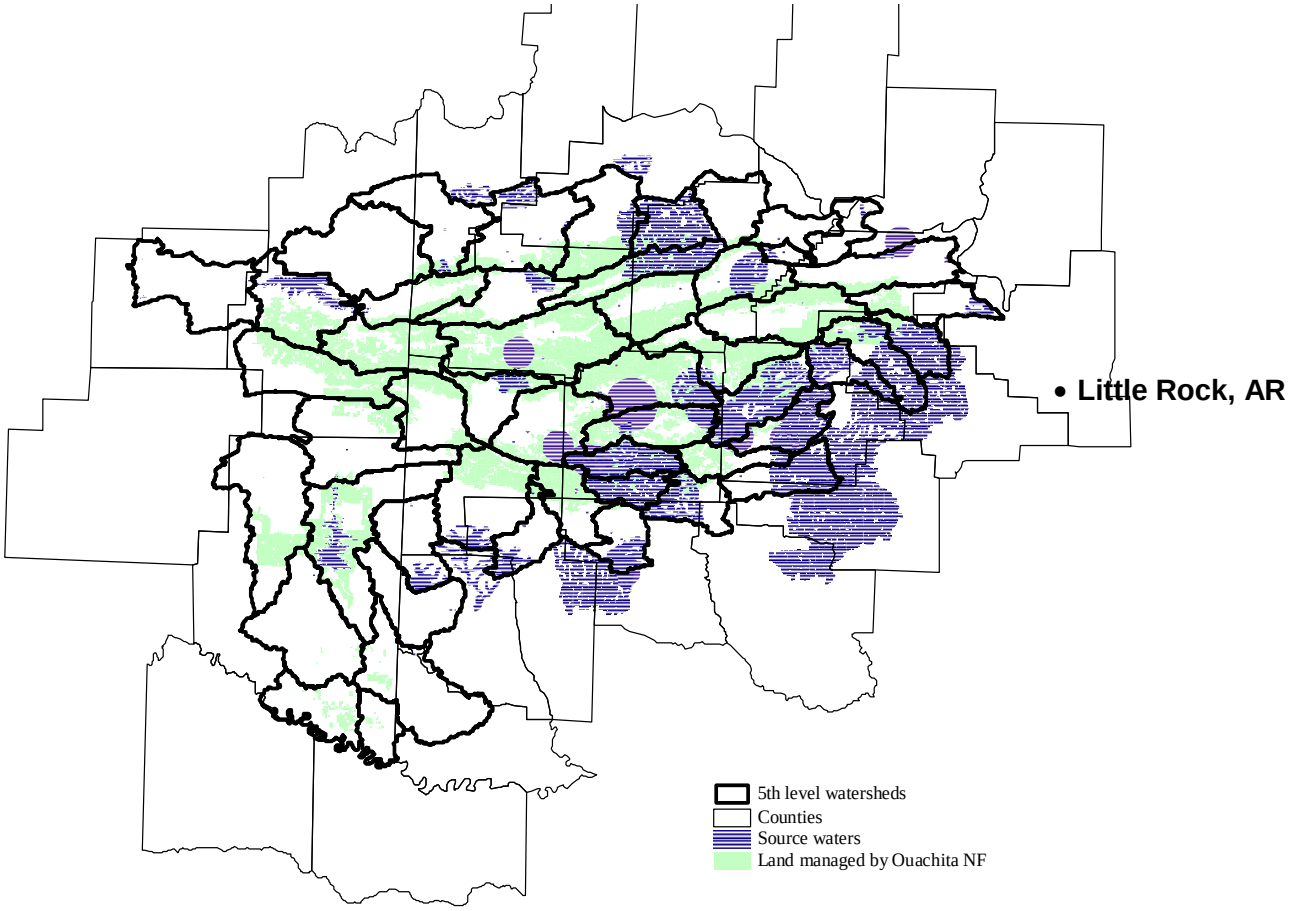
Public water supply surface sources with lands on or near the Forest include Broken Bow and Wister Lakes in Oklahoma and the following source areas in Arkansas: South Fork Reservoir (Cedar Creek), Iron Forks, and James Fork Reservoirs; Hamilton, Nimrod, Ouachita, Waldron, Winona, and Square Rock Lakes; and the Caddo, Middle Fork Saline, Ouachita, Petit Jean, and Saline (eastern) Rivers.

"Americans often assume that our health and well-being are separate from the health of our natural world. But I return again to the simple fact that we Americans often take for granted everyday: turning on those water faucets. The clean water that emerges is made possible in large part by the stewardship of our working rural land and our forests in particular. My hope, and I trust you share it, is that together we can foster a greater appreciation in this country for our forests and that all Americans, regardless of where they live, see the quality of their lives, and the quality of their forests as inseparable."

—USDA Secretary Tom Vilsack, August 2009

As part of the 1998 Clean Water Action Plan, each state identified source waters that are the contributing areas above municipal or public water sources. These areas are generally separated into ground waters and surface waters. Forty-seven surface sources that intersect National Forest System lands are found in Arkansas, and one is found in Oklahoma. Sixty-two Arkansas wells and springs and six Oklahoma wells fall within the influence of lands managed by the Ouachita NF. The figure below identifies the approximate locations of source waters on or near the Ouachita NF.

Approximate Locations of Source Waters on or near the Ouachita NF



Within in the Forest Plan, the desired condition for watersheds is: *"Watersheds are healthy, dynamic, and resilient, and are capable of responding to natural and human caused disturbances while maintaining the integrity of their biological and physical processes and maintaining the connectivity of habitats for aquatic organisms. Watersheds, streams, groundwater recharge areas, springs, wetlands, and aquifers produce high quality water. Soil productivity, riparian dependent resources, and other uses are sustained."*

Every 5 years, through the paired-stream Basin Area Stream Survey, watershed condition is evaluated to determine if the progress in condition ratings has occurred.

Aquatic Cumulative Effects (ACE) Model

The 2005 Forest Plan assessed watershed condition at the 5th level (a 10 digit watershed or hydrologic unit commonly referred to as HUC). While this is a practical scale for forest planning, the Forest needed a method to address project level analysis. In 2005, the Forest was reanalyzed at the 6th level or subwatershed scale. This provides a way to address cumulative effects for aquatic biota at multiple scales. The program (within an excel spreadsheet) allows district-level planners to determine cumulative effects at the project level. The process is the same as that used in the 2005 Forest Plan; however it is informed with data for the 6th level subwatersheds. For this analysis we use 205 subwatersheds (WDB) which were still in draft form during the 2005 analysis. The risk levels associated with these 6th level subwatersheds are in the following table.

Subwatersheds and Associated Risk for Aquatic Biota from 2005 ACE model, ONF

	Number of sub-watersheds	Percentage
Low	175	85.37
Moderate	19	9.27
High	11	5.37
Total	205	

During FY 2010, the Forest under Subpart B of the Travel Management Rule (designation of roads, trails, and areas for motor vehicle use), completed a travel management environmental analysis and signed the NEPA decision. All related GIS and INFRA data were refined and updated. As a part of the project, the Forest completed the forest-wide travel analysis. This project provided data for the hydrology program to update the 2005 ACE model with new data layers, including improved information on National Forest System roads, current land use, water boundaries or HUCs, and recreation activity levels (OHV use). Because of additional, more current data, the model produced a dramatic shift in the picture of watershed health.

Shifts included a rise in percentages of subwatersheds with moderate risk from about 9 percent in 2005 to over 19 percent in 2010, and a rise in percentages of subwatersheds with high risk from about 5 percent in 2005 to approximately 40 percent in 2010. Concerns about high open road densities and less than adequate maintenance of roads and OHV trails remain. The Forest Plan open road density objective of 1 mile per square mile for most management areas, a wildlife objective with implications for watershed health, is exceeded forest-wide, where the average density is 2.06 miles per square mile. Open road densities in some watersheds and natural communities are at or below the Forest Plan objective; in others, open road densities exceed the Forest average.

The Forest's reduced capacity to maintain roads and trails to standard is probably the greatest contributor to the threat of increased sedimentation. There are also related concerns about high levels of off-highway vehicle (OHV) use in some watersheds, even though the recent travel management decision now prohibits most cross-country travel and limits OHV and other motor vehicle traffic to designated roads and trails.

Comparison of Subwatersheds and Associated Risk for Aquatic Biota 2005 to 2010, ONF

	2005 Number of subwatersheds	2005 Percentage with Associated Risk for Aquatic Biota	2010 Number of subwatersheds	2010 Percentage with Associated Risk for Aquatic Biota
Low	175	85.37	68	35.79
Moderate	19	9.27	40	19.51
High	11	5.37	82	40.00

***Number of subwatersheds vary, because in 2005, the subwatersheds were still in draft form**

Watershed Condition Framework

In 2010, the Forest Service launched a national effort to classify watershed condition for 6th level subwatersheds, as described in more detail in the following section on emerging policy. This effort addresses a wide range of forest conditions including: ownership patterns, aquatic biota, riparian vegetation, physical habitats, flow characteristics, road and trail condition, geology and soil condition, fire vulnerability, vegetative cover, insect and disease risk, invasive species, and range condition. Based on the criteria, 162 subwatersheds on the Ouachita NF were qualified. Following is a summary of subwatersheds and their current functioning level.

	Number of sub-watersheds	Percentage
Functioning Properly	**24**	**14.81**
Functioning at Risk	**44**	**27.16**
Impaired Function	**94**	**58.02**
Total	**162**	

Watershed Function—Emerging Policy

The U.S. Department of Agriculture (USDA) *Strategic Plan for FY 2010–2015* targets the restoration of watershed and forest health as a core management objective of the national forests and grasslands. To achieve this goal, the Forest Service, an agency of USDA, is directed to restore degraded watersheds by strategically focusing investments in watershed improvement projects and conservation practices at the landscape and watershed scales. The Watershed Condition Framework (WCF) is a comprehensive approach for classifying watershed condition, proactively implementing integrated restoration in priority watersheds on national forests and grasslands, and tracking and monitoring outcome-based program accomplishments for performance accountability. In May 2011, the Forest Service published FS-977, a document to explain the Forest Service policy emphasis on a consistent, science-based approach to classify the condition of the watersheds that the Forest Service manages and protects. The watershed condition policy goal of the Forest Service is “to protect National Forest System watersheds by implementing practices designed to maintain or improve watershed condition, which is the foundation for sustaining ecosystems and the production of renewable natural resources, values, and benefits” (FSM 2520). The WCF provides a means to achieve this goal by:

- Establishing a systematic process for determining watershed condition class that all national forests can apply consistently
- Fostering integrated ecosystem-based approaches for managing watersheds and aquatic resources
- Strengthening the effectiveness of the Forest Service to maintain and restore the productivity and resilience of watersheds and their associated aquatic systems on NFS land
- Improving the internal dialog among disciplines to focus and integrate programs of work to efficiently maintain and restore watersheds and aquatic ecosystem
- Enabling a coordinated and priority-based approach for allocating resources to restore watershed
- Enhancing coordination with external agencies and partners in watershed management and aquatic species recovery efforts
- Improving national-scale reporting of watershed condition

Summary for Watershed Science

A rich aquatic fauna with excellent riparian and aquatic habitats exists within the Forest. Forest studies and other research have demonstrated that silvicultural activities have a negligible effect on water quality, aquatic habitat, or aquatic biota when Best Management Practices (BMPs) are implemented. However, the Forest's capacity to maintain roads and trails to standard has decreased and use by OHVs for recreation has increased, very likely adding to the 'impaired function' of certain watersheds. The results of inadequate road/trail maintenance are: 1. non-compliance with some of the design criteria of the Forest Plan, and 2. adverse effects of increasing sedimentation on watershed health (water quality and aquatic biota).

Herbicide Use

Four streams were monitored for the presence of herbicides below treated stands. This is an ongoing monitoring program where 10 percent of areas treated with herbicides are monitored for off-site movement. Four sites were monitored (Caddo/Womble – 2 and Mena/Oden – 2). Results were not available for the four samples collected for FY 2009, and no results were reported for FY 2010. For FY 2008, lab results indicated that the presence of herbicides was insignificant for all sites. No changes to the monitoring protocols are recommended; however more timely results of monitoring are desirable.

Riparian and Aquatic Ecosystems

The desired condition for riparian and aquatic-associated terrestrial communities (within designated Streamside Management Areas) "…*is high water quality, undiminished soil productivity, stable streambanks, and high-quality habitat for riparian-dependent and aquatic species. Properly functioning systems support healthy populations of native and desired non-native species."*

Management Area 9, Water and Riparian Communities, consisting of approximately 278,284 acres, is the primary MA associated with riparian and aquatic ecosystems. It consists of streams, rivers, lakes and ponds, and streamside management areas necessary to protect water quality and associated beneficial uses found within the Ouachita Mountains, Arkansas River Valley, and West Gulf Coastal Plain. Management Area 9 direction applies to streams, riparian areas, ponds, and lakes, except where even more stringent management requirements are in place, notably in wilderness areas (MA 1). Included are flowing and non-flowing aquatic habitats; wetlands; woodland seeps and springs; portions of floodplains; variable distances (but at least 100 feet) from both edges of all perennial streams and from the shores of bodies of water equal to or greater than one-half acre; variable distances (but at least 30 feet) from both edges of other streams with defined stream channels and ponds less than one-half acre in size; and certain lands surrounding public water supplies, lakes, and streams.
Riparian and aquatic associated ecosystems comprise approximately 17 percent of the Forest, and are managed within designated Streamside Management Areas (SMAs) to protect and maintain water quality, productivity, channel stability, and habitat for riparian-dependent species. The desired condition is that watercourses are in proper functioning condition and support healthy populations of native species. Due to the similarity in the characteristics and the conservation management of these communities, they may all be grouped together for the analysis of potential management effects. Brief descriptions and desired conditions for individual riparian and aquatic associated ecosystems are provided in the following paragraphs.

Aquatic Communities/Fisheries Habitat

There are five riparian-associated vegetation community types and two aquatic ecosystems identified for watershed value as well as aquatic habitat:

- Ouachita Mountain Forested Seep
- Ouachita Riparian
- West Gulf Coastal Plain Small Stream and River Forest
- South-Central Interior Large Floodplain
- West Gulf Coastal Plain Wet Hardwood Flatwoods (Red Slough)
- Ouachita Rivers and Streams
- Ouachita Ponds, Lakes, and Waterholes

The 2010 SVE scores for the Ouachita Mountain Forested Seeps, Ouachita Riparian, West Gulf Coastal Plain Small Stream/River Forest, and West Gulf Coastal Plain Wet Hardwood Flatwoods (Red Slough, in Oklahoma) are all at or above the 10-year (2015) projected values. However, the SVE score for South-Central Interior Large Floodplain reflects severe decline for 2010, and the SVE score for the Ouachita Mountain Forested Seeps only projects a "Fair" value even at the 10-year (2015) interval. The Key Factor/Indicator influencing the SVE scores is road density. Comparison using different datasets (2005 vs. 2010) also influenced the SVE score.

Viability Rank of Riparian and Aquatic-Associated Communities (2005, 2010, Projected 2015), ONF

Riparian or Aquatic-Associated Community	2005 SVE Score/ Condition	2010 SVE Score/ Condition	2015 Projected (10-year) SVE Score/ Condition
Ouachita Riparian	3.0 Good	3.0 Good	2.6 Good
Ouachita Mountain Forested Seeps	2.5 Fair	2.5 Fair	2.5 Fair
South-Central Interior Large Floodplain	4.0 Very Good	2.5 Fair	4.0 Very Good
West Gulf Coastal Plain Small Stream/River Forest	3.0 Good	3.0 Good	3.0 Good
West Gulf Coastal Plain Wet Hardwood Flatwoods (Red Slough, OK)	3.0 Good	4.0 Very Good	3.2 Good

Ouachita Riparian

This forested system is found along streams and small rivers within the Ouachita Mountains. Ouachita riparian systems (286,784 Acres) are typically of higher gradient than larger floodplains; experience periodic, strong flooding; and are often characterized by a cobble bar with forest directly adjacent.

The overall 2005 SVE condition score for Ouachita Riparian has remained consistent at 3.00 ("Good") for 2010. Percent canopy and implementation of protective buffers remain at "Very Good," but the road density also remains the same, at "Poor."

Ouachita Riparian SVE Values, 2005 and 2010, ONF

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	>80 Very Good	100 Very Good
Riparian Protection Buffer	Percent of Riparian Buffered	<100	<100	100	100	100 Very Good	100 Very Good
Remoteness	Road Density in miles/mile^2	>2	1-2	0.5-1	<0.5	2.57 Poor	2.59 Poor
Composite SVE Score						3.00 Good	3.0 Good

Ouachita Mountain Forested Seeps

Forested seeps (296 acres) occur throughout the Ouachita Mountains of Arkansas and Oklahoma, along the lower slopes of smaller valleys where rock fractures allow water to seep out of the mountainsides and in the riparian zones of larger creeks, sometimes extending upslope along small ephemeral drainages. The soil remains saturated or moist throughout the year. The vegetation typically is in a forested condition but is highly variable in canopy composition. Red maple, black tupelo, sweetgum, and white oak are common and typical; American beech and/or umbrella magnolia may also be present. Canopy coverage may be moderately dense to quite open. The subcanopy is often well-developed and characteristically includes American holly, umbrella magnolia, and ironwood. Overall SVE condition score for Ouachita Forested Seeps remained at 2.50 ("Fair") from 2005 to 2010. Streamside buffer protective measures are being implemented effectively; however, the road density is still very high.

Ouachita Mountain Forested Seeps, SVE Values, 2005 and 2010, ONF

Ouachita Forested Seeps Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	4.05 Poor	3.5 Poor
No-Activity Protection Zone	Spatial Extent of Buffer in Feet from seep perimeter	<50	51-99	100	100	100 Very Good	100 Very Good
					Composite SVE Score	2.5 Fair	2.5 Fair

West Gulf Coastal Plain Small Stream and River Forest

This is a predominately forested system in the West Gulf Coastal Plain (WGCP) that is associated with small rivers and streams (5,235 acres). As a whole, flooding occurs annually, but the water table usually is well below the soil surface throughout most of the growing season. Areas are frequently to occasionally impacted by beaver impoundments.

The overall 2005 SVE condition score for West Gulf Coastal Plain Small Stream and River Forest remains consistent at 3.00 ("Good"). Percent canopy remains at "Very Good," but the road density also remains the same at "Fair."

West Gulf Coastal Plain Small Stream and River Forest, SVE Values, 2005 and 2010, ONF

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	>80 Very Good	76.3 Very Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	1.12 Fair	1.05 Fair
Composite SVE Score						3.00 Good	3.00 Good

South-Central Interior Large Floodplain

This system occurs along large rivers where topography and alluvial processes have resulted in a well-developed floodplain. A single occurrence may extend from river's edge across the outermost extent of the floodplain or to where it meets a wet meadow or upland system. These systems generally contain well-drained levees, terraces and stabilized bars, and some include herbaceous sloughs and shrub wetlands resulting, in part, from beaver activity. Most areas are inundated at some point each spring; micro-topography determines how long the various habitats are inundated.

The overall 2005 SVE condition score for South Central Interior Large Floodplain (832 acres) has declined from at 4.00 ("Very Good") to the 2010 SVE score of 2.50 ("Fair"). Percent canopy remains at "Very Good", but the road density calculated from updated databases (more accurate databases than were available in 2005) is "Poor" at almost 6.4 miles per square mile.

South Central Interior Large Floodplain, SVE Values, 2005 and 2010, ONF

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	2005 Value	2010 Value
Canopy Closure	Percent Canopy Closure	<25	25-50	51-75	>75	>80 Very Good	95.3 Very Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.0 Very Good	6.38 Poor
					Composite SVE Score	4.00 Very Good	2.50 Fair

West Gulf Coastal Plain Wet Hardwood Flatwoods (Red Slough Wildlife Management Area-WMA)

This unique wetland resource which includes the Red Slough Wildlife Management Area (WMA) was formerly part of one of the largest wetland complexes in Oklahoma. Most of this area was lost or drastically altered by conversion to agricultural lands over the course of the last century. Historically, bottomland hardwoods dominated, accounting for 75 percent of the Red Slough area. Scrub/shrub, aquatic emergent vegetation, and prairie habitats accounted for the remaining 25 percent.

Habitat types consist of mudflats, emergent marshes, shallow water impoundments, deep-water reservoirs, riparian zones, bottomland hardwoods, wet prairies, and scrub/shrub. The overall SVE condition score for the WGCP wet hardwood flatwoods (9,092 acres) is 3.00 (Good). Desired road density (miles/square mile) within the Red Slough WMA is less than one mile per square mile which is achieved by the current road density of approximately 0.7 miles per square mile. The fire regime should reflect that at least 50 percent of the Red Slough WMA is treated with fire every 25-35 years with an occasional growing season burn included. The most recent fire history indicates that this is occurring.

West Gulf Coastal Plain Wet Hardwood Flatwoods, SVE Values, 2005 and 2010, ONF

Key Factor	Indicator Name	Poor Level	Fair Level	Good Level	Very Good Level	Current Value	2010 Value
Fire Regime	Percent burned every 25-35 years	<25	25-50	51-75	>75	57.0 Good	76.0 Very Good
	Percent of burns in growing season (March- Sept.)	<25	25-50	51-75	>75	63.0 Good	83.0 Very Good
Remoteness	Road Density in miles/mile²	>2	1-2	0.5-1	<0.5	0.69 Good	0.4 Very Good
Composite SVE Score						3.00 Good	4.0 Very Good

Aquatic Communities/Fisheries Habitat

Monitoring of the seven aquatic ecosystems is reported in several categories:

- Aquatic Communities/Fisheries Habitat including
  - Aquatic Management Indicator Species (MIS)
    - Ponds, Lakes, and Waterhole MIS
    - Other Pond, Lake and Waterhole Species
    - Stream and River MIS
      - Basin Area Stream Surveys
      - Arkansas River Valley Stream MIS
      - Gulf Coastal Plain Ecoregion Stream MIS
  - Aquatic Dependent Proposed, Endangered, and Threatened species and their Habitat
  - R8 Sensitive and Other Aquatic Species of Viability Concern
- Game Fish Habitat
- Aquatic Habitat Enhancement Activities
- Amphibian Habitat

Aquatic Management Indicator Species (MIS)

There are 14 fish MIS associated with stream and river habitat, and 3 pond, lake and waterhole MIS (17 fish species total). These MIS are monitored and serve as representatives for other species. A complete list of the MIS species is found on page 41 of this report. Periodically, the specialists of the Ouachita NF prepare a separate Management Indicator Species Report. The last such report was completed in November 2008 and is available at the following location: www.fs.usda.gov/ouachita.

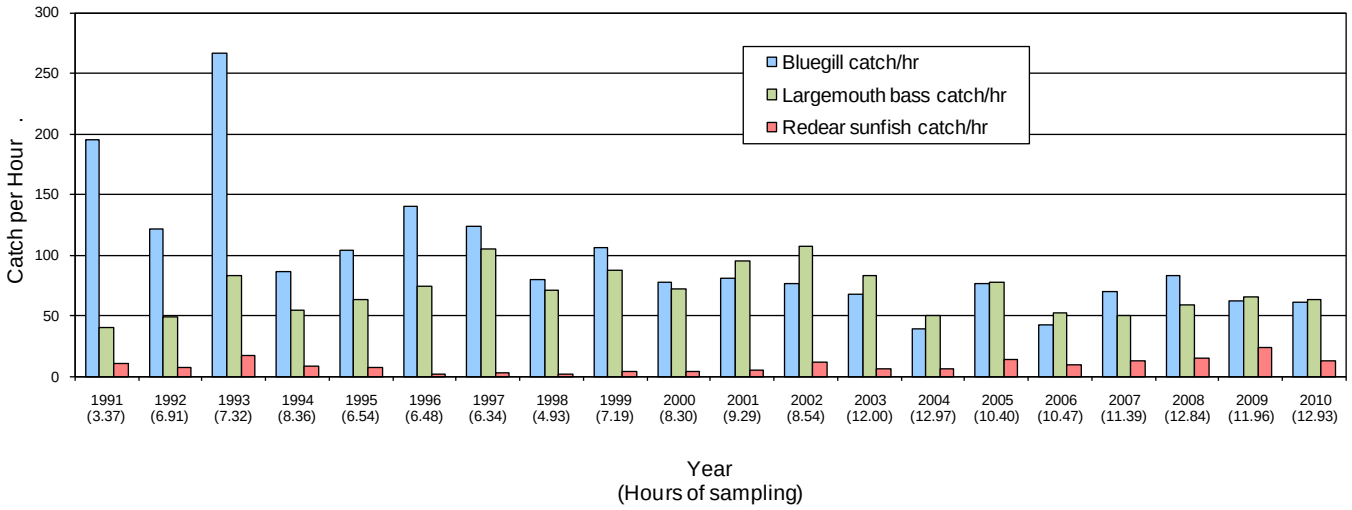
Pond, Lake, and Waterhole MIS

There are three pond, lake, and waterhole management indicator species (MIS): Bluegill, Largemouth Bass, and Redear Sunfish. Reviews of monitoring information for the three species were conducted to determine the status of the species and conservation needs. During calendar year 2010, 19 electrofishing samples were taken at 17 lakes and ponds. North Fork Lake received one spring and two fall electrofishing samples due to the availability of Ouachita Baptist University students as shown in the following picture. The Ouachita NF acknowledges the help in sampling by Dr. Jim Taylor and classes from Ouachita Baptist University.

Ouachita Baptist University Students Assisting with Sampling

Electrofishing results for 2010 were similar to 2009 and showed some recovery from the 2006 and 2007 poor electrofishing sampling results. The 2010 spring electrofishing season was characterized with spring temperatures colder than normal with the result that sunfish spawns were missed. Also, the fall electrofishing season was affected by a number of weather fronts that tended to push fish into deeper water with resultant lower catch rates but also, by warm temperatures that kept sunfish from schooling over structure with less susceptibility to electrofishing capture. In addition, Story Pond was again too shallow to launch the electrofishing boat and is one of the better waters for captures of large bass and sunfish in good quantities, particularly redear sunfish. Low catch rates were also influenced by very limited catches of game fish from Shady Lake samples (and longer amounts of time), due to water level management practices that aren't conducive to maintaining a harvestable-size fish population.

Annual Pooled Catch per Hour



Typical catches of big bass were made at Cedar and Crooked Branch lakes in Oklahoma, with some nice bass and catfish taken from a number of other lakes and ponds. Of interest was the catch of a carp at Dry Fork Lake unusual in that its coloring wasn't the typical dark gold.

Crooked Branch - 8.7 lb Bass
Source: USFS

Cedar Lake - 13.2 pound Bass
Source: USFS

Catfish Handling Demonstration
Source: USFS

Dry Fork Lake - 13 pound Carp
Source: USFS

The following discussions on bluegill, largemouth bass, redear sunfish, white crappie, gizzard shad, and threadfin shad are by calendar year, not the Forest Service's fiscal year. Fisheries data are analyzed by year class or birth year. For any given year, spring sampling occurs in April in one fiscal year and the fall electrofishing and gill netting, which occurs after October 1, falls into the following fiscal year. Therefore, the sampling in the spring occurred during FY 2010 and the fall sampling took place at the start of FY 2011 and data for both are included in this report.

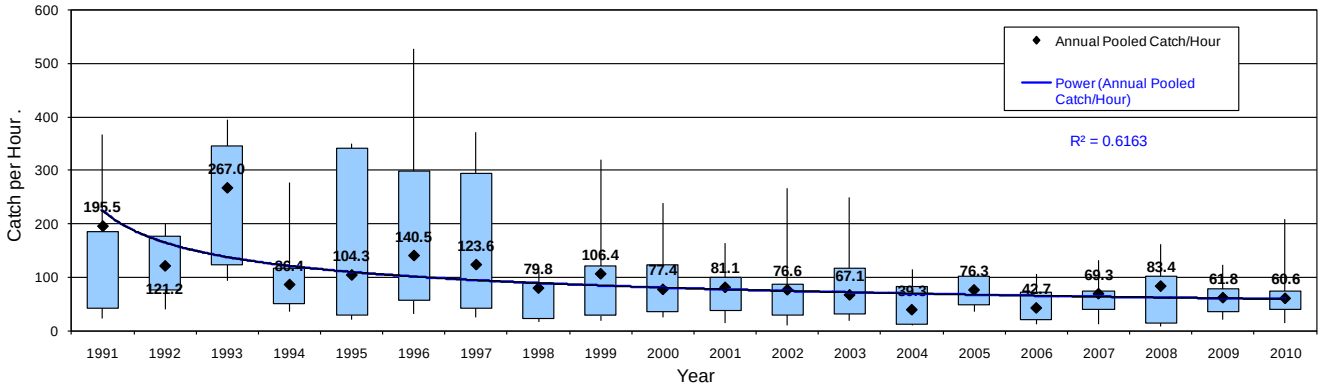
Bluegill *(Lepomis macrochirus)*

Bluegill
Source: Rich Standage, USFS

The bluegill catch for 2010 was the third lowest since 1991. The spring sampling occurred before pre-spawn sunfish had started to congregate in some of the lakes, and the fall pond sampling seemed to miss large sunfish schooled up. Ideally, a good representation of all species and sizes is sampled during the spring sample catches with the bass having spawned and nest guarding still occurring, redear sunfish spawning and bluegill staging in shallower areas to spawn. With work occurring in 10-12 lakes within this temperature/spawning condition window, ideal conditions are missed as much as they are attained.

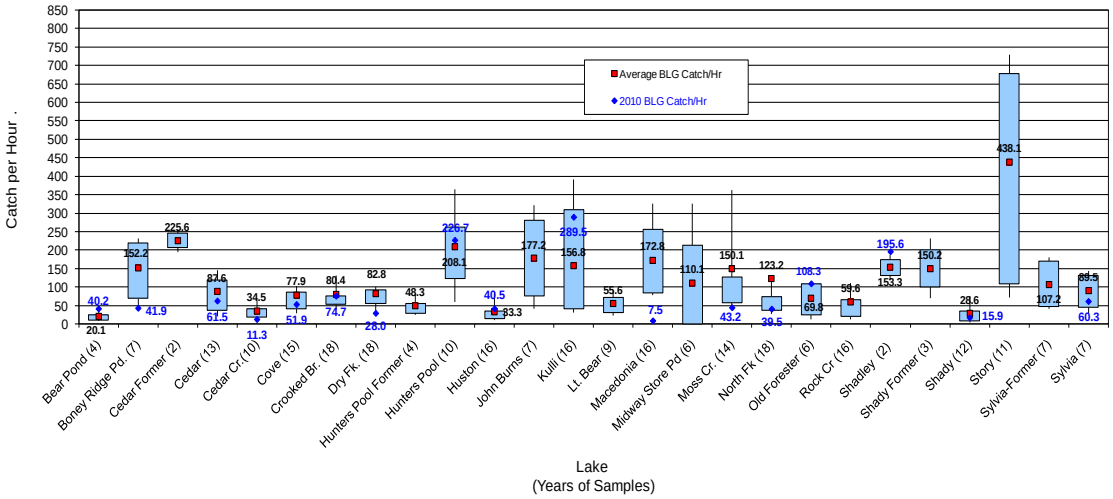
The trend line associated with the annual pooled catch per hour is only slightly significant statistically and seems to be leveling out. Variability in sample sizes between water bodies was less in 2010 than in any previous year. This graph displays the variability in annual samples with the widened bars displaying the 25-75 percent range of the samples and the lines displaying the variability to the 10 percent and 90 percent levels.

Annual Pooled Bluegill Catch per Hour, ONF



Six of the 2010 lake samples had bluegill catches above their average catch per hour and eleven with catches below their individual lake averages as shown in the figure below. Two major outliers had higher than normal catches of bluegill, Shadley and Kulli. The first was at a lake that was only sampled for the second time; therefore, not enough sampling has occurred there to establish a suitable database for the lake. The second higher than normal count was at Kulli Recreation Lake which has had a long history of boom and bust on bluegill catches and this happened to be a high catch year, even after no sunfish were caught in 2009. Lower than normal counts were seen at most of the spring sampled lakes indicating sampling may have been too early to catch bluegill moving in to spawn. Fall pond sampling also had a number of low catches, indicating the bluegill probably hadn't schooled; thus, they were less accessible to the electrofishing boat.

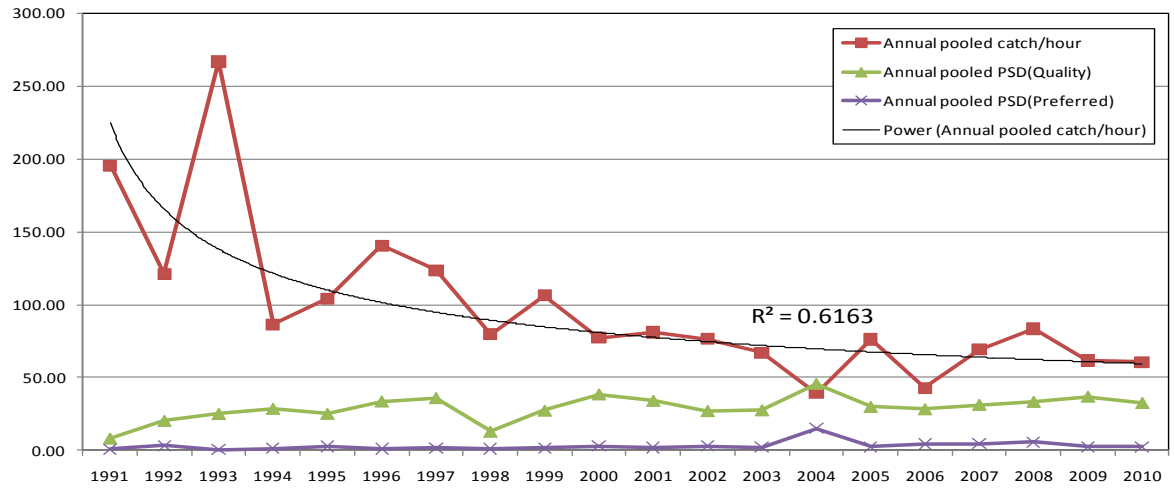
Bluegill Catch per Hour by Lake



Harvestability of bluegill in 2010, while the fifth highest in 20 years of sampling, was slightly below last year's Proportional Size Distribution (Quality), also known as PSD(Q). PSD(Q) is calculated from the numbers of bluegill 150 mm (5.9 inches) and larger divided by the numbers of bluegill of stock size (adults) that are 80 mm (3.1 inches) and larger, expressed as a percentage. The trend line shows a slightly increasing trend; however, it is not statistically significant ($r^2 = 0.47$).

Proportional Size Distribution (Preferred), previously known as RSD (Relative Stock Density) for bluegill equal to or greater than 200 mm (7.9 inches) long, shows relatively few catches of bluegill above that size with an increasing trend line that is not statistically significant ($r^2 = 0.35$). The pooled 2010 catch for preferred-size bluegill is the second smallest seen in the previous 4 years but is near the norm for the past 20 years.

Proportional Size and Quality Size Distribution for Bluegill by Year



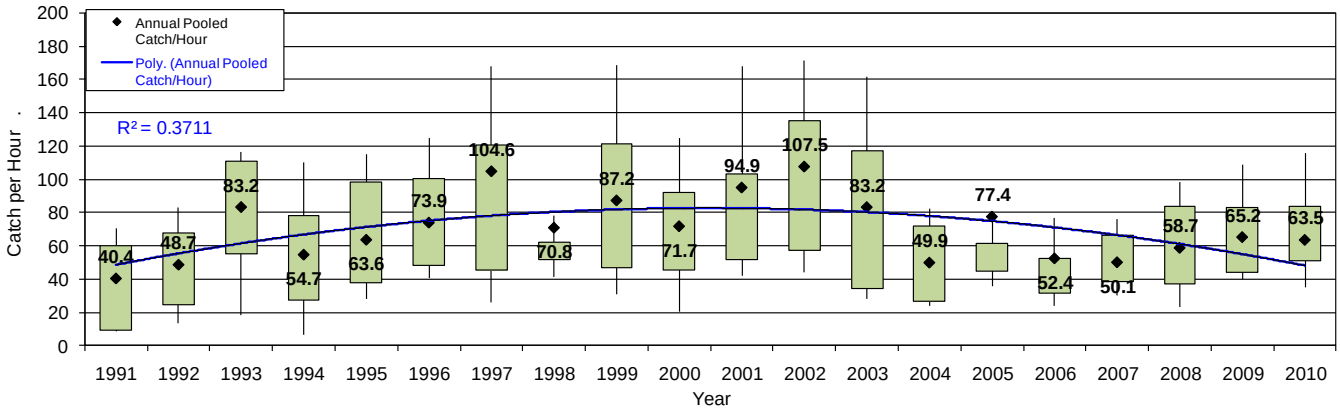
With the 2010 bluegill capture rates showing such wide variability; the same would be expected and is seen for PSD (P) and PSD (Q). As sampled in 2010, given the above constraints and conditions, bluegill populations across the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

Largemouth Bass *(Micropterus salmoides)*

Largemouth Bass
Source: Rich Standage, USFS

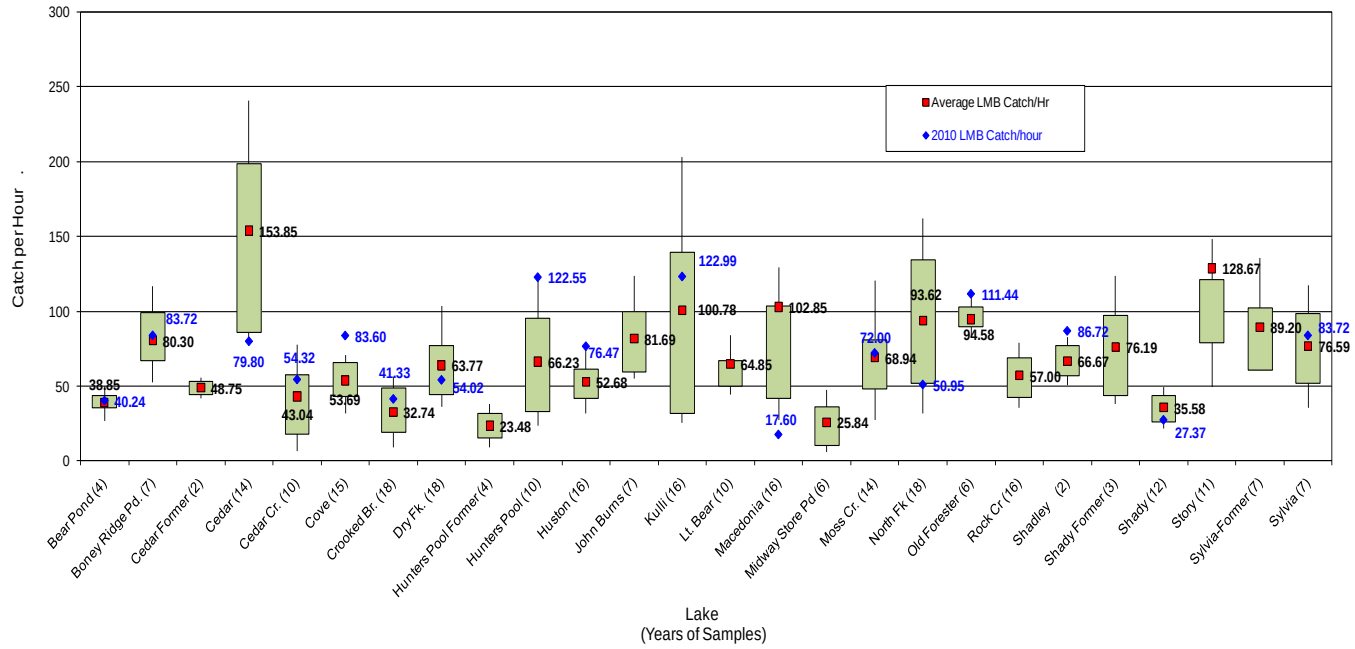
The largemouth bass electrofishing catch rate in 2010 sampling was the tenth lowest in 20 years of sampling with a trend of increasing catches from 1991 through 1999, decreasing catches bottoming out in 2007 and increasing again in 2008 and 2009, but this trend is not statistically significant. The 2009 catch rate was the highest of the past 4 years with the 2010 results the second lowest for the same time period. Sampling results from the last 20 years are shown in the graph below.

Annual Pooled Largemouth Bass Catch per Hour



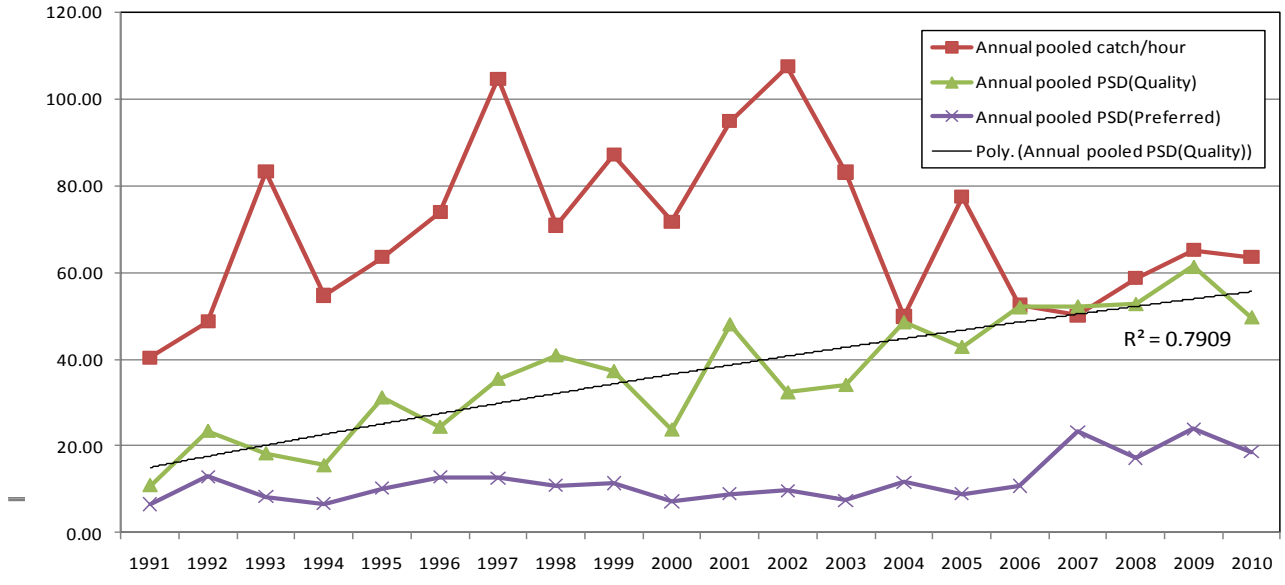
Much like the bluegill results, largemouth bass catch rates were low overall, with less variability than seen in the early samples. There also seems to be a slight increasing trend in catch per hour since 2006, even though the 20-year trend appears in a not statistically significant, downward mode. As shown in the graph below, results from eight waterbodies showed bass catches that were within the 25-75 percent range box, and six waterbodies showed catches within the 10-90 percent legs of the boxes. One new high bass catch per hour record was set in 2010 at Cove Lake, with a new low at Macedonia Pond, and a second lowest catch for Shady Lake. Much variability is shown in the 2010 bass catch across the lakes and ponds sampled.

Largemouth Bass Catch per Hour by Lake



Harvestability of quality-sized largemouth bass dipped slightly in 2010 from 2009 results, but overall there is a mildly significant increasing trend in harvestability of quality-sized bass as shown in the graph below. Quality bass are those equal to or larger than 300 mm (11.8 inches) and the stock size is 200 mm (7.9 inches). Six lakes set new largemouth bass size records with only one pond having no harvestable-sized bass caught. The largest bass of the year was a 13.2 pound largemouth caught at Cedar Lake.

Proportional Size Distribution, Quality and Preferred for Largemouth Bass by Year



With most PSD (Q) values again distributed outside of long-term averages for each waterbody in 2010, there is additional support for the assumption of sampling/weather inconsistencies. Largemouth bass catch of preferred lengths (380 mm or 14.9 inches) was the third highest in the 20 years of samples with a pooled value of 18.58 percent of the total catch of stock size bass and larger and is a little lower than the 2007 and 2009 results. However, there is only a slight statistically significant trend for these values with an $r^2 = 0.55$.

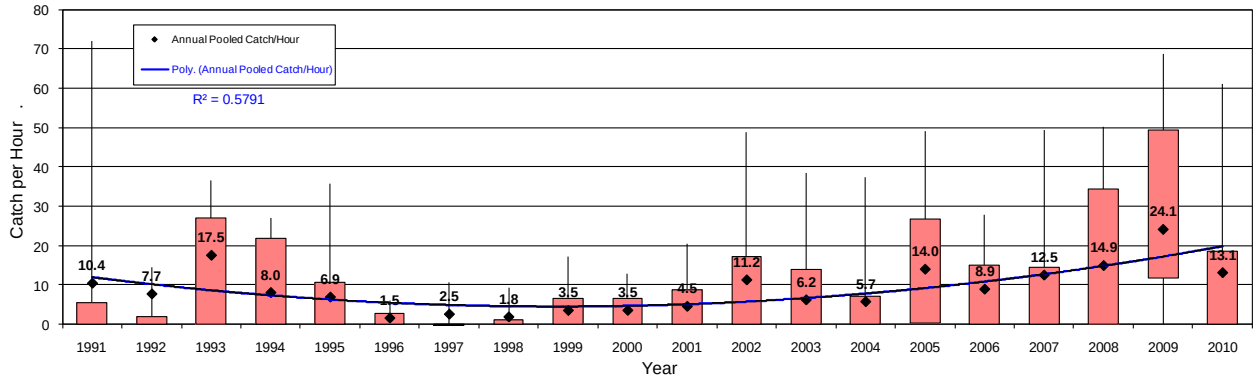
As sampled in 2010, largemouth bass populations across the Ouachita NF are at suitable and sustainable levels, and their viability is not in question. Shady Lake results should be monitored more closely to observe bass populations that are lower in numbers and smaller in sizes than would be expected.

Redear Sunfish *(Lepomis microlophus)*

The redear sunfish electrofishing catches have ranged from 4 to 90 times less than bluegill or largemouth bass catches over the past 20 years. As shown in the graph below, the redear sunfish catch in 2010 is the fifth highest annual catch of redear sunfish to date. While the redear sunfish annual pooled catch rate trend line shows an increase since 1998, the trend has low statistical significance.

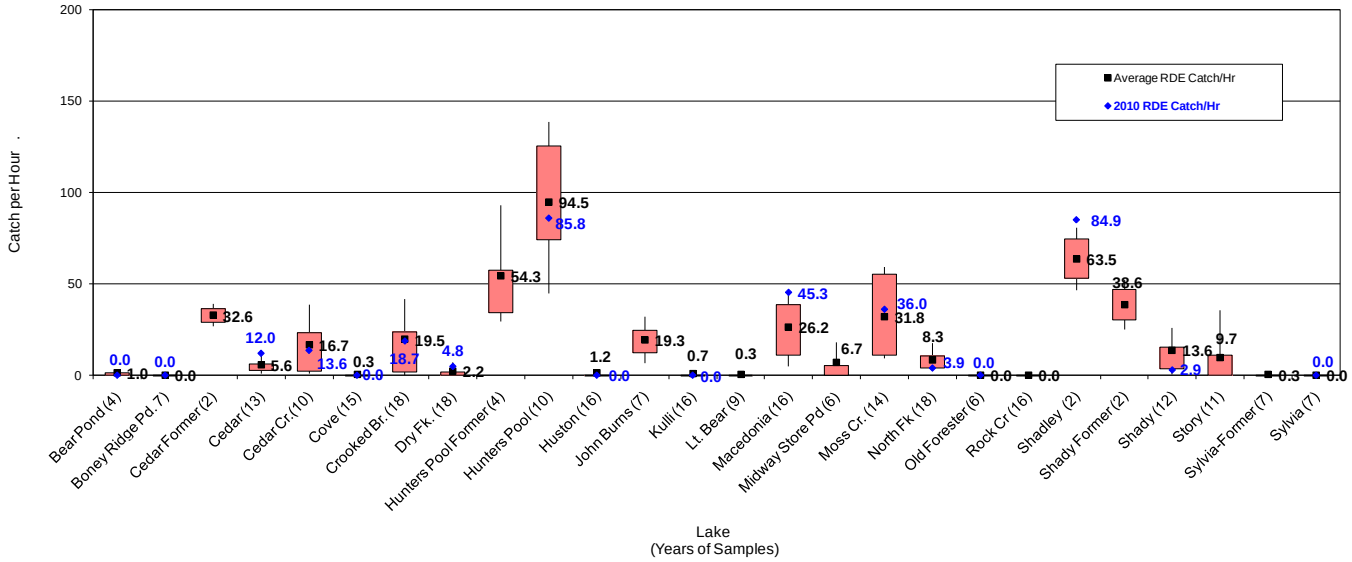
Readear Sunfish
Source: Rich Standage, USFS

Annual Pooled Redear Sunfish Catch per Hour



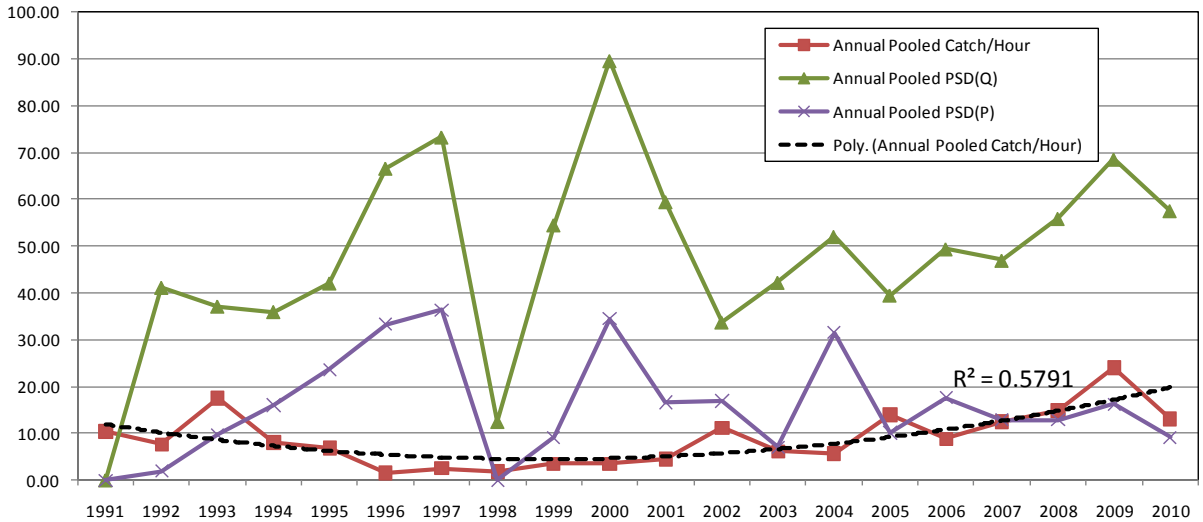
The 2010 redear catch was dominated by the catch of 85.8 redear individuals per hour at Hunters Pool and 84.9 per hour at Shadley Lake as shown in the figure below. Five of the waterbodies had 2010 results above their average annual redear catch per hour, six were below average, and five of the sampled waterbodies had zero catch of redears for 2010 where redears had been caught before.

Redear Sunfish Catch per Hour by Lake



Harvestability of redear sunfish utilizes a stock length of 100 mm (3.9 inches) and a quality length of 180 mm (7.1 inches). The 2010 catch of redear sunfish was dominated by quality sized and larger redear sunfish at Cedar, Crooked Branch, Macedonia and North Fork. Cedar Creek, Macedonia and Moss Creek catches were close to their average harvestabilities. For the larger, preferred-size redear sunfish (230 mm or 9 inches), PSD (P) was lower in 2010 than the years through 2006. The trend line is not statistically significant for either the quality or the preferred-size redear sunfish.

Quality and Proportional Size Distribution for Redear Sunfish by Year, ONF



Hunters Pool redear catch is generally the largest catch of redears across the Forest and usually drives the Forest's pooled values of the two levels of harvestability. The 2010 PSD(Q) sized redears from Hunters Pool were at the 37 percentile but with the highest catches, it lowered harvestability averages across the Forest. Most of the lakes with high harvestabilities

had very low catch rates for redears. As sampled in 2010, the redear sunfish populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question.

Other Pond, Lake, and Waterhole Species

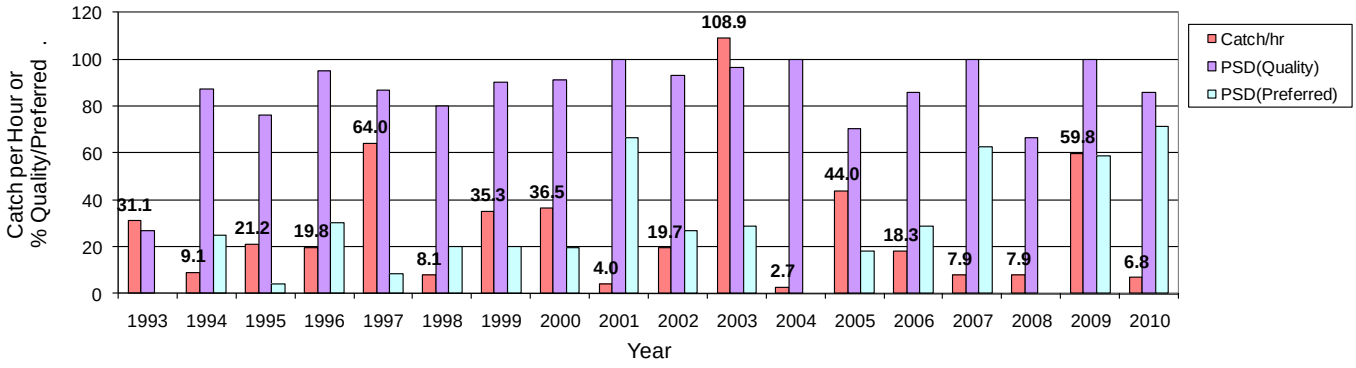
In addition to the pond, lake, and waterhole MIS species, some additional sampling of pond, lake, and waterhole species is conducted to determine catch and harvestability rates of other game fish or to assess potential hazards to sustainable sport fisheries. For 2010, additional monitoring for white crappie, gizzard shad, and threadfin shad was conducted due to angler interest in crappie, and concern over shad population expansions.

White Crappie *(Pomoxis annularis)*

White Crappie
Source: Rich Standage, USFS

In addition to the previous three lake and pond species tracked forest-wide, the white crappie population in Dry Fork Lake has been tracked due to angler interest at this particular lake. Crappie populations in the rest of the Ouachita NF waters are not nearly as large, thus this species is not a forest-wide MIS. The population in Dry Fork Lake is also being tracked to follow its cyclic population. At times there is a pattern of low catch rates and high rates of harvestability of both quality (200 mm or 7.9 inches) and preferred- size (250 mm or 9.8 inches) crappie, followed some years later by a high catch rate and lower harvestability of the preferred- size crappie (see the graph below). During 2001 and 2007, crappie were caught in the low ebb of their population numbers (low catch rates) and showed some of the highest harvestability scores for quality and preferred-size crappie. The 2008 crappie data show a low catch rate with no larger, preferred-size, crappie caught; however, the 2008 results look somewhat similar to 2004 results. The 2009 catch was relatively high which should have resulted in a low preferred-size crappie catch, but that was not the case with the third highest catch rate of preferred-size crappie in 17 years at Dry Fork Lake. The 2010 sample returned to a cyclic pattern similar to what was seen in 2007 with a low catch rate but high harvestabilities. Whether this cyclic variability is actually present in the crappie population or it is a sampling anomaly is unknown. However, seeing the pattern again after two consecutive annual samples that did not match the patterns of previous catches is encouraging. This crappie population in Dry Fork Lake will continue to be monitored.

White Crappie Catch per Hour, Proportional Size Distribution (Quality) and (Preferred) for Dry Fork Lake, Perry County, ONF



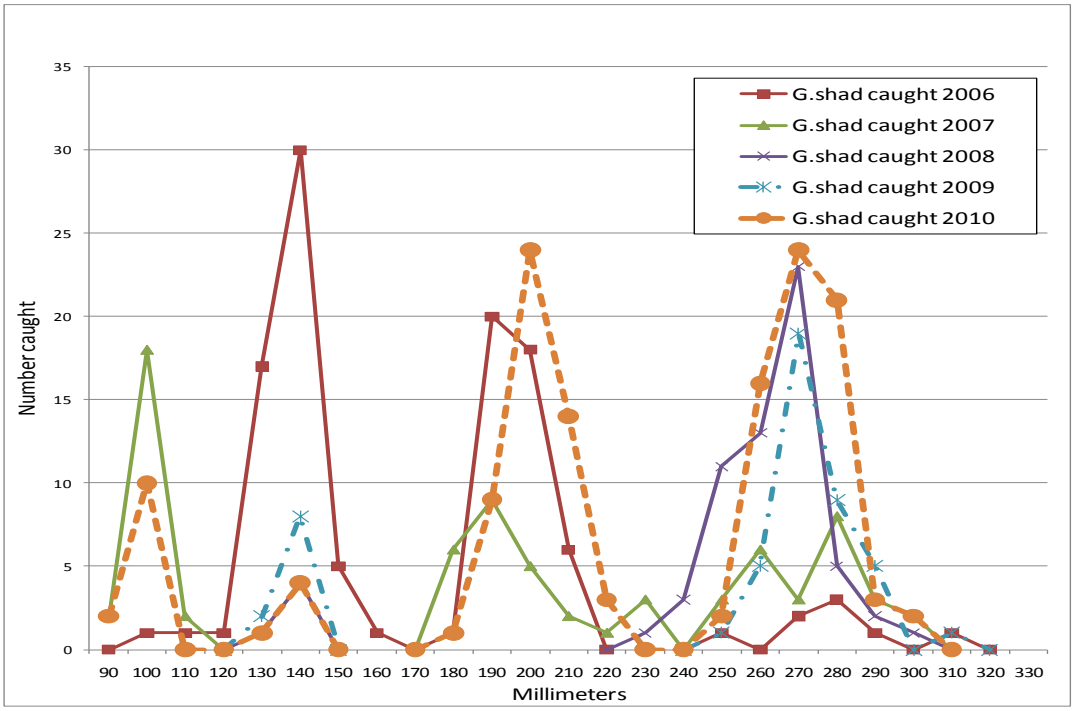
Gizzard Shad *(Dorosoma cepedianum)*

Gizzard Shad
Source: Rich Standage, USFS

Gill netting was conducted in the fall of 2005 to monitor the gizzard shad population, due to concern that the gizzard shad population in Cedar Lake might be expanding and could impact sport fishing. Two new 200-foot monofilament nets, sized specifically to capture these shad and minimize bass catches were utilized in 2006 for the first time and their use has continued through 2010. The gizzard shad length frequencies, as shown in the graph below, indicate 3 year/size classes were caught in the nets in 2006, three or more in 2007; only 2 year classes caught in 2008 and 2009; and 4 year classes or at least distinct lengths caught in 2010. The capture of smaller gizzard shad from the fall of 2007 spawn may well be the result of the lake refilling later in the spring and triggering an additional late spawn by the shad. That portion of the 2007-year class appears to be missing in the 2008 and 2009 netting catch. The results in 2010 are more like a composite of all the results to date in that four distinct sizes of gizzard shad were caught.

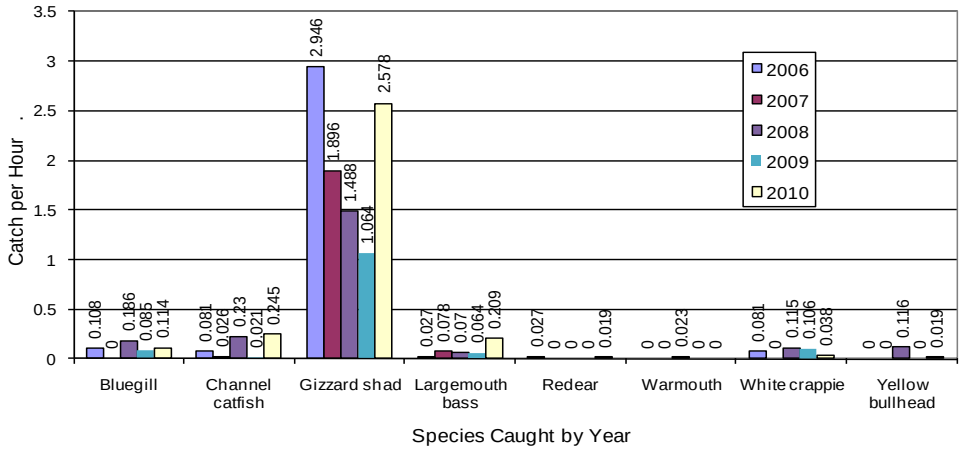
After review of the 2009 results in consultation with the Oklahoma Department of Wildlife Conservation (ODWC); it was decided that the gizzard shad population needed to be reduced in order to try to induce more reproduction/recruitment of smaller sizes and reduce the number of individuals in the population that were too large to serve as forage for the largemouth bass and crappie in the lake. In one day of electrofishing using both the ODWC electrofishing boat with crew and the Forest boat with crew followed by another work-day of only the Forest Service boat and crew, a total of approximately 562 pounds of gizzard shad numbering about 4,100 individuals were removed. This amounted to approximately 97.5 individual shad per acre or 6.6 pounds of shad removed per acre. This removal may have resulted in netting of the extra small size class of gizzard shad that hadn't been recorded since 2007.

Cedar Lake Gizzard Shad Length Frequencies from Gill Nets (2) for 2006 - FY 2010, ONF



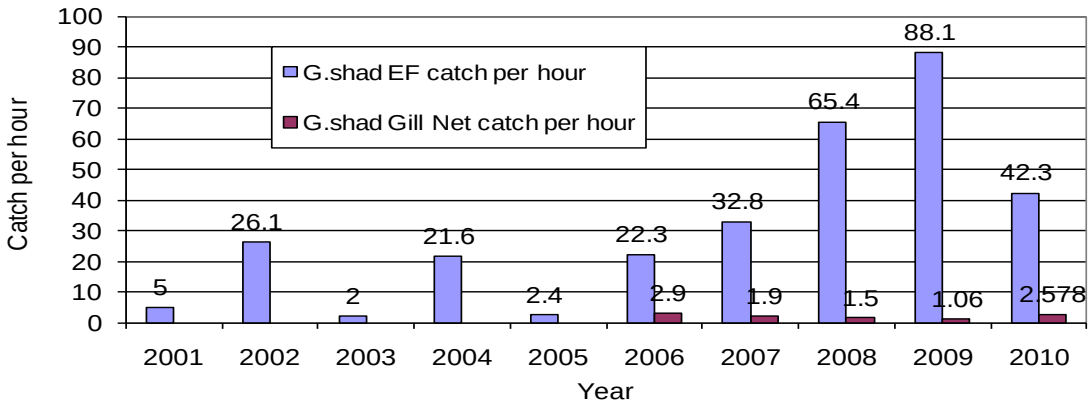
The catch per hour for gizzard shad in 2010 is the second highest at Cedar Lake and is very low for the non-targeted species (see graph below). Catch result differences for 2006 through 2010 could well be the result of differences in lake/gill net visibility with length frequency results possibly influenced by the low water levels (11 feet low) experienced from December 2006 through spring 2007 and the shad removal in spring, 2010. These low lake levels would have resulted in crowding of all species, particularly the pelagic [open-water-dwelling] gizzard shad. Large predators would have had the advantage of easier preying on the crowded shad and small sunfish, and the shad would have encountered more competition for the more limited plankton and detritus food sources.

Cedar Lake Gizzard Shad Catch per Hour per Year, Combined Nets, ONF



The 2010 gill netting had similar by-catch of species other than gizzard shad. More indicative of a potential problem is the comparison of spring electrofishing catch of generally larger gizzard shad compared to the gill net capture of the smaller year classes of gizzard shad. While the spring electrofishing gizzard shad catch in 2010 is not as high as that in 2008 and 2009, the gill net catch is still high in spite of the spring 2010 gizzard shad removal.

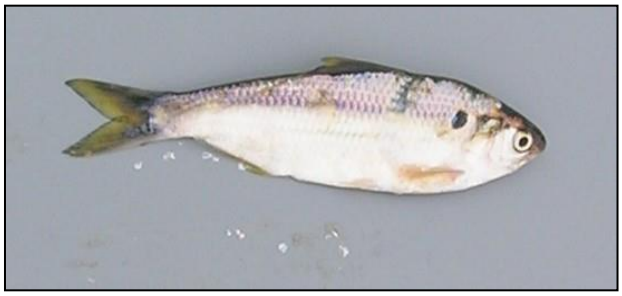
Cedar Lake Electrofishing Capture versus Gill Net Capture, ONF



While the gill netting and electrofishing are not directly comparable, the results do indicate the larger-sized gizzard shad numbers are expanding and the smaller-sized gizzard shad numbers are dropping. There was a small improvement in smaller sized shad numbers as seen for 2010 in the graph of Cedar Lake Gizzard Shad Length Frequencies 2006-2010. This indicates a top-heavy adult shad population which can ultimately reduce reproduction of forage-sized gizzard shad and harm predator-prey relationship of bass to gizzard shad. The electrofished gizzard shad are generally too large to be consumed by all but the very largest bass and channel catfish in Cedar Lake. Based on these results, it appears the large shad should be targeted for a reduction program to promote production of the smaller gizzard shad and that work has started with the ODWC and will continue as long as results seem worth the effort. Trends in the gizzard shad population will continue to be monitored by gill netting and electrofishing in order to detect any over-population or change in abundance or length frequencies within the gizzard shad population.

Threadfin Shad *(Dorosoma petenense)*

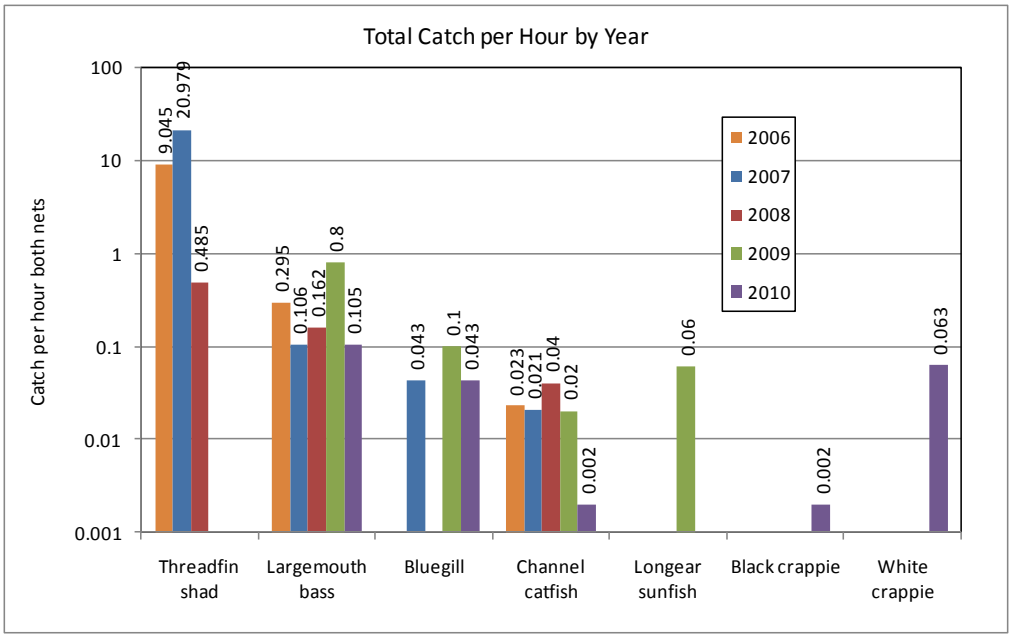
During fall electrofishing of North Fork Lake in 2006, threadfin shad were discovered. Two, 200 foot monofilament nets were set in North Fork Lake to assess the population size and structure. The two nets were fished for 44 total hours capturing fish smaller and larger than those electrofished. Data indicate that there were at least 2 year classes present. Stocking records were checked by the Arkansas Game and Fish Commission and it appears highly unlikely these shad came from their hatchery system leading to the assumption that the threadfin shad were stocked in North Fork Lake by the public.



Threadfin Shad
Source: Rich Standage, USFS

The lake was sampled with two gill nets in 2007 through 2010, set in the same locations and for 47 hours combined fishing time in 2007, 49.5 hours in 2008, 50.25 hours in 2009, and 47.5 hours in 2010. Results show a higher catch per hour of threadfin shad in 2007 than 2006 and a very low catch in 2008 with none caught in 2009 and 2010.

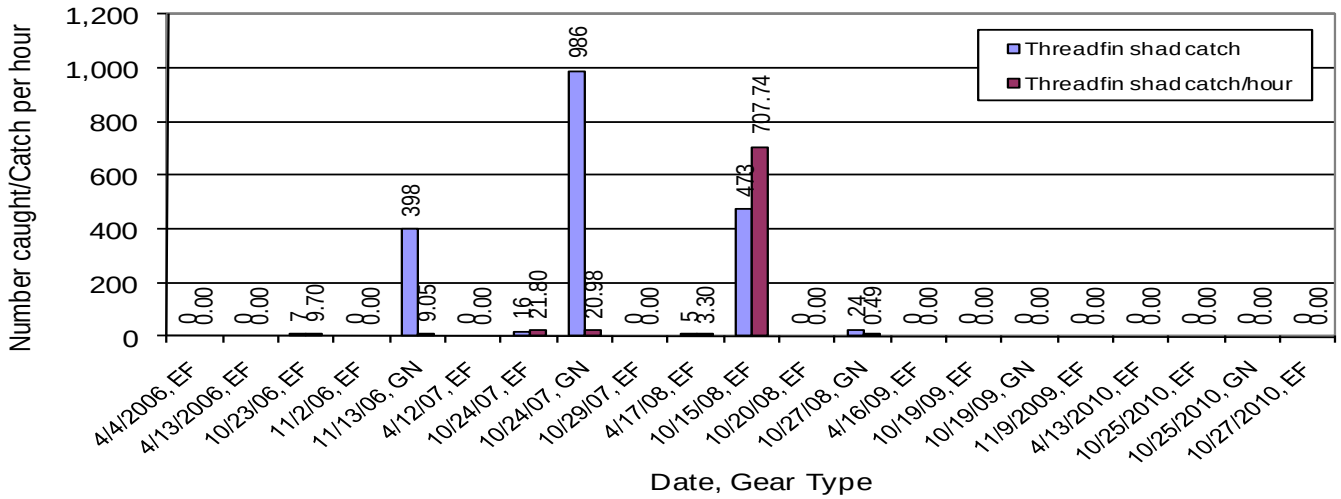
North Fork Lake Gill Nets (2) Catch per Hour for 2006 - 2010



The 2010 netting had a low by-catch of species (other than white crappie) compared to the other years. The 2006 by-catch was of largemouth bass and channel catfish and totaled fourteen individual fish. Three species (above plus bluegill) and eight individual fish were caught in 2007. In 2008, ten bass and channel catfish were caught. Only 2.5 percent of threadfin shad were caught in 2008 for nearly the same net time as in 2007, resulting in a 0.485 threadfin shad catch per hour in 2008, 20.979 caught per hour in 2007 and 9.045 in 2006. In 2010, one bass, one channel catfish, two bluegill, one black crappie, and three white crappie were caught with no threadfin shad captured in the netting sample or in spring and fall electrofishing data.

The threadfin shad population was expanding in numbers based on gill netting and electrofishing results through 2008. However, due to their schooling nature, capturing them is unpredictable as shown by the very large October 15, 2008 electrofishing catch, with none caught by electrofishing five days later and then, a very low gill net catch of threadfin shad a week after that.

North Fork Lake Threadfin Shad Catch by Electrofishing and Gill Netting by Date



EF = Electrofishing
GN = Gill Netting

With no threadfin shad showing up in one gill netting, three electrofishing samples in 2009, and none with the same effort in 2010, it appeared the threadfin shad may have been extirpated. However, five shad were reported in the June 8, 2009 shoreline seining but none in 2010. Verification of these five fish in 2009 as threadfin shad was not made. There is a chance that the population has been extirpated if these seined fish were misidentified. Threadfin shad are intolerant of water temperatures below 52 degrees and the past cold winters of 2008 and 2009 may have been sufficient to eliminate them. The other possibility is that the population of threadfin shad is so small that they are below detectable levels with the same duration and sampling techniques. North Fork Lake will continue to be electrofished at least annually. Additional gill net sampling will not be conducted unless threadfin shad are again caught by electrofishing or seining.

Shoreline Seining

Shoreline seining was conducted in 28 lakes and ponds across the Ouachita NF. Adequate reproduction was found for sunfish and bass in at least 16 of the waters. Difficulties in pulling seines were encountered and noted at several ponds, most of which also had low numbers of bass young. In these cases, the results are more indicative of the ability to seine versus inadequate reproduction. Results also seemed to vary based on the week of sampling. Those lakes and ponds sampled later in June had a lower bass catch in relation to sunfish catches which may have indicated the bass had grown large enough to swim fast enough to escape the seine. Several of the watershed lakes in the South Fork Fourche LaFave watershed had poor bass catches but they traditionally receive stockings of bass fingerlings. Even if fingerlings are not stocked, one poor spawn of bass usually doesn't have a significant impact on future bass catchability.

Pond, Lake and Waterhole MIS and Other Species Summary

Summary of Pond, Lake, and Waterhole Management Indicator Species Monitoring, ONF

Pond, Lake and Waterhole Management Indicator Species					
Common Name	**Scientific Name**	**Trend, Proportional Size Distribution Quality**	**Trend, Proportional Size Distribution Preferred**	**Risk for Conservation of Species**	**Management Changes Needed**
Bluegill	***Lepomis macrochirus***	**Not Significant, Slightly Increasing**	**Not Significant, Slightly Increasing**	**Sustainable-Viability not in Question**	**None**
Largemouth bass	***Micropterus salmoides***	**Significant, Increasing**	**Barely Significant, Slightly Increasing**	**Sustainable-Viability not in Question**	**None**
Redear sunfish	***Lepomis microlophus***	**Not Significant, Slightly Increasing**	**Not Significant, Slightly Decreasing**	**Sustainable-Viability not in Question**	**None**

Additional monitoring for white crappie, gizzard shad, and threadfin shad was conducted during 2010 even though these are not MIS species. The white crappie population in Dry Fork Lake is monitored because it has consistently contained the largest crappie population on the Ouachita NF. Gizzard shad in Cedar Lake are monitored to determine if the population is expanding. Calendar year 2010 was the 5th year of this monitoring, and it will continue. Threadfin shad were discovered in North Fork Lake during 2006 electrofishing efforts. The 2010 gill netting and three electrofishing samples captured no threadfin shad and none were caught in the spring shoreline seining. Threadfin shad monitoring by electrofishing in North Fork Lake will also continue and gill netting will be added should the threadfin shad reappear in any sampling.

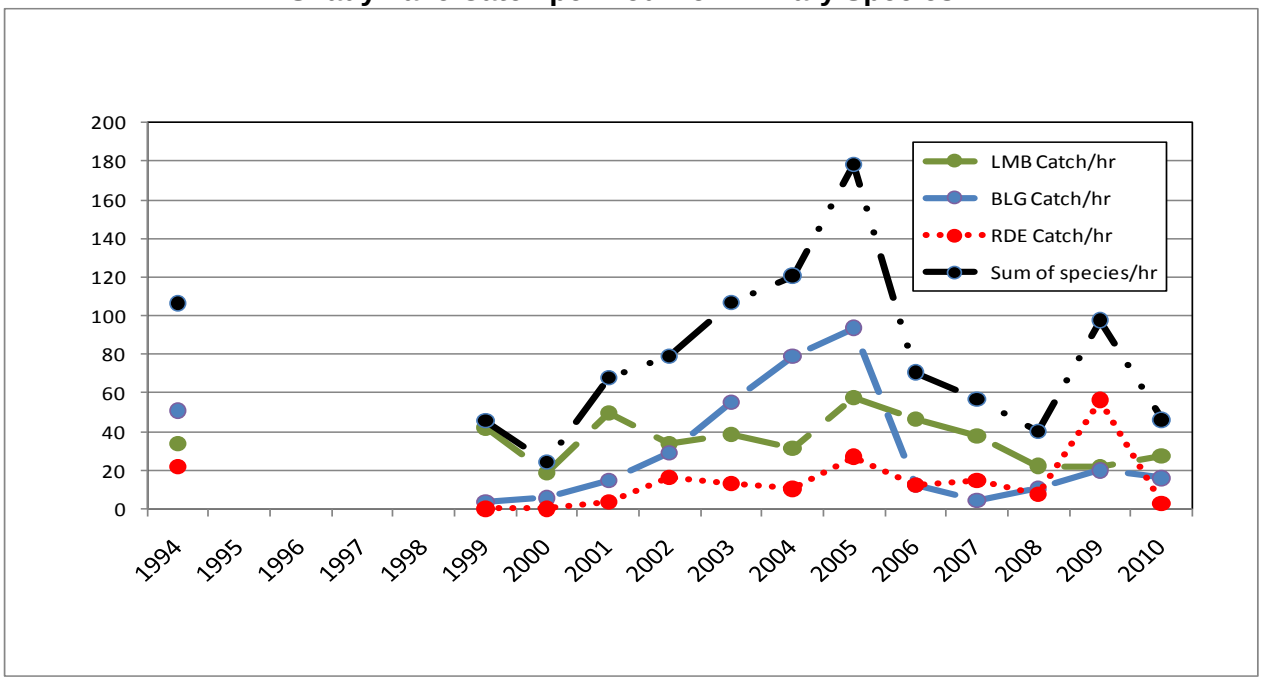
Lake Level Management—Emerging Issue

The Arkansas Game and Fish Commission reported a call from a citizen concerning Shady Lake being drained during the winter of 2009 that prompted an analysis of the electrofishing catch of the three MIS species. The results of the electrofishing catch had seemed low for several years but had been attributed to cold fronts and poor sampling conditions. The fish data analysis for all three species for the past 20 years indicated serious anomalies that went beyond just sample variations. The results showed rebuilding of fish populations following the 1995 draining and outlet valve work back to levels similar or better to that of the pre-draining conditions of 1994 and then, basically, a crash in those populations between the 2005 and 2006 samplings. The data show a leveling off of the fish population in 2008 at a very low level, with the exception of the catch of a small number of spawning redear sunfish in 2009.

Upon further investigation, it was found the Ranger District was routinely draining or nearly draining the lake to accomplish swimming beach maintenance. Thus, large numbers of fish were being flushed out. Flushing resulted in low catch rates; and with little water left in the lake, the surviving fish were not reaching expected sizes. This practice was contrary to the Operations and Maintenance Plan for the lake adopted in 1999 that called for leaving at least 50 percent of the lake level during the winter to maintain the fishery and still provide the necessary

draining and drying of the substrate to facilitate swimming beach maintenance. After discussions with the District Ranger and staff, this practice of draining or nearly draining the lake will be halted and operations will revert to the Operations and Maintenance procedure followed in the past.

Shady Lake Catch per Hour for Primary Species



During the winter of 2010 - 2011, maintenance on Clearfork Lake to control weeds in the swimming area was performed by lowering the Lake. The maintenance was coordinated with the Forest Fisheries Biologist and the State Fisheries Biologist. When the Lake level was lowered, all of the fish were flushed; because, the holding pool had filled in with sediment from a prior flood and eliminated the holding pool designed to provide habitat for fish during lake level lowering events.

Events at Shady Lake and Clearfork Lake resulted in two fishery resources at recreation facilities being lost or severely impacted in just 2 years. The Arkansas Game and Fish Commission expressed concern about such events and requested actions be taken to prevent flushing of fish stocked at public expense for public take.

The Forest Leadership Team has since implemented a process where each fall each District will provide the Forest Supervisor and his staff with a list and details of any water level manipulation planned on any fishable waters providing sufficient lead time for coordination with all affected parties. While an accidental draining due to a malfunctioning drain outlet may still occur, the forest-wide process should provide for sufficient lead time to manage the lake levels to acceptable levels, get any necessary permits for swimming beach maintenance or sediment removal, and get needed information out to the public and affected agencies.

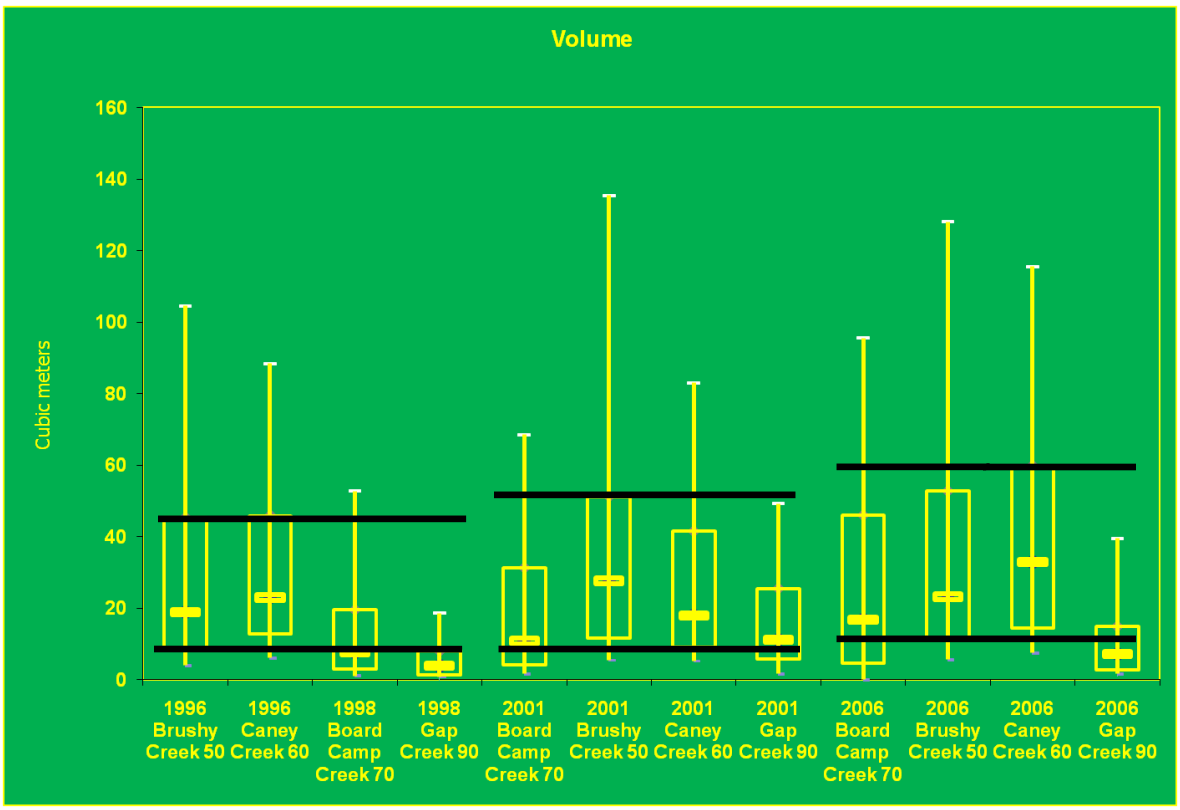
Stream and River MIS

There are 14 species of fish associated with stream and river habitat. Monitoring for 12 species is conducted every 5 years utilizing a Basin Area Stream Survey along with annual data from long-term permanent stream monitoring sites. Data for the Johnny and channel darters are collected annually during the annual leopard darter monitoring conducted jointly with the US Fish and Wildlife Service. Monitoring for these MIS is to determine how well the stream and river aquatic habitat condition are being protected, enhanced or maintained.

Basin Area Stream Surveys

In 1990, the Forest designed and subsequently conducted a series of paired-stream surveys. One stream-pair was identified in each of the following ecoregions across the Forest: Arkansas River Valley, Upper Ouachita Mountain, and Lower Ouachita Mountain. The Basin Area Stream Survey (BASS) is designed and conducted to assess cumulative effects from silviculture activities on aquatic biota. Each stream-pair consists of a reference watershed (usually a wilderness) and a managed watershed (an adjacent watershed with typical forest management). The inventory consists of physical habitats within the stream and a subsample of fish, macro-invertebrates, chemistry, and water flow. The surveys were repeated for the first 3 years to provide a baseline dataset, and they are now repeated approximately every 5 years. Data analysis and summaries can be found in USDA Forest Service, Ouachita National Forest (1994) and Williams et.al (2002, 2003 and 2004). Smaller stream segments (usually only four habitats) are sampled across the Forest using the same methodology.

Results from the 1990's found no differences between managed streams and reference streams for physical, chemical, or biotic parameters. However, out-year Basin Area Stream Surveys in 1996, 1998, 2001, and 2006, could detect changes in physical habitat and aquatic biota for the Lower Ouachita Mountain Ecoregion due to sediment likely from unmanaged recreation (OHV use) and inadequate road maintenance. Below is an example of pool volume as it varies over time in streams with and without OHV use. Caney Creek flows through the Caney Creek Wilderness with no OHV use within the watershed, while Brushy, Board Camp and Gap Creek all maintain high OHV activity within the watersheds.



2008 MIS Update

The Management Indicator Species document was updated in November 2008 to reflect the 2006 BASS inventory and annual stream inventory data. Adverse changes in fish populations were noted for Orangebelly Darter, Yellow Bullhead, Green Sunfish, and Central Stoneroller now known as the Highland Stoneroller (*Campostoma spadiceum*), in the Lower Ouachita Mountain Ecoregion. Although there are certainly other variables to consider, the cause of population changes in these fish species may be attributable to increases in unmanaged recreation (OHV use) and the Forest's reduced capacity to maintain roads to standard. This is explained more fully in the 'Watershed Function' section of the document. The last MIS report is available at the following location: www.fs.usda.gov/ouachita under Land and Resource Management – Planning.

Arkansas River Valley Stream MIS

There are seven fish species identified as MIS for Arkansas River Valley Streams:

Highland (Central) stoneroller	***Campostoma anomalum***
Creek chubsucker	***Erimyzon oblongus***
Green sunfish	***Lepomis cyanellus***
Longear sunfish	***Lepomis megalotis***
Pirate perch	***Aphredoderus sayanus***
Redfin darter	***Etheostoma whipplei***
Yellow bullhead	***Ameiurus natalis***

Gulf Coastal Plain Stream MIS

There are 11 fish species identified as MIS for the Gulf Coastal Plain Streams:

Highland (Central) stoneroller	***Campostoma anomalum***
Green sunfish	***Lepomis cyanellus***
Longear sunfish	***Lepomis megalotis***
Orangebelly darter	***Etheostoma radiosum***
Northern studfish	***Fundulus catenatus***
Northern hog sucker	***Hypentilium nigricans***
Redfin darter	***Etheostoma whipplei***
Smallmouth bass	***Micropterus dolomieu***
Striped shiner	***Luxilus chrysocephalus***
Johnny darter (within the range of the leopard darter)	***Etheostoma nigrum***
Channel darter (within the range of the leopard darter)	***Percina copelandi***

Four species—the highland or central stoneroller, green sunfish, longear sunfish, and the redfin darter—are common to both groups.

Johnny and Channel Darters *(Etheostoma nigrum and Percina copelandi)*

The Johnny and channel darter data are taken from snorkel counts conducted at permanent monitoring sites for the threatened leopard darter. Each darter encountered during snorkeling is identified by species. Snorkeling of each transect is conducted by an experienced five-member crew.

Johnny Darters: Johnny darters are more typically found over gravel and sand substrates, much finer substrates than the channel darter's preference for cobble and boulder substrates. Shifts in species distribution have been compared to shifts in substrate observations in an effort to establish a relationship. However, after examining the variability in the numbers of the two species at the individual sites over several years, it is not possible to draw a direct correlation. It is suspected that there are more influences than just substrate differences occurring at the site, drainage and regional/climatic levels.

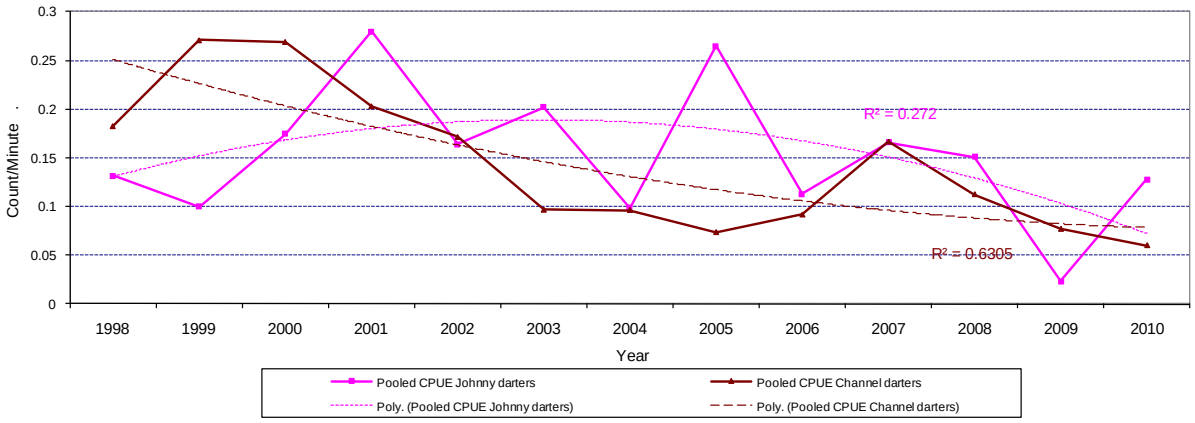
Johnny Darter
Source: Rich Standage, USFS

The winter of 2004 - 2005 had fewer and smaller flushing storm events than normal, followed by an extremely dry summer with large amounts of silt and detritus buildup that was observed and noted in the survey records. The winter of 2005 - 2006 was wet with numerous spates that cleaned substrates, but it was followed by a dry summer that set numerous low flow records. The winter 2006 - 2007 was also wet and led into a wet spring, early summer that showed good darter recruitment. The 2005 and 2006 Johnny and channel darter pooled counts per minute data show a large increase in Johnny darters counted in the summer of 2005. This may be the result of low winter flows leaving more suitable spawning substrate that resulted in more

reproduction, less flushing of post-hatch Johnny darters from suitable rearing habitat, and/or better summer foraging habitat.

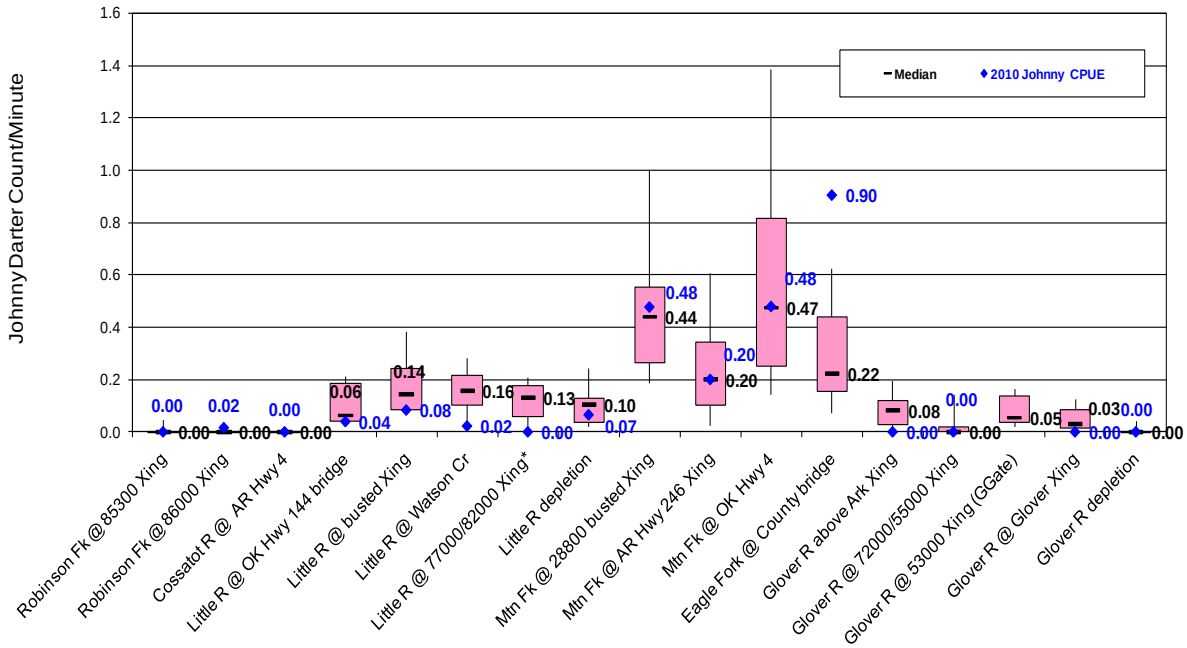
Channel darters show a slight increase across the sampled drainages from 2005 to 2006, which could possibly be in response to the 2005 - 2006 winter's flushing flows coarsening the substrate. Both species show recovery in 2007, particularly channel darters, probably as the result of continuing improvement in spawning conditions with the flushing flows. In 2008, there were a number of flushing flows in February through early April that may have flushed eggs and larval darters out of ideal hatching and rearing habitat resulting in lower population levels during the summer of 2008. In the winter of 2008 - 2009 there were even more significant storms lasting into the spring of 2009 that were highly likely of flushing eggs and larvae out ideal habitats. Stream flow conditions the winter of 2009 - 2010 and through the spring were more conducive to better recruitment for these darters with an upward trend for Johnny darters and less of a drop in channel darters from prior years. Trend lines for Johnny and channel darters show a downward trend; but, only the trend line for the channel darter is statistically significant and that significance is extremely low.

Johnny and Channel Darter Annual Pooled Counts per Minute, ONF



Seven of the Johnny darter counts were zero in 2010, with nine sites out of the sixteen sites surveyed in 2010 showing Johnny darters. Of these, all but four sites were above their median values with one at the median value. The Mountain Fork River site at the Oklahoma Highway 4 Bridge, which normally has the highest single site count for Johnny darters, had no Johnny darters counted in 2009, but had a slightly above median count in 2010. Eagle Fork had a count in 2010 that was over four times its median count.

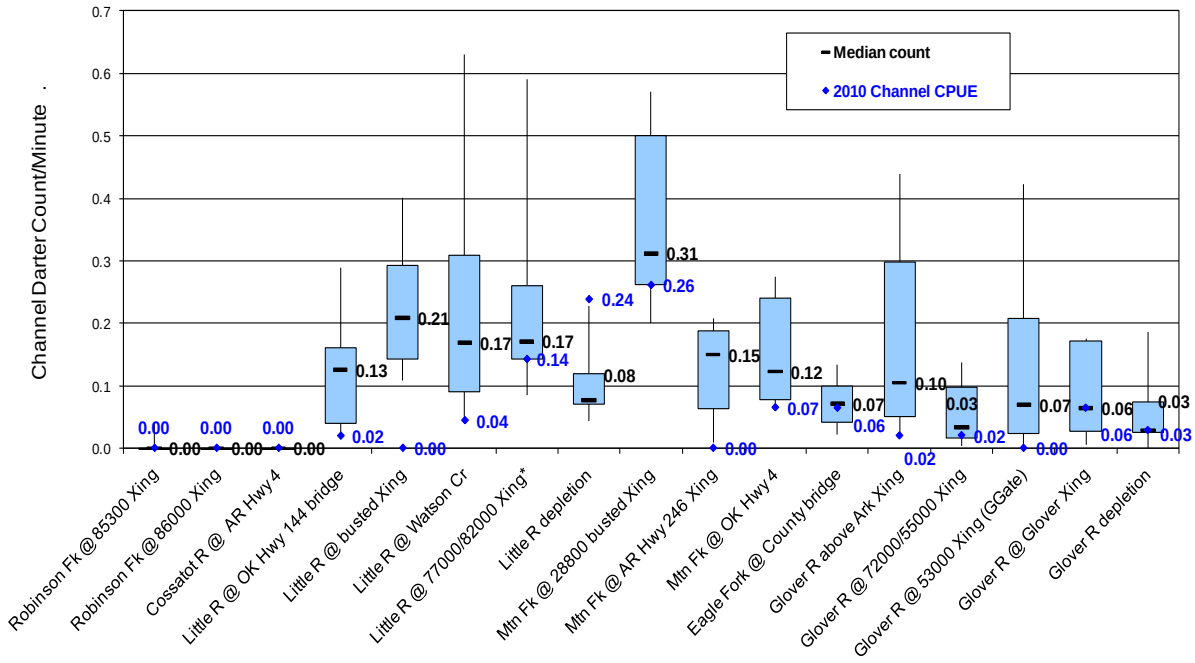
Johnny Darter Counts per Minute by Site, ONF



Channel Darters: For channel darters in 2010, only one of the 16 counts were above the median count of that site, 2 site counts were the same as their median counts, 11 sites were below their medians, and 6 sites had zero counts. The highest count for channel darters was at the Little River depletion site. Two of the Glover River site counts tied their median counts with these sites at nearly the opposite ends of the sampled portion of the river.

Channel Darter
Source: Rich Standage, USFS

Channel Darter Counts per Minute by Site, ONF



While the trends for both Johnny and channel darters look rather bleak, the situation is believed to be a result of the frequent and high intensity flooding of 2008 - 2009 with limited rebound in 2010 which was a good water year. While the populations of both species would be expected to rebound with more favorable conditions, channel darters did not respond as well as the Johnny darters did in 2010. Based on historic trends, the populations appear to fluctuate frequently with periods of population numbers expansion and contraction. Channel darter pooled counts have been low before (2005) and rebounded for 2 years, while the Johnny darter pooled count for 2009 is the lowest in the 13 years sampled with a sizeable rebound in 2010. Fluctuating populations may be the norm for these two species.

Stream and River Management Indicator Species Monitoring Summary, ONF

Stream and River Management Indicator Species					
Common Name	**Scientific Name**	**Expected Population Trends**	**Apparent Population Trends**	**Risk for Conservation of Species**	**Management Changes Needed**
Arkansas River Valley Streams					
Yellow bullhead	**(*Ictalurus natalis*)**	**Stable**	**Declining**	**Sustainable – Viability not in Question**	**Manage OHV use, maintain roads and trails**
Pirate perch	***(Aphredoderus sayanus)***	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Central Stoneroller	**(*Campostoma anomalum*)**	**Stable**	**Increasing**	**Sustainable – Viability not in Question**	**Manage OHV use, maintain roads and trails**
Creek chubsucker	**(*Erimyzon oblongus*)**	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Orangebelly darter	**(*Etheostoma radiosum*)**	**Stable**	**Potentially Decreasing**	**Sustainable – Viability not in Question**	**Manage OHV use, maintain roads and trails**
Redfin darter	***(Etheostoma whipplei)***	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Northern studfish	**(*Fundulus catenatus*)**	**Stable**		**Sustainable – Viability not in Question**	**None**
Northern hog sucker	**(*Hypentelium nigricans*)**	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Green sunfish	***(Lepomis cyanellus)***	**Stable**	**Increasing**	**Sustainable – Viability not in Question**	**Manage OHV use, maintain roads and trails**
Longear sunfish	**(*Lepomis megalotis*)**	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Striped shiner	***(Luxilus chrysocephalus)***	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Smallmouth Bass	***(Micropterus dolomieu)***	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Johnny darter	***(Etheostoma nigrum)***	**Stable**	**Stable**	**Sustainable – Viability not in Question**	**None**
Channel darter	***(Percina copelandi)***	**Stable**	**Potentially Decreasing**	**Sustainable – Viability not in Question**	**None**

Aquatic Dependent Proposed, Endangered, and Threatened Species and their Habitat

There are five freshwater mussel species, one fish species, and one aquatic plant species that are listed as federally threatened or endangered.

Federally Endangered or Threatened Aquatic Species, ONF

Common_Name	*Scientific_Name*	Viability Concern Classification
Pink Mucket	***Lampsilis abrupta***	**Federally Endangered**
Winged Mapleleaf	***Quadrula fragosa***	**Federally Endangered**
Scaleshell	***Leptodea leptodon***	**Federally Endangered**
Ouachita Rock-pocketbook	***Arkansia wheeleri***	**Federally Endangered**
Arkansas Fatmucket	***Lampsilis powellii***	**Federally Threatened**
Leopard Darter	***Percina pantherina***	**Federally Threatened**
Harperella	***Ptilimnium nodosum***	**Federally Endangered**

Many of the streams and rivers within the Ouachita National Forest have been surveyed for freshwater mussel species diversity as well as relative abundance. The federally endangered pink mucket mussel, the winged mapleleaf freshwater mussel, and the scaleshell mussel have not been found to occur in any of the surveyed waters. The pink mucket and winged mapleleaf mussels have never been known to occur within the Forest's waters. The scaleshell has been found so rarely that they do not appear to be members of viable populations, and there is no evidence of recent reproduction. These species will remain on the viability concern list, and survey efforts will continue. Any occurrences will be reported to the USFWS immediately. Otherwise, provision for protection of aquatic habitat will follow the streamside management area direction.

Ouachita Rock-pocketbook (*Arkansia wheeleri*)

Populations of this freshwater mussel are known to occur in the Kiamichi and Glover rivers in Oklahoma, and Little River systems in Oklahoma and Arkansas. Although it is not found within the Forest boundary, the Ouachita rock-pocketbook is known to occur downstream of and within close proximity to the Forest. The potential for occurrence along with the federally endangered status of this species makes this a species of viability concern for the Forest. This species will remain on the list of viability concern and survey efforts will continue. As required, any occurrences will be reported to the USFWS. Otherwise, provision for protection of aquatic habitat will follow the streamside management area direction.

Ouachita Rock-pocketbook
Source: USFWS

Arkansas Fatmucket (*Lampsilis powellii*)

Arkansas Fatmucket
Source: USFS

Arkansas fatmucket mussels live only in Arkansas and are endemic to the Saline, Caddo, and Upper Ouachita rivers. Historically, this mussel species was found to be relatively common in preferred habitat; however its frequency of detection and its population sizes have been consistently decreasing.

In a 2007 5-year status review by the USFWS, findings indicate that the Arkansas fatmucket mussel has suffered significant population declines with severely reduced distribution since its listing. Catastrophic population declines have resulted in the extirpation of Arkansas fatmucket from the South Fork Saline River, while the Caddo River, Ouachita River, South Fork Ouachita River, Middle Fork Saline River, and North Fork Saline River have experienced and continue to experience population declines with extirpation of Arkansas fatmucket from several stream reaches. The increasingly small and isolated populations are becoming even more susceptible to stochastic events and ongoing and/or increasing anthropogenic impacts (USFWS 2007). The Arkansas fatmucket continues to be of great concern to the Ouachita National Forest and protective measures are coordinated through the USFWS whenever Forest activities may impact this species or its habitat.

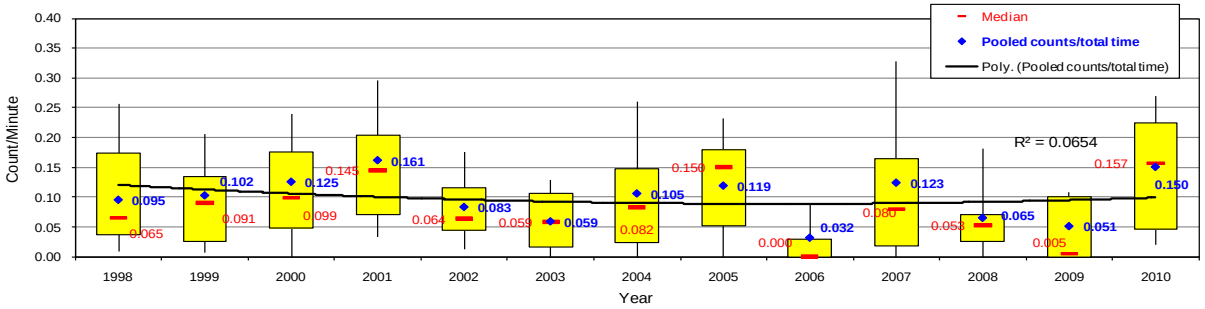
Leopard Darter *(Percina pantherina)*

Leopard Darter
Source: Rich Standage, USFS

Based on the counts at 16 of the 18 permanent monitoring sites snorkeled during the summer of 2010, leopard darter counts were the second highest (annual pooled count per minute) since the use of permanent monitoring sites began in 1998. Leopard darter counts in 2010 were nearly three times that of the counts from the summer of 2009. From 1998 through 2007, there appeared to be a trend of a gradual 4-year increase in pooled counts with a crash and restarting of this trend. However, the 2006 to 2007 increase was followed by a crash in 2008. It is theorized that the winter of 2007/2008 with its numerous storm events led to the poor recruitment of the 2008 year class of leopard darters and low counts the summer of 2008. Flooding during critical spawning and rearing periods was even worse during the 2008/2009 winter into spring 2009.

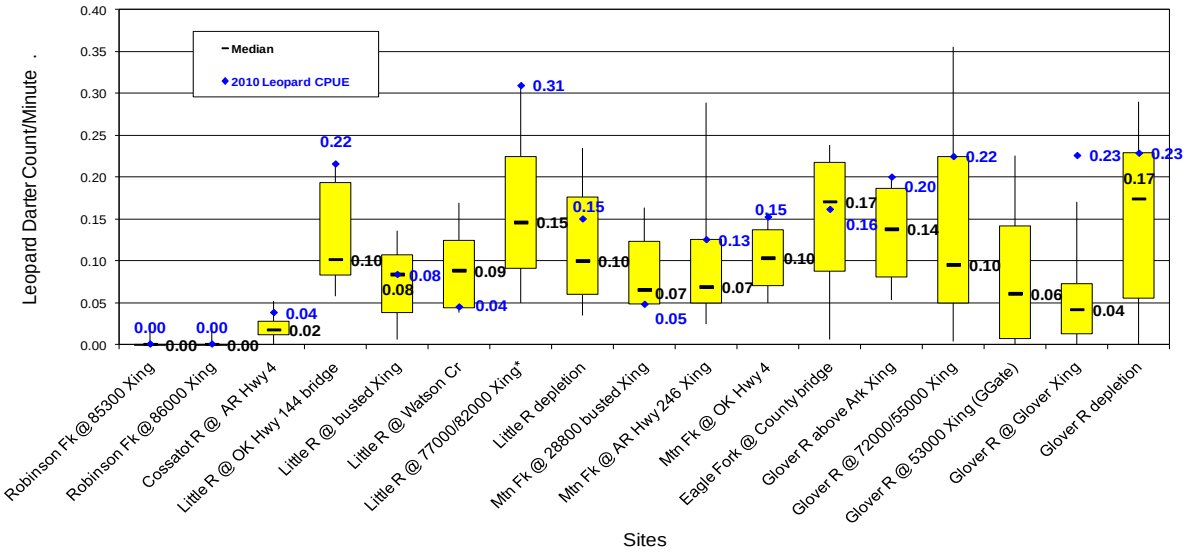
It appears that 2010 was a good water year with good visibilities experienced at most sites. (See discussion of storm responses in the Johnny and channel darter section later in this report.) The trend line for the annual pooled counts of leopard darters is not statistically significant.

Leopard Darter Annual Pooled Counts



Leopard darters were not seen at only two of the 16 surveyed sites in 2010. The 2010 leopard darter counts were also the median value at one site, above the median value at ten sites, and below the median, but at or above 25 percentile points, at two sites. The Robinson Fork population represents the only drainage area where all counts were zero; however, it has been typical to see no leopard darters at the two sites for several years and then to find one or two leopard darters the next year. This off-forest population is the most vulnerable to extirpation, because it is in a small drainage area isolated above a reservoir. The Glover River site at the Road 53000 crossing was not sampled for 2 years in a row due to the change in the site from a pool to a steep riffle with the river sorting itself out after the low-water crossing (basically a low-water dam) was replaced with a bridge.

Leopard Darter Counts per Minute by Site



Leopard darters are still undergoing a 5-year Status Review by the US Fish and Wildlife Service and results have not been released. Data presented here would indicate that the population is experiencing natural variations. There are no new perceived threats to its survival. Delisting criteria as laid out in the draft recovery plan have not been achieved, so delisting is not anticipated.

Harperella (*Ptilimnium nodosum*)

Harperella is the only federally listed endangered plant known to occur on the Ouachita NF. This species typically grows on rocky shoals, in crevices in exposed bedrock, and (sometimes) along sheltered muddy banks. It seems to exhibit a preference for the downstream margins of small pools or other areas of deposition of fine alluvium. In most harperella sites, there seems to be significant deposition of fine silts. On the Ouachita NF, harperella occurs in perennial streams either on or among boulders or large cobbles or on coarse sediment bars. Harperella is often associated with *Justicia americana*, *Gratiola brevifolia*, *Dulchium arundinaceum*, and *Eleocharis quadrangulata*.

Harperella
Source: USFS

In 2009, one subpopulation site on Irons Fork was being impacted by head-cutting of the stream so the District placed rock and sand bags to temporarily stabilize the stream. In 2010, the stream seemed to be stabilized and the head-cutting had subsided.

Each year, surveys are conducted during watershed assessments. As a result of these assessments, three new populations of harperella have been found on the Ouachita NF since 2005.

It is difficult to sample harperella populations without damaging individual plants due to the large numbers of vegetative stems that are usually concentrated in small areas. Due to the complexity of the sampling process, monitoring is a qualitative judgment for estimating populations. The sites are monitored in relation to the size of the general area that plants occupied compared to previous years, and an estimate is made of the number of flowering versus vegetative stems. Harperella has been monitored annually and the population on the Ouachita NF appears to be stable.

In 2006, the Ouachita NF hosted a “Rare Community” training session for field personnel to identify the rare communities on the Forest. This training focused on identifying the rare ecological communities and the sensitive plants associated with these communities. This training is helpful for district personnel when conducting sensitive plant surveys as part of each watershed assessment. The surveys have resulted in documenting new sensitive species locations which were recorded and entered into the NRIS Threatened, Endangered, and Sensitive Plants database for future use.

R8 Sensitive and Other Aquatic Species of Viability Concern

There are 40 species on the Region 8 (R8) Sensitive or other Aquatic Species of Viability Concern list, including 22 freshwater mussel species, 7 crayfish species and 11 fish species.

Common_Name	*Scientific_Name*	Viability Concern Classification
Mussels		
Monkeyface	*Quadrula metanevra*	Sensitive
Ebonyshell	*Fusconaia ebena*	Local viability concern
Spike	*Elliptio dilatata*	Local viability concern
Butterfly	*Ellipsaria lineolata*	Local viability concern
Western Fanshell	*Cyprogenia aberti*	Local viability concern
Spectaclecase Pearlymussel	*Cumberlandia monodonta*	Local viability concern
Flat Floater	*Anodonta suborbiculata*	Local viability concern
Elktoe	*Alasmidonta marginata*	Local viability concern
Rainbow	*Villosa iris*	Local viability concern
Flutedshell	*Lasmigona costata*	Local viability concern
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Sensitive
Ouachita Kidneyshell	*Ptychobranchus occidentalis*	Local viability concern
Pyramid Pigtoe	*Pleurobema rubrum*	Sensitive
Ohio Pigtoe	*Pleurobema cordatum*	Sensitive
Southern Hickorynut	*Obovaria jacksoniana*	Local viability concern
Louisiana Fatmucket	*Lampsilis hydiana*	Local viability concern
Fatmucket	*Lampsilis siliquoidea*	Local viability concern
Sandbank Pocketbook	*Lampsilis satura*	Sensitive
Purple Liliput	*Toxolasma lividus*	Sensitive
Ouachita Creekshell	*Villosa arkansasensis*	Sensitive
Southern Pocketbook	*Lampsilis ornata*	Local viability concern
Black Sandshell	*Ligumia recta*	Local viability concern
Crayfish		
A Crayfish	*Fallicambarus jeanae*	Local viability concern
A Crayfish	*Orconectes saxatilis*	Local viability concern
A Crayfish	*Fallicambarus strawni*	Sensitive
A Crayfish	*Orconectes menae*	Sensitive
A Crayfish	*Procambarus reimeri*	Sensitive
A Crayfish	*Procambarus tenuis*	Sensitive
A Crayfish	*Fallicambarus harpi*	Local viability concern

Common_Name	*Scientific_Name*	Viability Concern Classification
Fish		
Ouachita Madtom	***Noturus lachneri***	**Sensitive**
Caddo Madtom	***Noturus taylori***	**Sensitive**
Peppered Shiner	***Notropis perpallidus***	**Sensitive**
Paleback Darter	***Etheostoma pallididorsum***	**Sensitive**
Crystal Darter	***Crystallaria asprella***	**Sensitive**
Ouachita Darter	***Percina* sp. *nov.***	**Local viability concern**
Redspot Chub	***Nocomis asper***	**Local viability concern**
Kiamichi Shiner	***Notropis ortenburgeri***	**Sensitive**
Goldstripe Darter	***Etheostoma parvipinne***	**Sensitive**
Longnose Darter	***Percina nasuta***	**Sensitive**
Ouachita Shiner	***Lythrurus snelsoni***	**Sensitive**

Some sensitive species and species of viability concern are monitored annually, such as the Ouachita darter. Others are monitored or status surveys are conducted periodically, such as for the endemic paleback darter, Caddo madtom and Ouachita madtom. The mussel species' populations are in decline rangewide, while the crayfish and the fish populations appear to be stable. All aquatic species habitat is protected by the streamside management area water quality protective measures; therefore, it is expected that all aquatic species will be provided conservation protection from any impacts due to Forest activities. No changes are recommended to the Forest Plan or monitoring protocols at this time.

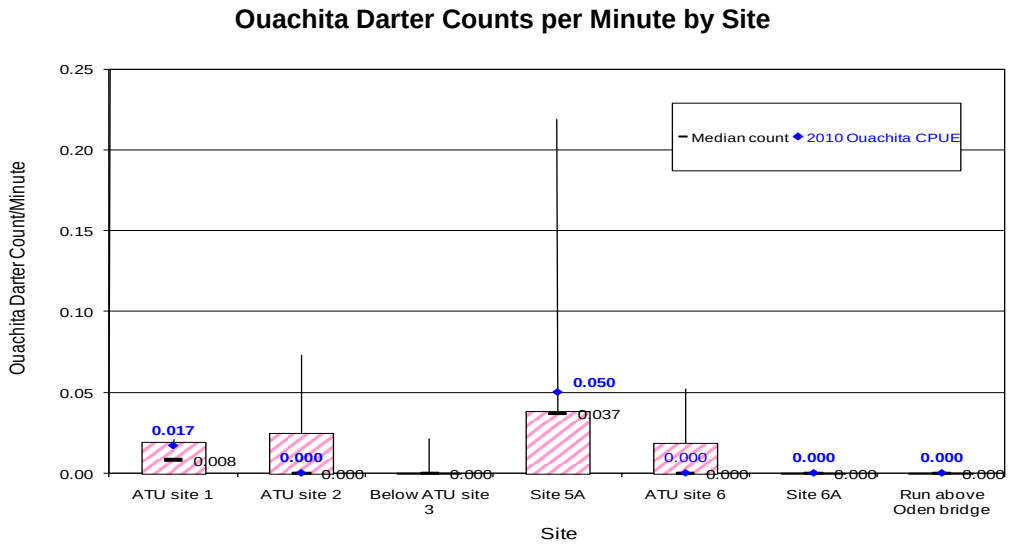
Ouachita Darter *(Percina sp. nov.)*

Ouachita darter snorkel surveys were initiated in 2004 as an annual survey from Shirley Creek Canoe Camp downstream to the Arkansas 379 Highway Bridge at Oden. During subsequent monitoring, sites originally surveyed during an Arkansas Tech University study have been utilized with modifications, such as adding or deleting sites based on flow conditions or occupancy by anglers. The Ouachita darter surveys are conducted in late summer/early fall during low flow conditions.

Ouachita Darter
Source: Rich Standage, USFS

A personal services contract was awarded to Arkansas Tech University in 2009 to look for the stargazing darter (*Percina uranidea)* in the Ouachita River, with one found. It and 19 Ouachita darters were captured by trawls further downstream in the transition zone of the river and Lake Ouachita backwaters. This work was expanded into a Challenge Cost Share project undertaken by a graduate student from Arkansas Tech and his major professor. Work continued on the stargazing darter and the Ouachita darter for the next two field seasons with the final report due in FY 2011. Preliminary results indicate there are Ouachita darters in the stretch of the Ouachita River the Ouachita NF is monitoring, but the larger populations are found further downstream.

A snorkel survey was conducted in 2010 at the survey sites previously utilized for Forest monitoring utilizing Forest personnel and the graduate student and two of his co-workers. One Ouachita darter was found at the upstream site below Shirley Creek Camp and four Ouachita darters were found at site 5a, where single individuals have been found in two prior surveys in almost the same spot and where two were found in 2009. Based on this and previous surveys, the Ouachita darter population in this section of the river appears viable. Continued monitoring will better assess the variability in its numbers in this section of the river and the monitoring efforts may be fine-tuned utilizing the latest results from the Arkansas Tech University study.



Game Fish Habitat

The desired condition for game fish habitat in the 2005 Forest Plan is as follows: *"Fishable waters support high-quality angling opportunities."*

Habitat for game fish and recreational opportunities for fishing are being protected, enhanced or maintained by: monitoring of bass and sunfish spawn with supplemental stocking requested from the state as needed; structural habitat improvements (fish attractors/cover); fertilizing and liming to increase productivity and reduce excessive aquatic vegetation; access improvements; and annual to biannual electrofishing to monitor the adult fish populations of Ouachita NF lakes and select ponds. Annual channel catfish stocking continued in most managed recreational fishing waters in close coordination with the fish and game agencies of each state.

Objective 27 states, "*Maintain recreational fishing opportunities of stocked lakes and ponds."*

This objective is being met by activities that protect, enhance, or maintain fishing recreational opportunities. Monitoring of bass and sunfish spawn by shoreline seining is conducted with supplemental stocking requested from the state as needed. Structural habitat improvements (fish attractors/cover) are added to enhance fish habitat. Fertilization and liming is used to increase productivity and reduce excessive aquatic vegetation. Access improvements are made to increase the ease of access to various fisheries. Annual to biannual electrofishing is conducted to monitor the adult fish populations of Ouachita NF lakes and select ponds. Annual

channel catfish stocking is occurring in most managed recreational fishing waters in close coordination with the fish and game agency of each state. In 2010, additional fish sampling was continued to monitor shad populations that were introduced into the two lakes, and control measures were undertaken, as it appeared the gizzard shad population was negatively impacting game fish populations in Cedar Lake.

Aquatic Habitat Enhancement Activities

The desired condition for fish habitat states, *"Movement of fish and other aquatic organisms are not obstructed by road crossings, culverts, or other human-caused obstructions."*

Objective 40 also addresses aquatic organism passage: *" Improve aquatic organism passage on an average of no less than six stream crossings per year (where there are road-related barriers to passage)."*

To address the desired condition and Forest Plan objective, 14 miles of improved fish passage and 17.5 miles of stabilized stream habitat resulted from FY 2010 work. Six failing road crossings were replaced with aquatic organism passage-friendly structures. Two crossings were specifically replaced to restore fish passage. Two crossings were ramped with riprap to restore fish passage using timber sale receipts. A failed low-water crossing was replaced in Oklahoma in cooperation with the McCurtain County Roads Department with fish passage provided by over-sizing. A campsite on Long Creek and several more on the banks of the Cossatot River were closed or rehabilitated to stabilize the streambank and reduce sedimentation of their respective waters.

Old Road 73 crossing of Polk Creek

Replacement Road 73
low-water crossing with fish passage

Prior Road 28970 blown-out crossing.

Replaced Road 28970 crossing designed for fish passage

Failed low-water crossing in Oklahoma

Replaced low-water crossing oversized and set below grade to restore fish passage

The tabulation below displays a summary of all activities undertaken during the last 5 years to improve aquatic habitat.

Activity	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
	Acres or Units				
Lake Fish Attractors Installed	**16**	**65**	**48**	**73**	**40**
Stream Fish Structure/Fish Passage Restored	**53**	**13**	****45**	**20**	******14**
Fishing Pond/Lake Constructed	**0**	**0**	**1**	*****1**	**0**
Fishing Pond/Lakes Enhanced/fertilized, limed, etc.	**970**	**1,281**	**558**	**474**	**548.5**

** 11 miles of stream fish structure/ fish passage restoration resulted from 2 crossings replaced with fish friendly designs and 34 miles of stream crossings stabilized.
***One two-acre pond reconstructed due to dam wash-out.
****14 miles of improved fish passage and 17.5 miles of stabilized stream habitat resulted from this year's work for a total of 31.5 miles of improvement

Heritage Resources

There are two objectives for the Heritage Stewardship Program:

> *OBJ20. Complete a Forest overview of heritage resources by 2007 incorporating the results of 20+ years of Section 106 and Section 110 work and documentation.*
>
> *OBJ21. Drawing upon the heritage resources overview, complete a Heritage Resources Management Plan by 2010..*

Review of Progress toward Desired Condition, Priorities, and Objectives

The Heritage Overview, originally due in 2007, has been completed in draft form except for the historical background chapter. The process of drafting the Heritage Overview has been prolonged due to other priority projects, causing the GIS data originally drafted for the Heritage Overview to be somewhat dated.

Review of Trends Revealed Through Monitoring

The Heritage Management Plan was scheduled to be completed by FY 2010. The Heritage Management Plan is dependent upon the completion of the Heritage Overview. After the Heritage Overview is complete, reviewed by the State Historic Preservation Officers and Tribal Historic Preservation Officers, the Heritage Management Plan will proceed to completion.

Priority Heritage Assets (PHAs) are monitored on a 5-year rotation where 20 percent of PHAs are monitored each year. This schedule permits all sites that the Forest Service has invested in to be reviewed every 5 years. The reviews address interpreted sites, sites with management plans, any site that is registered in the National Register of Historic Places, cemeteries, and sites with hazards or severe maintenance needs. Although this schedule is highly effective for the types of sites listed above, there are other important sites that are rarely being monitored.

Archeological collections are Priority Heritage Assets. Additional effort will be required to properly curate archeological collections. Native American Graves Protection and Repatriation Act (NAGPRA) inventory is a high priority and additional emphasis by all districts is needed to assure compliance. Archaeological Resources Protection Act (ARPA) of 1979 required more consistent monitoring, particularly in instances when damaged sites are found. It is required that ARPA documentation be forwarded to Tribes.

Heritage Resources- Emerging Issues

A measurement of how well the Heritage Program is functioning is a scored review of “Heritage Program managed to standard.” The measurement includes scoring on program planning; Section 110 inventory, evaluation and nomination; PHA condition assessments; PHA stewardship;, scientific study; and the number of volunteer hours contributed. This measurement is separate from the requirements of Section 106 work. A score of 45 is required to meet the criterion of “managed to standard.” Fiscal Years 2010 and 2011 were a trial period for Heritage managed to standard. By FY 2012, the measurement will be fully implemented. For FY 2010, the Ouachita score was 47.

In order to address the Heritage Program Managed to Standard requirements, projects will not be considered complete until the following actions occur prior to decision notices being signed:

- Archeological inventory is conducted
- Compliance documents are forwarded to SHPO/THPOs for review and comment

- Comments are received from SHPO/THPOs or 36 days have elapsed without comment
- INFRA data input is complete

Archeological survey coverage and site locations should be in GIS within 45 days following the signing of a decision notice. Collections are to be submitted to the Supervisor's Office for curation by the end of the 36 day SHPO/THPO comment period.

The Forest Plan may need to be amended to include additional standards to require completion of the heritage process.

Tribal and Native American Interests

There is only one objective for the Tribal and Native American Interests aspect of the Heritage Program as follows:
OBJ 22. Revise the Programmatic Agreement with SHPOs and THPOs by 2011.

Review of Progress toward Completion of the Programmatic Agreement

Working with the Ozark-St. Francis National Forests, the Ouachita NF drafted a revised Programmatic Agreement to guide the Section 106 (National Historic Preservation Act) work. The current agreement has been extended through January 2012, at which time it will expire. The newly revised agreement, now in draft form, is the result of consultations, both written and face-to-face, with the Oklahoma SHPO and State Archeologist, the Arkansas SHPO and numerous Tribes, including: The Absentee Shawnee Tribe, Alabama-Quassarte Tribal Town of Oklahoma, Caddo Nation, Cherokee Nation of Oklahoma, Chickasaw Nation, Choctaw Nation of Oklahoma, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe, Jena Band of Choctaw Indians, Kialegee Tribal Town, Miami Tribe of Oklahoma, Mississippi Band of Choctaw Indians, Muscogee (Creek) Nation, Osage Nation, Peoria Tribe of Indians of Oklahoma, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Shawnee Tribe, Thlopthlocco Tribal Town, Tunica-Biloxi Tribe of Louisiana, Inc., United Keetoowah Band of Cherokee Indians, and Wichita and Affiliated Tribes.

The new agreement will streamline the Section 106 processes, clarify specific processes (some of which were confusing in the current agreement), and strengthen our commitment to working with the State Historic Preservation Officers and Tribes. The goal is to have this revised agreement signed by the time the existing agreement expires in January 2012.

Recreation and Scenery Management

Abundant opportunities exist for the public to use and enjoy the Ouachita National Forest. Areas or facilities include developed recreation sites, semi-primitive and wilderness areas, and trails. Recreation participation, activities, and services contribute to visitors' physical and mental well-being and represent a variety of skill levels, needs, and desires. Quality fish and wildlife habitat and a variety of access opportunities are available to the public. Facilities and infrastructure are high quality, well maintained, safe, accessible, and consistent with visitors' expectations. Primitive recreation opportunities are maintained on at least 70,000 acres, semi-primitive recreation opportunities on at least 136,000 acres, and roaded-natural recreation opportunities on much of the remainder of the Forest. Existing "rural" recreation opportunities in developed recreation areas are maintained.

OBJECTIVE 23: Conduct maintenance on at least 300 miles of trails (non-motorized use) per year.

In FY 2010, 150 miles of non-motorized trail were reported to be maintained to standard; however, this figure corresponds to the Forest's assigned "target" that year. Thanks to the efforts of volunteer trail groups and district employees, the actual accomplishment was much higher.

OBJECTIVE 24: Maintain all recreation facilities to standard.

In FY 2010, 110 of 118 recreation facilities were maintained to standard. It is of note that several sites were located within the Albert Pike Recreation Area and, due to flood damage, were not managed to standard due to numerous safety concerns that had yet to be mitigated.

OBJECTIVE 25: Improve accessibility within at least one recreation site per year.

Portions of Albert Pike Campground Loop C were improved for accessibility, but this loop was not opened to the public due to flood damage and related safety concerns.

OBJECTIVE 26: Designate and sign a system of roads and trails suitable for public access by motor vehicle, including off-highway vehicles, no later than October 2009; at the same time, initiate the process to prohibit cross country travel by motorized vehicles except for emergency purposes and specific authorized uses.

This objective was accomplished in 2010-2011. See the discussion in the transportation section of this document.

OBJECTIVE 27: Maintain recreational fishing opportunities of stocked lakes and ponds.

For an overview of recreational fishing conditions, see the Fisheries section of this document.

OBJECTIVE 28: Improve or maintain all designated scenic overlooks at least once per decade.

Of 38 scenic overlooks on the Forest, all were maintained, and the Sugar Creek overlook was improved. Growing vegetation that interferes with viewing continues to pose challenges at some vistas.

Developed Recreation Areas

There are approximately 5,189 acres devoted to developed recreation encompassing some 118 separate uses on the Ouachita NF; of these, 19 are Forest Service-operated "fee" sites. Development ranges from an essentially natural environment with few facilities to a high degree of site development with comfort and convenience facilities, including features such as paved roads, water systems, flush toilets, and boat-launching ramps. Included within this management unit are campgrounds, picnic areas, horse camps, interpretive and observation sites, information sites, float camps, shooting ranges, and swimming areas.

Occupancy rates are not tracked at non-fee sites. Of the recreation sites that are operated as fee sites, occupancy rates are not relevant for the five day use areas (at Cedar Lake, Lake Sylvia, Shady Lake, Little Pines, and Charlton Recreation Areas). Estimated occupancy rates for the remaining 14 fee sites are included in the following tabulation:

Recreation Sites Estimated Occupancy Rates, ONF

Recreation Site Name	Recreation Site Type	% Average Occupancy FY 2006	% Average Occupancy FY 2007	% Estimated Occupancy FY 2008	% Estimated Occupancy FY 2009
Billy Creek	Campground	6	6	5	5
Cedar Lake	Campground	9	18	32	32
Cedar Lake	Horse Camp	26	26	22	22
Winding Stair	Campground	12	15	10	11
Albert Pike	Campground	31	20	29	30
Bard Springs	Campground	6	4	2	4
Knoppers Ford	Campground	9	9	7	6
Camp Ouachita	NFS - Organization Site	5	1	1	1
Lake Sylvia	Campground	11	0	19	20
South Fourche	Campground	6	6	1	3
Shady Lake	Campground	15	11	8	10
Little Pines	Campground	13	13	32	31
Camp Clearfork	NFS - Organization Site	47	47	52	58
Charlton	Campground	11	12	32	32

The Ouachita NF relies on fee collections to monitor use patterns/trends at recreation sites. Because fees were not changed during the years FY 2005 – FY 2009, the data in the graph below show increasing use of fee collection recreation sites. FY 2010 data are unavailable, but the trends are expected to continue on the same path with several notable exceptions.

In June, 2010, a major flash flood swept through Albert Pike Recreation Area, resulting in 17 fatalities (3 more campers died in an undeveloped area upstream). Except for a brief period during the fall of FY 2010, this site has been closed since the time of the flood, and plans are being developed to begin a public process to ascertain what, if any, developed public use will occur at Albert Pike in the future.

Additionally, in April, 2011, a flash flood swept through the Charlton Recreation Area, resulting in damage to recreation infrastructure, but fortunately, no fatalities. The recreation site remained closed to visitors while hazards were mitigated and removed and infrastructure reconstructed to standard.

Total Recreation Area/Campground Fee Collections 2005-2009, ONF

New major recreation project proposals are now subjected to a more rigorous safety evaluation process at the Forest and regional level to ensure customer satisfaction, financial sustainability, environmental soundness, and improving operational effectiveness of facilities and services. Also, recreation operations and capacity to do work has changed drastically from the previous planning period with the loss of the Senior Community Service Employment Program. Many of the daily maintenance tasks, such as mowing and bathroom cleaning, conducted previously by the senior enrollees are now contracted or accomplished with Title II funding via the Secure Rural Schools and Self Determination Act.

Based on the 2005 National Visitors Use Monitoring program, overall satisfaction ratings were very high – over 80 percent of visitors to the Ouachita NF were very satisfied with their overall experience. The composite index results were also quite high. Across all types of sites, and all composite measures, satisfaction ratings were above the national target of 85 percent satisfied.

Trails

The Forest provides a diverse array of trails including equestrian, off-highway-vehicle (OHV), hiking/mountain bike and interpretive. Primary trail-based opportunities occur in the Wolf Pen Gap OHV area, along the Ouachita National Recreation Trail, on the Cedar Lake Equestrian trails system in Oklahoma, the International Mountain Bicycling Association “epic” Womble mountain biking trail and the Lake Ouachita Vista Trail. Key to the development and maintenance of these trail systems is the involvement of dedicated, well trained trail enthusiasts such as the Friends of the Ouachita Trail, the Arkansas ATV Club and the Trail Dogs.

Trends Revealed through Monitoring, Trends Related to Forest Plan Objectives/Desired Conditions, and Emerging Issues

Trails

Demand for OHV riding opportunities is very high on the Forest, and such demand presents management challenges to provide OHV riding places, protect natural resources, and balance recreational needs for quiet and solitude within the Ouachita NF.

Recreation Objectives/ Measures and Priorities

The priorities should be updated to incorporate language that emphasizes the importance of aligning the program to the Forest niche, and providing a mix of recreational opportunities in line with public demands and recreation use trends. Financial and environmental sustainability are also constraints that need to be incorporated into the desired condition.

The Forest should distance itself from quantities and percentages of offerings as these change over time based on demand and supply factors. A focus on quality of desired outcomes as defined by recreation segment would be more appropriate.

Additional partnerships with enthusiasts and other interested parties should be developed to sustain interest and supplement Forest budgets in order to meet many of the defined Forest priorities. Forest objectives and priorities should recognize that the Forest is a part of a larger recreation-tourism system that includes the recreationists, businesses and other providers. Also, Forest objectives and priorities should provide opportunities for recreation-tourism systems to be engaged to perpetuate and enhance the lands the Forest is entrusted to manage.

Additional activities to address Desired Conditions and recreation objectives could include:

- Designating the Glover River as a Wild and Scenic River (WSR) would help meet forest-wide desired conditions for aquatic and riparian ecosystems, Threatened and Endangered species habitat, watershed health, and public use and enjoyment (including conservation of areas having a scenic integrity). Pending congressional action, an approximately ½-mile wide corridor of the roughly 16.5-mile segment of the Glover River within the Ouachita National Forest is managed as part of MA 20c.
- The Outstandingly Remarkable Values for which two designated rivers were added to the Wild and Scenic River System are being protected by evaluating water resource projects, protecting water quality and managing recreation use as required in the 2005 Forest Plan for the Ouachita National Forest. However, Comprehensive River Management Plans (CRMP) are outdated in the case of the Little Missouri WSR or non-existent in the case of the Cossatot WSR. The CRMPs provide specific implementation level actions and strategies that would better direct and enhance WSR management operations for the Forest's WSRs. River management plans need to be updated.

OBJECTIVE 29: Conduct inventories to determine the presence and extent of non-native invasive species in wildernesses by 2010; based on results of these inventories, develop and implement appropriate monitoring and treatment programs.
See the discussion of this objective in the NNIS section of this document (begins page 82).

OBJECTIVE 30: Update all Wilderness Management Plans, including monitoring components, wilderness education, and restoration needs, by 2008.

No Wilderness Management Plans have been updated. This is largely due to the loss of the Forest Wilderness Specialist several years ago. The position remains vacant and is likely to

remain vacant for the foreseeable future. Despite lack of progress on Wilderness Management Plans, surveys of the Wilderness areas reveal that they are in reasonable condition due primarily to the general lack of recreation use.

Developed Recreation Areas – Emerging Policy

In June, 2010, a major flash flood swept through Albert Pike Recreation Area, resulting in 17 fatalities (three more campers died in an undeveloped area upstream). Several other Ouachita National Forest developed recreation areas as well as many recreation areas across the country are adjacent to streams, lakes, and rivers, where they may be subject to occasional flooding or flash flooding. Due to the flash flood event at Albert Pike recreation area in 2010, additional guidance may be forthcoming about locating or building such facilities within flood-prone areas. The Southern Region and the US Forest Service as a whole are reviewing and evaluating policies regarding flood-prone areas, and changes may be forthcoming.

Semi-Primitive Areas

Management Area 17, Semi-Primitive Areas, consisting of approximately 136,091 acres, are areas that (a) meet the Recreation Opportunity Spectrum (ROS) criteria for motorized and non-motorized semi-primitive recreation settings and (b) are not included in other MAs. (Wilderness areas (MA 1), the Poteau Mountain Area (MA 1b), portions of some special interest areas (MA 2), and National Forest lands around Broken Bow Lake and Lake Ouachita (MA 16), for example, also offer either semi-primitive motorized or non-motorized recreation opportunities or both.

Management Area 19, Winding Stair Mountain Recreation National Area and Associated Non-Wilderness Designations, consisting of approximately 79,897 acres, contains lands designated by the Winding Stair Mountain National Recreation and Wilderness Area Act of 1988, Public Law 100–499, except for the two wilderness areas, which are included with other Forest wilderness in MA 1, Wilderness. A variety of outstanding recreational opportunities exists in MA 19.

Winding Stair Mountain Recreation National Area by Name and Acreage, ONF

Area Name*	Acres
19a. Winding Stair Mountain National Recreation Area	25,890
19c. Robert S. Kerr Memorial Arboretum, Nature Center, and Botanical Area	8,256
19e. Beech Creek Botanical Area	380
19f. Beech Creek National Scenic Area	6,200
19g. Indian Nations National Scenic and Wildlife Area	29,171
*19b and 19d (Rich Mountain Recreation and Botanical Areas in Arkansas) from the 1990 Forest Plan were moved into MA 2.	

Landscape and Scenery Management

Projects that occur within Management Area 2, Special Interest Areas, and Management Area 16, Lands Surrounding Lake Ouachita and Broken Bow Lakes, are focus areas for Forest management to consider Scenery Integrity Objectives. Other areas were identified during the 2005 Forest Plan as having high degrees of scenic integrity.

Management Area 2, Special Interest Areas is devoted to areas of the Ouachita NF that possess characteristics of unique features, most with high quality scenery. Within this Management Area there are approximately 27,313 total acres, including the following:

2a. Scenic Areas, approximately 2,700 acres
2b. Watchable Wildlife Areas, approximately 5,853 acres
2c. Botanical Areas: Rich Mountain, approx. 3,200 acres, and South Fourche, approximately 2,580 acres (the Cove Creek Lake Project Area, approximately 324 acres surrounded by the South Fourche Botanical Area, is specifically excluded from the botanical area)
2d. Rich Mountain Recreation Area, approximately 12,980 acres

Special Interest Areas consist of Scenic Areas, Watchable Wildlife Areas, two Botanical Areas, and one large, undeveloped recreation area (Rich Mountain). There are areas specifically designated as scenic areas (shown in the following tabulation), and three of these—Blowout Mountain, Dutch Creek, and Crystal Mountain—are also designated to sustain characteristics of old growth shortleaf pine-hardwood forests.

Scenic Area – MA 2a.	Ranger District	Acres
Blowout Mountain	**Oden**	**526**
Dutch Creek Mountain	**Cold Springs, Fourche**	**624**
Crystal Mountain	**Caddo, Womble**	**100**
Irons Fork	**Jessieville**	**1,450**

Two designated Watchable Wildlife Areas are listed as part of Management Area 2: Red Slough (5,815 acres) on the Tiak Unit of the Oklahoma Ranger District and Richardson Bottoms (38 acres) on the Jessieville Unit of the Jessieville/Winona/Fourche Ranger District. Other Watchable Wildlife Areas, such as Buffalo Road Shortleaf Pine-Bluestem Restoration Area Auto Tour and Blue Moon Wildlife and Fisheries Demonstration Area in Management Area 22, are found throughout the Forest within other Management Areas. Rich Mountain Botanical Area and Rich Mountain Recreation Area are on the Mena Ranger District.

There are two congressionally designated botanical areas in Oklahoma—Beech Creek Botanical Area and Robert S. Kerr Memorial Arboretum, Nature Center, and Botanical Area; and they are addressed in MA 19 along with the other non-wilderness areas designated by the Winding Stair Mountain National Recreation Area and Wilderness Act.

Management Area 16, Lands Surrounding Lake Ouachita and Broken Bow Lake, containing approximately 87,153 acres, includes National Forest System lands surrounding Lake Ouachita in Arkansas and Broken Bow Lake in Oklahoma. All management activities within this area are designed to address wildlife and recreation objectives and the protection of resource values for each lake. The overriding objective is to sustain the unique combination of representative recreational, aesthetic, wildlife, and water quality values. Scenic integrity is to be maintained so

that visitors on the lakes or shorelines view the surrounding lands as predominantly naturally-appearing with little or no addition of road miles to the transportations system. Portions of this MA are suitable for some timber management activities; others such as steep slopes are unsuitable. Management Area 16 is available for oil and gas exploration and leasing with controlled surface use stipulations.

Wild and Scenic Rivers (National Wild and Scenic Rivers System)

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations and to safeguard the special character of these rivers. Management Area 20, Wild and Scenic River Corridors and Eligible Wild and Scenic River Corridors, containing approximately 26,571 acres, was established on the Ouachita NF to manage river segments designated or eligible for consideration as components of the National System of Wild and Scenic Rivers.

Currently, the Cossatot and Little Missouri Rivers are the only designated Wild and Scenic Rivers within the Ouachita NF. The eligibility and suitability of the Glover River in southeastern Oklahoma was studied as part of a significant amendment to the 1990 Forest Plan, completed in 2002. The Glover River's "outstandingly remarkable" values are described in Appendix B of the Environmental Impact Statement for that amendment, and a recommendation that 16.5 miles of the Glover River in McCurtain County, Oklahoma, be added to the National Wild and Scenic Rivers System with a designation of "scenic" was part of the Record of Decision. A review of other eligible rivers during the 2005 Forest Plan revision studies revealed none suited for recommendation by the Forest Service as a National Wild and Scenic River, because these rivers are bordered by too little National Forest System land.

Wilderness (National Wilderness Preservation System)

There are six wilderness areas totaling approximately 64,469 acres located within the Ouachita NF, one with land in both Arkansas and Oklahoma (Black Fork Mountain Wilderness), four in Arkansas (Caney Creek, Poteau Mountain, Dry Creek, and Flatside), and one in Oklahoma (Upper Kiamichi). The six wilderness areas were congressionally designated in three separate acts, as shown below.

- The Eastern Wilderness Act of 1975, Public Law 93-622: Caney Creek Wilderness, Arkansas (14,460 acres).
- Arkansas Wilderness Act of 1984, Public Law 98-508: Black Fork Mountain Wilderness (8,350 acres); Poteau Mountain Wilderness (11,299 acres), Dry Creek Wilderness (6,310 acres) and Flatside Wilderness (9,507 acres), all in Arkansas.
- Winding Stair Mountain National Recreation and Wilderness Area Act of 1988, Public Law 100-499: Black Fork Mountain Wilderness (4,789 acres) and Upper Kiamichi Wilderness (9,754 acres), both in Oklahoma.

The eligibility and suitability of certain areas within the Ouachita NF for possible future wilderness designation were studied during compilation of the 2005 Forest Plan. Lands adjacent to Flatside Wilderness (620 acres) and the East Unit of Poteau Mountain (77 acres) in Arkansas and Upper Kiamichi Wilderness (1,096 acres) in Oklahoma are recommended for addition to the

National Wilderness System, primarily because adding these lands to the National Wilderness Preservation System would establish more logical and manageable boundaries for these areas. Completing these additions would also be consistent with Forest Plan desired conditions for public use and enjoyment of National Forest System lands, including conservation of opportunities for semi-primitive recreation settings.

The proposed Flatside Wilderness and Poteau Mountain additions in Arkansas and Upper Kiamichi Wilderness addition in Oklahoma are contiguous to existing wilderness boundaries, would increase visibility and ease of identification of wilderness versus non-wilderness areas, would create more manageable overall boundaries for administrative purposes, and would add areas of scenic value to each wilderness. The recommended wilderness additions total 1,793 acres. If Congress adds these areas to the National Wilderness Preservation System, they will become part of MA 1a.

These recommendations are preliminary administrative recommendations that will receive further review and possible modification by the Chief of the Forest Service, the Secretary of Agriculture, and/or the President of the United States. Congress has reserved the authority to make final decisions on wilderness designation.

Wilderness Stewardship Headwater Stream Sampling

In FY 2010, the Regional Office Air Program provided the funding and opportunity to achieve one of the Wilderness Area Stewardship Challenges for the Forest, through the national initiative for Wilderness Air Quality Sampling. Funding was provided to sample headwater streams of wilderness areas within each geological ecoregion of the Forest, and/or in any Class I Wilderness Areas, particularly focusing on stream water chemistry on National Forest System lands as influenced by atmospheric deposition. The FY 2010 water collection is the first in this 3-year sampling effort. After consulting with the Forest Soil Scientist, a team consisting of the Forest Stream Ecologist, Botanist, and Recreation Specialist, sampled three to four headwater streams in each of the four wilderness areas including; Caney Creek (Class I), Dry Fork, Flatside and Upper Kiamichi.

Upon completion of the data and stream sample collections, the water samples and data forms were sent to the analytical laboratory immediately. Results indicate that the acid neutralizing capacity (ANC) for 10 of the streams were >50 microequivalents/liter (µeq/l) falling in the 'Not or Minimally Affected by Acidification' category. Only two streams (Passube Creek in the Upper Kiamichi Wilderness, and Caney Creek in the Caney Creek Wilderness) fell into the 'Sensitive to Acidification' category which was between 20-50 (µeq/l) in two streams. None of the wilderness area streams that were sampled fell into the 'Episodically Acidic' (0-20 (µeq/l) or the 'Chronically Acidic' (<0 (µeq/l) categories.

These streams will be sampled again in FY 2011 and FY 2012, providing a baseline data set that can be used to periodically monitor wilderness area streams for acid deposition. The Caney Creek Wilderness will be sampled annually since it is the only Class I Wilderness within the Ouachita NF.

Conservation Education and Stewardship

People connect to the land and to each other, aided by high-quality public information, interpretive services, and environmental education programs or activities, with nonprofit partners often in a lead or cooperating role. Proactive conservation education efforts reach both traditional and nontraditional users and lead to a greater citizen understanding, appreciation, advocacy, and participation in forest stewardship and ecosystem conservation.

Particular emphasis is placed on an ecosystem-based approach to management that takes into account the roles of the Ouachita NF as a contributor to local quality of life, including opportunities for sustainable economic development through recreation, tourism, and carefully designed timber harvests; as a producer of clean water; as a provider of habitat vitally important to many native species; and as a source of wildlife, wilderness, and abundant recreation opportunities. Through public involvement programs associated with project-level and plan-level activities, connections are made with the American people on the importance of public land heritage stewardship.

Each year, specialists meet with civic groups, conservation partners, and education providers to deliver public information, interpretive services, and environmental education programs/ activities. Conservation Education Programs are documented within the Nature Watch section of the Wildlife, Fish and Rare Plants (WFRP) database. As of 2010, the newspaper circulation numbers from conservation education information articles will not be added to the numbers of presentations or the numbers of individuals reached. Only conservation education programs presented by Ouachita NF personnel to groups of individuals in person are counted. The tabulation below presents the number of conservation education products/presentations and the estimated number of people reached for the past 5 years.

Conservation Education Presentations, FY 2006 – 2010, ONF

Year	# of presentations	# of Individuals age < 18 yrs	# of Individuals age > 18 yrs	Total # of individuals
2006	296	341,232	2,134,363	2,475,595
2007	270	59,200	1,816,687	1,875,877
2008	430	45,958	1,642,050	1,688,008
2009	589	433,017	1,096,788	1,529,805
2010	220	76,229	3,313	*79,542

Source: Wildlife, Fish and Rare Plants (WFRP) database

* Newspaper circulation numbers from conservation education information articles are not counted FY 2010 forward.

"Restoration, for me, means managing forest lands first and foremost to protect our water resources while making our forests far more resilient to climate change. In many of our forests, restoration will also include efforts to improve or decommission roads, to replace and improve culverts, and to rehabilitate streams and wetlands. Restoration will also mean the rehabilitation of declining ecosystems."

Tom Vilsack
Secretary, U.S. Department of Agriculture
August 14, 2009

Transportation

Review of the transportation system for the 5-year Review of the Forest Plan includes an overview of the Forest transportation system and a discussion of Access and Travel Management.

Transportation System

There are four objectives stated for the Ouachita National Forest transportation system:

- *OBJ36: Complete a transportation plan for the Ouachita National Forest by late 2007 that (among other things) addresses the backlog of maintenance and reconstruction needs.*
- *OBJ37: By 2015, identify all system roads that should be obliterated.*
- *OBJ38: Obliterate 25 percent of roads identified under the previous objective by 2015 (many such needs to obliterate roads will be identified well before 2015).*
- *OBJ39: Reduce miles of road under Forest Service maintenance.*

Miles and percentages of roads by maintenance level for FY 2010 are presented in the tabulation below.

FY 2010 Miles and Percentages of Roads by Maintenance Level, ONF

Maintenance Level	Miles	Percentage
1 - BASIC CUSTODIAL CARE (CLOSED)	2674.37	46.2
2 - HIGH CLEARANCE VEHICLES	1640.95	28.3
3 - SUITABLE FOR PASSENGER CARS	1217.03	21.0
4 - MODERATE DEGREE OF USER COMFORT	205.10	3.5
5 - HIGH DEGREE OF USER COMFORT	18.93	0.3
D - DECOMMISSION	35.68	0.6
Grand Total	5792.07	100.0

During FY 2010, 500 miles of road were operated and maintained to meet objective maintenance levels and classes. Declining road maintenance budgets are contributing to difficulties in meeting objective maintenance levels and classes.

During FY 2010, 7.96 miles of arterial/collector roads (3 roads) were reconstructed. The tabulation below displays miles and number of arterial/collector roads reconstructed by fiscal year. For the past 5 fiscal years, no new arterial/collector roads were constructed.

Miles and Number of Arterial/Collector Roads Reconstructed by FY, ONF

Arterial/Collector Roads Reconstructed	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Miles	15.56	6.44	6.44	1.94	7.96
Number of Roads	7	4	4	4	3

Work has been accomplished to reconstruct local roads. The tabulation below displays road reconstruction during the past 5 fiscal years. There is no clear trend related to miles of road reconstructed. Usually accomplishments are budget and repair need driven.

Road Reconstruction by FY, ONF

Local Roads Reconstructed	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Miles	55.4	34.20	28.17	1.94	13.62

During FY 2010, 3.29 miles of local roads (5 roads) were constructed and added to the system. The tabulation below displays the miles of local roads constructed and added to the National Forest Road system by fiscal year.

Local Road Miles Constructed and Added to the NF System by FY, ONF

Local Roads Constructed & Added to the System	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Miles	15.99	4.28	8.54	21.00	3.29
Number of Roads	22	NR	NR	8	5

NR=Not Reported

There were no roads removed from the system during FY 2010.

Roads Removed from the NF System by FY, ONF

Roads Removed from the System	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Miles	204.35*	12.30	2.70	2.04	0.00

* The seemingly large number of road closures in FY 2006 was not a result of a management action, rather an administrative correction due to ground- truthing of actual road condition and correction in the official database of record.

Access/Travel Management

Development of the Ouachita NF transportation system was substantially completed prior to the mid 1980's. Road reconstruction and construction has traditionally been accomplished through the timber sale program; however, road work in timber sales now is mostly system road maintenance/reconstruction and use of temporary roads accomplished using road purchaser provisions in the timber sale contract.

Funding for road maintenance has essentially remained flat since the early 2000's and has resulted in choices on the level and degree of maintenance needed, such as whether to close roads, provide maintenance to surface drainage, culverts, bridges and aggregate surfacing. In 2011 this trend changed to a substantial decrease in available road maintenance funding. This decrease has already reduced on-the-ground work, and this reduction is expected to continue into the foreseeable future. Decisions about the operational level of all roads and even possible closures will have to be discussed as the Ouachita NF moves forward. Roadside mowing, trimming large vegetation, and other measures are still necessary for safety, but the available, limited funding is not meeting the need. The Forest has not utilized stewardship contracts to address road maintenance, but use of stewardship contracts may be used in the near future.

With sustained reduced funding levels for road maintenance, serviceability of the road system will continue to decline and could result in a future need for road reconstruction. Currently, 3,243 miles of open system road and 2,544 miles of closed system road exist on the Forest.

Travel Management Program

Travel planning is intended to identify opportunities for the Forest transportation system to meet current or future management objectives, based on ecological, social, cultural, and economic concerns. On November 9, 2005 the Forest Service passed regulations to combine and clarify existing regulations at 36 CFR part 212 governing administration of the forest transportation system and regulations at 36 CFR part 295 governing use of motor vehicles off National Forest System (NFS) roads. A Travel Management Program was established with a final rule issued as part 212, Travel Management, covering the use of motor vehicles on NFS lands. The regulations implemented Executive Order (EO) 11644 (February 8, 1972), ‘‘Use of Off-Road Vehicles on the Public Lands,’’ as amended by EO 11989 (May 24, 1977). Those Executive orders directed Federal agencies to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. The Forest Service *Travel Management Rule* has three parts:

- Subpart A – Administration of the Forest Transportation System;
- Subpart B – Designation of roads, trails, and areas for motor vehicle use; and
- Subpart C – Use by over-snow vehicles.

During FY 2010, the Forest, under Subpart B of the Travel Management Rule (designation of roads, trails, and areas for motor vehicle use), completed a travel management environmental analysis and signed the NEPA decision. All related GIS and INFRA data were refined and updated. As a part of the project, the Forest completed the forest-wide travel analysis which provided current data for the Motor Vehicle Use Maps.

Five Motor Vehicle Use Maps (MVUMs), one for each administrative cluster of Ranger Districts, were prepared displaying the routes and, in some cases, seasons designated for motor vehicle

use. This effort resulted in a set of MVUMs designating routes on NFS lands where motor vehicles are allowed to travel.

In the near future, the Forest will begin to work on Subpart A, Administration of the Forest Transportation System. Subpart A requires that every National Forest complete a travel analysis process (TAP) to identify the minimum road system. Per 36 CFR Part 212.5(b)(1), "The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance." The process requires, among other things, a review for access and effects on water quality. These two reviews are explained below:

- **Access.** As prescribed by 16 USC 532 (the Forest Roads and Trails Act), "The Congress hereby finds and declares that the construction and maintenance of an adequate system of roads and trails within and near the national forests and other lands administered by the Forest Service is essential if increasing demands for timber, recreation, and other uses of such lands are to be met; that the existence of such a system would have the effect, among other things, of increasing the value of timber and other resources tributary to such roads; and that such a system is essential to enable the Secretary of Agriculture …to provide for intensive use, protection, development, and management of these lands under principles of multiple use and sustained yield of products and services." The TAPs should identify the adequate system of roads and trails to provide for intensive use, protection, development, and management of NFS lands. As such, they should address user safety and environmental impacts, and provide for an optimum balance of access needs and cost. Roads, trails, and bridges that are unsafe and where unacceptable risks cannot be eliminated or mitigated due to a lack of funding should be identified for closure or decommissioning. Unneeded, temporary, and unauthorized routes should be identified for decommissioning. After appropriate NEPA decisions are made to implement TAP recommendations, the next MVUM revision must be in agreement with those decisions.
- **Environmental.** One major analysis component of the TAPs is impact of the road system on water quality. In those cases where high road densities on NFS lands are a major factor in causing watersheds to be at risk or impaired, some roads should be identified for decommissioning in order to reduce the impacts and improve the classification. Also it should be recognized that some roads are poorly located and should therefore be eliminated, while new roads might be needed to replace them and provide essentially equivalent access in better locations, generally farther away from live streams or wetlands. The Watershed Condition Framework WCF should inform each unit's travel analysis (see discussion of the WCF beginning on page 87 of this report).

In January 2010, the 2005 Forest Plan was amended under authority of 36 CFR 261.13; and routes for public use of motorized vehicles, including off-highway vehicles (OHVs), were designated on a motor vehicle use map (MVUM). Because of the work previously completed under travel management planning and the updated spatial data that were produced as a part of that project, it is anticipated that no further changes in the Forest Plan will be required as Subpart A of the Travel Management Rule is implemented.

Facility Operation and Maintenance

Facility Administration

Management Area 8, Administrative Sites/Special Uses, consisting of approximately 551 acres, includes district ranger offices, district work centers, district residences, Forest Service communication facilities and sites for communication facilities under special use permits, and the administrative site within the seed orchard.

Objective 31 of the Forest Plan is to *"Eliminate three leased facilities by 2015."* Over the past 5 years, good progress has been made on this objective. The leased office for the Tiak Ranger District was eliminated in FY 2009 after completing and moving into the new Leadership in Energy and Environmental Design (LEED) certified District Office in Hochatown. The Ouachita NF also acquired land for a new district office for the Poteau/Cold Springs Districts and developed a site plan for the land that was acquired. The new office will take the place of the leased Poteau office in Waldron. The Forest anticipates office design to be completed in FY 2012 and construction in FY 2013.

Forest Plan objective 32 is to *"Eliminate 30 percent of other nonessential administrative facilities by 2015."* Presently, there are five Ranger District clusters and there is a need to consolidate administrative facilities remnant from the administration of the twelve separate Ranger Districts. Identifying nonessential facilities is limited until District consolidation plans are complete. Two administrative facilities were decommissioned and sold during FY 2009: the Caddo Trailer (Infra #02016) and the Fourche Ranger Residence (Infra #04002). During FY 2010 two additional facilities were decommissioned and will be sold during FY 2011: Kiamichi Ranger Dwelling and shed (Infra #06002 & #06003, respectively).

Objective 33 calls for *"public facilities to [be upgraded to] Architectural Barriers Act standard by 2015."* Facility inspections are undertaken each year. A complete inventory of facilities that require additional work to make them accessible will be undertaken during FY 2012, and the work will be programmed as funding is made available.

Executive Order (EO) 12902 (March 8, 1994), Energy Efficiency and Water Conservation at Federal Facilities, and Executive Order 13123 (June 3, 1999), Greening the Government Through Efficient Energy Management, are aimed at requiring each Federal agency to reduce energy use in buildings and to meet the challenge of global warming by reducing greenhouse gas emissions. To meet the requirements of these EOs, Forest Plan Objective 34 states, *"Complete energy efficiency upgrades on all administrative buildings and complete identified work on 10 percent of administrative buildings needing upgrades by 2015."* The Forest has upgraded three HVAC systems in offices this year to increase efficiency and has installed insulation in one office as well. The Forest will be conducting energy audits at various offices in FY 2012. The audits will be used to determine which additional offices will need energy efficiency upgrades.

Annually, buildings are inspected for "compliance with health and safety standards" in accordance with Forest Plan Objective 35. For the past 5 years, buildings inspected by FS Engineering personnel/staff either met or were corrected to meet standard. Each year, at least one-third of the fire, administration and other buildings and some recreation buildings are inspected by the Engineering Section. For FY 2010, the facility inventory included 341 buildings

that are categorized as follows: Existing - Active, Existing - Inactive, or Existing - Excess. Of those 341 buildings, 292 have a Facility Condition Rating (FCR) rating of “Good” or “Fair.” The percentage of buildings with an FCR of “Good” or “Fair” is 86 percent. Fourteen buildings are rated “Poor” and 35 are unrated. All of the "unrated" buildings are at Camp Ouachita.

Land Administration and Special Uses

The landownership strategy, included in Part 2 of the 2005 Forest Plan, will be continued.

Landline Location, Maintenance, or Management

Forest Plan Objective 17 addresses the need for boundary management. Boundaries were marked or maintenance on 503.5 miles of National Forest System boundary during FY 2006 thru FY 2010. A summary of miles of boundary located or maintained during the last 5 years is shown in the tabulation below.

Miles of Boundary Located or Maintained, by FY, ONF

Year	2006	2007	2008	2009	2010
Miles	52.58	65.00	135.40	136.50	114.02

Protect Land Ownership Title: A total of 34 encroachments, trespass, or unauthorized occupations were resolved during FY 2006 thru FY 2010. For future reports on land administration use of the term “occupancy trespass” will be discontinued and “unauthorized occupancy” will be used.

Land Ownership Pattern and Land Exchanges

To address the priority of using land exchanges and purchases to reduce the complexity of landownership patterns (thereby reducing administrative costs and management challenges), the Forest conducts a fairly active program (within allocated budgets) of land purchases, exchanges, and sales. There are no distinct trends for the land exchange program. The tabulation below displays acres purchased over the last 5 years.

ONF Land Program, Acres Purchased by FY

Year	2006	2007	2008	2009	2010
Acres Purchased	2,257	120	0.00	0.00	27.80

During FY 2010, 160 acres were acquired by the Forest Service (exchanged) using timber sale receipts as compared to FY 2009 when 260 acres were exchanged (140 to proponents and 120 to the FS). No lands were exchanged during FY 2008, which was unusual. During FY 2007, there were 3,978 acres of lands exchanged (To Proponent, 556; to FS, 3,422) as compared to FY 2006 acres of land exchanged of 72.95 acres (To Proponent, 31.95; to FS, 41.0)

ONF Land Program, Acres Exchanged by FY

Year	2006	2007	2008	2009	2010
Acres Exchanged	72.95	3,978	0	260	160

In FY 2006, 162.45 acres were sold. The first time that the Forest Service sold National Forest System lands other than by the Small Tracts Act was during FY 2006. Sales in FY 2006 were accomplished under PL 108-350 which gave the Forest authority to sell several administrative sites and three pieces of National Forest System land. Several (Heavener) residences were sold under a relatively new authority, the Forest Service Facility Realignment and Enhancement Act of 2005. During FY 2007, a 9.98 acre administrative site in Heavener, OK, containing three residential properties was sold. During FY 2009, 4.57 acres were sold compared to 0 acres sold during FY 2008. During FY 2010, one residential unit in Danville, AR with an accompanying 0.41 acres of land was sold.

ONF Land Program, Acres Sold by FY

Year	2006	2007	2008	2009	2010
Acres Sold	162.45	9.98	0.00	4.57	0.41

Overall, the total of National Forest System lands has remained fairly stable, changing by only 5,243 acres from FY 2005 – FY 2010. There is likely to be a stable trend in National Forest System acreage due to funding for other Forest priorities; however, if there is a need to exchange or purchase additional lands, the Forest will continue to apply the Landownership Strategy.

Total National Forest System (NFS) Lands by Year, ONF

Year	2005	2006	2007	2008	2009	2010
Total NFS Acres	1,784,610	1,786,714	1,789,690	1,789,690	1,789,666	1,789,853
Change from Previous Year	+1,945	+2,104	-214	0	-24	+187

Land Administration - Emerging Issues

The timber industry has divested large acreages that would have made good additions to the Forest and would have provided greater continuity of ownership; however, acquisition funds are limited. Land acquisition is becoming more difficult due to cost and competition from the private sector for such land. In the past, the larger timber companies shared similar management goals with the Forest Service. Without a way to acquire the large tracts for addition to the National Forest, entities that do not share similar management goals are acquiring the large tracts for development or other purposes. With such sales, lands previously in one ownership are broken up into tracts for sales; and when there is a need to acquire access for legitimate Forest purposes, there are multiple owners to each negotiation, further complicating processes. In addition, rather than a single access to a single owner, multiple access requests from multiple owners are being received. Each further subdivision further complicates access requests and

creates obstacles to Forest acquisition of adjacent parcels. Forest practices such as prescribed burning and timber harvest are not as well understood or supported by non-timber related land owners, some of whom have specific health concerns or general opposition.

Pressures from in-holders and those wishing to become in-holders to gain solitude and seclusion are increasing. With diminished ability to acquire such in-holdings, the Forest is unable to acquire the land with the result that owner requests for access are likely to increase. Increased usages next to or within the Forest are also likely to result in requests to expand roads and utilities, boundary disputes, illegal trails, and encroachments and trespass. With more occupation in and near National Forest System lands, user conflicts and law enforcement issues increase.

Highway improvements and extension of water service along the Highway 270 corridor are likely to lead to increased development and pressure in places where private lands adjoin NFS land. Mortgage companies are increasingly requiring landowners to obtain legal access prior to loaning money.

Special Use Permits

As shown in the tabulation below, there were 463 authorizations of various types on the Ouachita NF during FY 2010 compared to 278 in FY 2009, 563 in FY 2008, 506 in FY 2007, and 532 in FY 2006. Each year access requests comprise the bulk of the special use requests. Communication and utility corridor uses comprise the next highest categories of use requests.

Special Use Permits, by Type of Authorization and FY, ONF

Type of Authorization	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Roads	318	317	330	298	278
Water Lines, Electric, Telephone Utilities, & Oil and Gas Pipelines	58	58	58	60	60
Research or Resource Surveys	13	11	12	7	11
Dams and Reservoirs	24	24	24	24	24
Communication Uses	74	60	72	61	59
Recreation Uses	10	7	11	10	10
Agricultural Uses	--	--	7	4	4
Community Uses	7	7	7	7	7
Misc. Uses	21	15	42	7	10
Total	532	506	563	478	463

There is an apparent trend of slightly fewer road authorizations; however, the reduction in the number of road authorizations is largely due to efforts to close out permits issued to Weyerhaeuser Company on lands acquired by the Forest Service through past land exchanges. The actual number of road authorizations has increased on the Forest due to more landowners seeking legal access and Forest Service efforts to resolve unauthorized occupancies.

Emerging Issues - Special Use Permits

Since the Forest Plan was adopted in 2005, there have been two policy changes affecting special use permits and the number of permits issued. The first policy change was implementation of Cost Recovery where applicants pay a portion of the cost of processing their

permits. The requirement to pay part of the cost of processing a permit has both slowed processing time and dissuaded some proponents from applying for a permit. The second change is the implementation of policy to waive the need for a permit in those cases where the proposed use is nominal and of short duration. If state or local permits satisfy Forest Service concerns and other terms and conditions are not necessary, the need for a permit may be waived. The Forest has waived the need for most research studies and geocache (a recreational activity involving use of GPS devices to locate stashes left by other geocachers) site permits.

Current economic conditions have resulted in increased requests from public and semi-public entities seeking to utilize National Forest Systems lands for roads, easements, and utilities. With limited public funding and increased pressures for public services, it is likely that such pressures will continue to increase. Acquiring public access through private lands is becoming increasingly difficult. Owners are less willing to allow public access across their land.

Road Construction, Power Lines, and Other Linear Rights-of-Way

During FY 2006 and FY 2007, no road easements were acquired. During FY 2008, three road easements were acquired and two were acquired during FY 2009. For FY 2010, three cost-share road easements were acquired.

Road construction, power lines, and other rights-of-way that would create linear openings in the Forest are unsuitable in:

MA 1. Wilderness and Poteau Mountain
MA 4. Research Natural Areas and National Natural Landmarks
MA 22. Within active Red-cockaded Woodpecker clusters

Suitability determinations in the Forest Plan provided protection from linear openings or new road construction in the special management areas above; however, the Alaska National Interest Land Conservation Act of 1980 ensures that owners of private in-holdings are granted reasonable access. Several wilderness and roadless areas on the Forest surround private in-holdings. The access granted is subject to the regulations of 36 CFR 251 Subpart D. Currently, one landowner in the Upper Kiamichi Wilderness area was granted road access and another has applied for access. The US Highway 71 relocation approved by the Federal Highway Administration in 1997 may impact Red-cockaded Woodpecker colonies through the loss or fragmentation of suitable habitat. Construction of this project has begun on the south end of US Highway 71, north of Texarkana.

The Forest Plan is being applied when applications for utility permits are submitted. Utility permits in MAs 1, 4 and/or 22 are not approved because of the conflict with the Forest Plan. The suitability determinations of not creating linear openings and preserving wilderness values, research natural areas and national natural landmarks, as well as RCW active clusters is reasonable, and there are no changes needed to the Forest Plan on these determinations.

In other MAs, these linear features are allowed but must be installed in a manner that is consistent with the management objectives of the area. Linear features are restricted in:

MA 2. Special Interest Areas
MA 9. Water and Riparian Communities
MA 19. Winding Stair Mountain NRA
MA 20. Wild and Scenic River Corridors

While the Forest has for the most part adhered to the policy to confine linear uses to existing corridors, there have been exceptions such as the water line constructed to Queen Wilhelmina State Park in the Rich Mountain Recreation Area. The State of Arkansas was not required to confine the water line to existing corridors because of the additional cost to construct the project.

The Forest designates two multi-facility corridors to maximize co-location of future uses:

- Between Norman and Danville, AR along Arkansas State Highway 27
- Between Broken Bow and Heavener, OK along Oklahoma State Highway 259

Since the 2005 Forest Plan, there have been three proposals for major utility construction across the Forest. All of these proposed routes were on paths that avoided crossing NFS lands wherever possible; however alignments were not confined to the corridors as set out in the Forest Plan. Passage of the Energy Policy Act in 2005 placed great emphasis on expediting the construction of new utility corridor to meet the Country's energy needs.

Protection of water resources is of particular importance due to the potential for soil disturbance and production of sediment from the creation of linear rights-of-way. Where road location is necessary, roads and stream crossings should be designed to minimize impacts and to protect the natural and beneficial values of the area.

The Forest has stepped up inspection of linear rights-of-way to address the potential of these uses to contribute to environmental damage. The Regional Forester's strategic Framework of 2009 contains a goal of having all identified uses that have the potential to cause environmental harm administered to standard by the end of FY 2012. The Forest achieved approximately 82 percent of this target in FY 2010.

Law Enforcement - Public and Agency Safety

The 2005 Forest Plan includes the following desired condition for law enforcement, *"A safe environment for the public and agency employees is provided on National Forest System land; natural resources and other property under the agency's jurisdiction are protected."*

Law Enforcement and Investigation continues to collaborate with local county law enforcement officers in Arkansas and Oklahoma under seven Cooperative Law Enforcement Agreements. The number of Forest Law Enforcement Officers (LEO's) in FY 2010 was eight full time officers and one Reserve LEO, an increase of one officer over the seven full time officers and one Reserve LEO on staff during FY 2009. The historical high of LEO's forest-wide was twelve. The LEO's often work 120-150 hours in a normally 80-hour, two-week pay period, resulting in thousands of hours of Administratively Uncontrollable Overtime (AUO).

The LEO's responded to or assisted with 48 accidents within or adjacent to the Ouachita NF. These numbers include minor injuries (sprains, dog bites, etc), ATV, motorcycle and motor vehicle accidents. Twenty-four accidents were motor vehicles, 5 were ATV accidents, 12 were motorcycle accidents, and 7 were personal injury or other accidents. Thirty six separate search and rescue (SAR) operations were conducted during FY 2010 for lost hikers and prison escapees. In June of 2010, a flash flood swept through Albert Pike Recreation Area resulting in twenty fatalities (including three upstream in a dispersed recreation area). A multi-day recovery

effort was conducted with assistance from numerous other state and local agencies. Law Enforcement and Investigations (LE&I) coordinated a property recovery effort that resulted in nearly 4,000 personal items being collected.

An additional 5 fatalities were reported as a result of accidents (vehicle, drug overdose, etc). During 2010, LE&I responded to a bomb threat at the Supervisor's Office, investigated a death threat on one of its officers and investigated 20 assault cases. An undercover operation was conducted after hunter harassment complaints were received. Three individuals received federal and state charges after they threatened the undercover officers with baseball bats if they didn't leave the area.

Officers conducted 18 compliance checkpoints to address the growing vehicular traffic, ATV and alcohol violations occurring as a result of increased public visitation on the Ouachita. Eighty-nine timber spot inspections were completed during FY 2010.

On the Ouachita NF during FY 2010, a total of 581 Federal and State Violation Notices, 394 Warning Notices, and 628 Incident Reports were issued. A comparison of FY 2010 LE activity with FY 2006, FY 2007, FY 2008, and FY 2009 is provided in the tabulation below.

Violation Notices and Reports by FY, ONF

Fiscal Year	Federal Violation Notices	State Violations	Warning Notices	Incident Reports
2006	256	230	331	444
2007	285	436	370	610
2008	246	513	463	444
2009	305	497	531	596
2010	581		394	628

During FY 2010, 162 arrests were reported. Approximately 300 marijuana plants were eradicated from the Forest, and there were 105 separate investigations initiated during FY 2010. Officers investigated and assisted in 27 felony drug cases and 68 simple drug possession cases which includes 21 K-9 assists. LEO's investigated 7 methamphetamine labs and assisted local Drug Task Forces with 5 search warrants. Additionally 17 separate DUI incidents were documented. Forty fires were investigated of which 13 were determined to be arson fires. The tabulation below shows these data for the past 5 years.

Eradications, Arrests, and Investigations by FY, ONF

Fiscal Year	Marijuana Plants	Investigations	Felony Drug Cases	Misdemeanor Drug Cases	Arson cases
2006	6,300	97	41	51	*
2007	8,775	89	29	98	*
2008	742	97	36	50	19
2009	33,940	116	27	82	39
2010	300	105	27	68	13

*Arson cases occurred and were investigated during 2006 and 2007; however the data were not collected within the Monitoring and Evaluation Reports.

Ouachita NF Law Enforcement personnel spent 103 hours in public relation programs. Ouachita NF LEO's traveled approximately 240,000 miles in FY 2010, in support of public and agency safety, as well as protection of natural resources and property. During FY 2010, Ouachita National Forest Law Enforcement personnel spent approximately 3,960 hours in support of various details on and off their home units. Law Enforcement reports show a total of 20,067 public contacts during FY 2010. A comparison of FY 2010 LE activity with FY 2006, FY 2007, FY 2008, and FY 2009 is provided in the tabulation below.

Public Relations Programs, Miles Traveled and Public Contacts by FY, ONF

Fiscal Year	Public Relations Program Hours	Miles Traveled	Public Contacts
2006	32*	196,423	12,236
2007	252	229,220	19,375
2008	270	206,436	22,811
2009	187	200,000	14,839
2010	103	240,000	20,067

*Data reported are programs, not hours, as reported in subsequent years.

Commodity, Commercial, and Special Uses

Three types of commodities, commercial, or special uses are discussed:

- Mineral and Energy Development
- Livestock Grazing or Range Activities
- Firewood Permits

Minerals and Energy Development

There are two Forest Plan objectives that relate to minerals management with specific requirements to process applications. There is very little Forest discretion within the minerals management program as most leases, licenses and permits are granted with legal stipulations attached.

OBJ18: Process applications for federal mineral leases, licenses, and permits within 120 days.

OBJ19: Process operations proposed under outstanding and reserved mineral rights within 60 days and 90 days, respectively.

As reported in each of the last 5 years, financial investment and potential threats from geologic hazards to human life or natural resources remain low on the Ouachita NF in both Arkansas and Oklahoma. Each year, the number of gas leases and mineral cases are reported. Over time, it appears that the number of gas leases has increased, and because each gas lease, once obtained, stays in force for 10 years, the number appears large. Between FY 2009 and FY 2008, there were an additional 10 gas leases, but between FY 2008 and FY 2007, there was an increase of 262 cases.

Gas Leases and Mineral Cases by FY, ONF

	Gas Leases	Minerals Cases
FY 2006	403	
FY 2007	565	75
FY 2008	827	67
FY 2009	837	57
FY 2010	800	39

Minerals and Energy Development - Emerging Issues

Interest in gas exploration is increasing, mainly on the Poteau and Cold Springs Ranger Districts where coal-bed methane reserves exist. Inquiries and past actions have occurred on the Oklahoma Ranger Districts and the Mena-Oden Ranger Districts, as well.

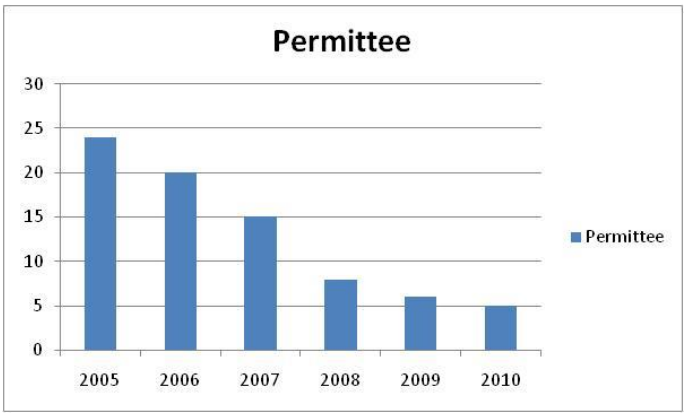
It is recommended that the Forest request a new Reasonable Foreseeable Development Future Scenario (RFDF) from the Bureau of Land Management to update the RFDF used during formulation of the 2005 Forest Plan. After the updated RFDF is received, the Forest should perform a Changed Conditions Analysis using a Forest interdisciplinary team in cooperation with the Ozark-St. Francis National Forests, which has recently been through this process and BLM. Such an analysis may lead to changes in the leasing decisions and/or stipulations and require an amendment to the Forest Plan.

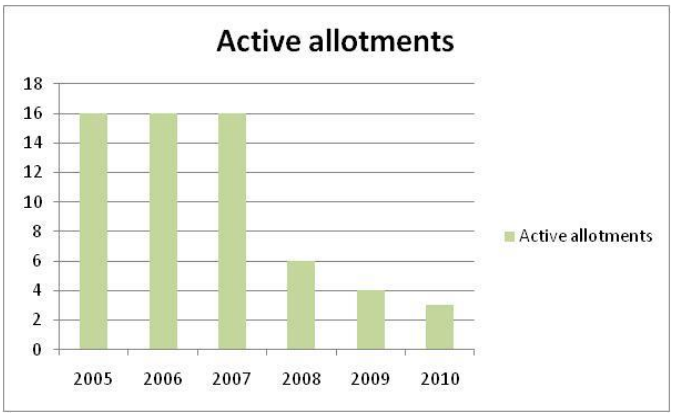
Livestock Grazing/Range

All indicators [Number of Livestock, Permittees, and Active Allotments] show that the Range program has been on a decline for the last 5 years. This trend is expected to continue.

Number of Livestock, Permittes and Active Allotments by FY, ONF

Year	2005	2006	2007	2008	2009	2010
Number of Livestock	715	530	300	154	142	133
Number of Permittees	24	20	15	8	6	5
Active Allotments	16	16	16	6	4	3





Livestock Grazing - Trends Related to Forest Plan Objectives and/or Desired Conditions

The interest in grazing on the Ouachita NF has declined and is not expected to increase in the future. All grazing on the National Forest is in forest and/or woodlands. Number of cattle being grazed is also on the decline: therefore, resource damage from grazing is minimal. Such use is consistent with the three standards found at 9.08 - 9.09 that require grazing and watering sources to be carried out in a way that is not damaging to the Streamside Management Area as well as 9.10 that allows grazing within limits of usable forage and protects water quality.

The current condition of the range allotments are in line with the desired conditions and plan standards. Likewise current management appears to be adequate to protect Ouachita NF resources without adjusting suitability determinations made in the 2005 Forest Plan (shown in the following tabulation).

Management Area	Livestock Grazing Suitability
1. Wilderness & Poteau Mountain **3. Developed Recreation Areas** **4. Research Natural Areas & National Natural Landmarks** **7. Ouachita Seed Orchard**	**Unsuitable**
2. Special Interest Areas **5. Experimental Forests** **6. Rare Upland Communities** **14. Ouachita Mountains, Habitat Diversity Emphasis** **15. W. Gulf Coastal Plain, Habitat Diversity Emphasis** **17. Semi-Primitive Areas**	**Suitable with Forest-wide Restrictions**
8. Administrative Sites/ Special Uses	**Portions both Suitable & Unsuitable with Forest-wide Restrictions**
9. Water/Riparian Communities **16. Lands Surrounding Lake Ouachita & Broken Bow Lake** **19. Winding Stair Mountain NRA (and associated non- Wilderness designations)** **20. Wild and Scenic River Corridors** **21. Old Growth Restoration** **22. Renewal of the Shortleaf Pine/ Bluestem Grass Ecosystem and RCW Habitat**	**Suitable with Forest-wide Restrictions as well as Management Area Restrictions**

Firewood

Demand for firewood remains high and stable with no discernable trends. The Forest Plan contains two design criteria or standards specifically for firewood:

FW001: Hardwood will be made available for firewood as identified through project level analysis.

FW002: In areas where trees have been treated with herbicide, use of treated trees for firewood will not be allowed.

With the implementation of the travel management rule establishing designated routes, there is a need to note access on firewood permits.

The cords of firewood sold are shown in the following tabulation.

Cords of Firewood Sold (Cords = CCF x 1.54)

Year	2006	2007	2008	2009	2010	5 Yr Average
Cords Sold	2,107	1,650	1,686	1,299	1,364	1,621

Source: Timber Cut and Sold Report

Collaboration

Collaborative Activities

- The Nature Conservancy (TNC) and Water Erosion Prediction Project (WEPP) – inventory and application of the WEPP model
- Safe Harbor Act – Review and cooperation with TNC and USFWS
- University of Arkansas at Monticello – sponsored a study on stream characteristics using digital elevation models for the Forest
- Arkansas Tech University – conducted snorkeling and netting study to find stargazing and Ouachita darters in the Ouachita River with the result that a previously unknown concentration of both was discovered
- Mississippi National Forest – Aquatic Cumulative effects for Plan Revision
- WEPP workshop – sponsored, participated and presented at two one-week sessions
- Law Enforcement and Investigation continues to collaborate with local county law enforcement officers in Arkansas and Oklahoma under seven Cooperative Law Enforcement Agreements.
- San Dimas Technology Development Center –
    - WO presentation on recreation carrying capacity for OHV use as it relates to water quality.
    - San Dimas has provided equipment and financing and worked with the Forest for over 5 years to examine fish passage monitoring techniques in cooperation with Arkansas Tech University. This project is part of a nation-wide effort to determine appropriate and cost-effective means of detecting fish passage at newly built structures designed for fish passage to determine their effectiveness.

Cooperative Agreements for Transportation: On June 15, 1971, Weyerhaeuser Company signed a road right-of-way construction and use agreement (Cost Share Agreement) with the United States of America (revised in 1994); thus, Weyerhaeuser and the Forest Service joined in developing and maintaining those roads serving their ownerships and shared in those costs. Initially the agreements addressed an area within and adjacent to the Ouachita National Forest in Garland, Perry, Montgomery, Polk, Saline, Yell, Hot Springs, Howard, Scott, and Pike counties, Arkansas that was defined as the Arkansas Agreement Area. Subsequent to the initial agreement that was signed in 1971, Weyerhaeuser and the Forest Service have signed over

200 supplements to the original. Each supplemental agreement either added new segments of road, removed segments that were no longer needed, or included additional work to road segments already in the agreement, and they defined the proportionate shares for the Forest Service and Weyerhaeuser attributable to each road segment. Weyerhaeuser has sold most of their land that was in the original cost share agreement, and the Forest Service is in the process of settling deferred maintenance accrued on the roads that serve those lands and terminating easements as a result of the change in ownership of that land. The Forest Service is also entering into new road maintenance agreements with the new owners of the Weyerhaeuser land to maintain the roads jointly owned.

Wyden Amendment Activities: The Wyden Amendment (Public Law 109-54, Sec 434) authorizes the Forest Service to enter into cooperative agreements to benefit resources within watersheds on NFS lands. The amendment allowed the Forest Service to spend federal money on non-federal lands as long as the projects benefit the fish, wildlife, and other resources on NFS lands within an affected watershed. This law allows the Forest Service to partner with other entities for projects that benefit resources on both public and private lands. The project's goals must be to restore and enhance watersheds. Benefits can include:

- Improving, maintaining, or protecting ecosystem conditions through collaborative administration and/or implementation of projects
- Improving collaborative efforts across all ownerships, including efforts on lands that are not adjacent to NFS lands
- Increasing operational effectiveness and efficiency through the coordination of efforts, services, and products

Other types of projects on non-National Forest System land that would qualify for federal money under the Wyden Amendment include in-stream restoration work and the clearing of fire-prone brush adjacent to NFS lands. This authority was initially provided in FY 1998 and has been extended through the end of FY 2011. Since the authorization does not provide for additional funding, any dollars spent on private land must come from existing appropriations.

Stevens Act Activities: Each year the District units conduct prescribed fires jointly with the Arkansas Forestry Commission (AFC) on private lands adjacent to Forest Service ownership. Landowners sign an agreement with AFC to conduct prescribed fires. Working together, the Forest Service and AFC then coordinate prescribed fire activities. In FY 2010, Steven's Act Prescribed burning by the Arkansas Forestry Commission totaled 2,728 acres on lands adjacent to or within the Ouachita National Forest. In FY 2009, Steven's Act burning exceeded 3,000 acres which compared to over 2,563 acres in FY 2008, over 9,000 acres in FY 2007, and over 4,000 acres in FY 2006.

Steven's Act Acres of Prescribed Fire by FY, ONF

Stevens Act Prescribed Fire (Acres)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
	>4,000	>9,000	>2,500	>3,000	>2,700

Fish and Game Agencies. Each year, the Forest Service meets with the game and fish agencies that represent the states of Arkansas and Oklahoma. The coop meeting with Arkansas Game and Fish Commission is held each year in April at varying locations and the coop meeting with the Oklahoma Department of Wildlife Conservation is held in the fall generally at Beavers Bend State Park. Game management, fish populations and items of mutual interest are discussed. Emerging issues, on-going studies or restoration efforts are presented to the group for discussion.

Stewardship Contracting. A new authority, Section 323 of Public Law 108-7, the Consolidated Appropriations Resolution, 2003, provided the Chief with full authority to enter into and administer an agreement or contract for the purpose of stewardship contracting. Collaboration must be a part of stewardship contracting project planning and continue throughout the life of the project. The intent of stewardship contracting is to accomplish resource management with a focus on restoration. Stewardship contracting helps achieve land management goals while meeting local and rural community needs, including contributing to the sustainability of rural communities and providing a continuing source of local income and employment. It focuses on the "end result" ecosystem benefits and outcomes, rather than on what's removed from the land. Under Section 323 of Public Law 108-7, the Forest Service, U.S. Department of Agriculture, and the Bureau of Land Management have been granted authority, until September 30, 2013, to enter into stewardship contracting projects for up to 10 years per contract.

The Ouachita National Forest has completed six stewardship project proposals and has one additional contract pending approval. Three of the projects have been implemented by use of Integrated Resource Timber Contracts and one project was implemented by use of an agreement with the National Wild Turkey Federation. The stewardship projects and details are displayed in the tabulation below.

Stewardship Project Status as of March 2011, ONF

Project Name/ Ranger District	Date Project Approved	Project Area (acres)	Status
Shilo Poteau	01/26/2007	1,146	Integrated Resource Timber Contract awarded 08/25/2009 Contract completed & closed 01/25/2011
Shilo Activities: 2,261 CCF timber on 307 acres sold for $74,613.33. Service work for Wildlife Stand Improvement (Midstory Reduction) within MA22 was completed on 307 acres at a cost of $19,955.00. Shilo Retained Receipts: $2,100.09 in retained receipts has been collected and will be used for fireline construction within the project area. (Balance of funds was collected as CWKV to be used for contract area improvement activities.)			
Pittfork Mena	01/22/2008	10,500	Integrated Resource Timber Contract awarded September 16, 2009. Contract is ongoing.
Pittfork Activities 15,433 CCF timber on 1,769 acres sold for $367,355.75. All service work involving 730 acres of Wildlife Stand Improvement for Midstory Removal, and development of a 1.97 acre Wildlife Opening and a 0.10-acre Wildlife Pond was completed at a total cost $88,210.00. Pittfork Retained Receipts: All net revenue will be collected as retained receipts to conduct prescribed burning on 9,326 acres within Management Area 21 – Old Growth Restoration (Pine-Grass Emphasis and Management Area 22 – Renewal of the Shortleaf Pine – Bluestem Grass Ecosystem and Red-Cockaded Woodpecker Habitat.			
Glover XIII Oklahoma	06/28/2007	10,981	Integrated Resource Timber Contract awarded September 28, 2010. Contract is completed and pending closure.
Glover XII Activities: 4,112 CCF timber on 157 acres sold for $163,773.40. Service work to be completed involves an estimated 0.80 miles of fireline construction at a cost of $1,267.20. Glover XIII Retained Receipts: All net revenue will be collected as retained receipts to install a water control structure and to conduct disking on 6,000 acres at the Red Slough area to restore desired wetland conditions.			

Project Name/ Ranger District	Date Project Approved	Project Area (acres)	Status
Tornado Recovery and Wildlife Improvement Mena & Oklahoma	06/23/2009	45,000	The Mountain Fork Stewardship Salvage supplemental project agreement (SPA) was entered into on August 13, 2009 with the National Wild Turkey Federation (NWTF) under the Master Stewardship Agreement between the Forest Service Southern Region and the NWTF. The purpose of the SPA was to address salvage of timber damaged by an April 19, 2009 tornado which affected the project area and to complete restoration activities. Activities within the SPA have been completed the supplemental agreement has been closed.
Tornado Recovery and Wildlife Improvement Activities: 12,571 tons of pine sawtimber and 13 CCF of hardwood sawtimber were removed at a value of $75,667.82 that included the cost of replacing two 60-inch culverts. Service work completed included 4.38 acres of glade restoration, logging, and decking of 166.97 CCF of hardwoods and removal of 5,603 Tons of biomass at a total cost of $7335.80. Tornado Recovery and Wildlife Improvement Retained Receipts: Net receipts will be used to complete some of the approved activities which included constructing 5 miles of fireline, closure and rehabilitation of 1 mile of unauthorized ATV trail, prescribed burning on 4,000 acres, treatment of non-native invasive species on 500 acres, and Wildlife Stand Improvement (Mid-story Removal) on 101 acres for restoration of foraging habitat for the endangered Indiana bat. The total estimated cost of these activities is $213,100.00.			
MP Fodderstack Caddo	09/22/20008	1,146	Integrated Resource Timber Contract is planned to be offered and awarded in Fiscal Year 2012.
MP Fodderstack Activities: 3,941 CCF timber on 307 acres is to be sold at an estimated value of $194,022.00. Service work to be completed will involve 46 acres of Wildlife Stand Improvement for Overstory Mast Development, maintenance of 4 wildlife ponds, reconstruction of 1 wildlife pond, improvement of 3 existing wildlife openings, development of 3 new wildlife openings totaling 3 acres, and completion of soil restoration work in an abandoned gravel pit totaling 3 acres. Non-native invasive species will be treated in all areas except the 46 acres of WSI. The estimated cost of these service work items is $72,610.00. MP Fodderstack Retained Receipts: Retained receipts will be used to restore native plant communities on 52 acres of acquired pastureland (Crigger Field).			
Buffalo Creek II Oklahoma	03/23/2011	19,200	Integrated Resource Timber Contract would be planned for offer and award in Fiscal Year 2012.
Buffalo Creek II Activities: 20,746 CCF timber on 1,231 acres will be sold at an estimated value of $931,703.00. Service work to be completed will include construction of 5 wildlife ponds at an estimated cost of $12,500.00. Buffalo Creek II Retained Receipts: Retained receipts would be used as available for a bridge replacement, 14 miles of fireline construction, to construct a low water crossing at a current wet crossing, and to replace a non-functioning low water crossing with a box culvert. The total estimated cost of these items is $569,200.00. The fireline construction is within Management Area 22 – Renewal of the Shortleaf Pine – Bluestem Grass Ecosystem and Red-Cockaded Woodpecker Habitat. The proposed roadwork is planned to correct fish passage issues, restore hydrologic conditions, and reduce sedimentation. The project area is located within the watershed of streams that provide habitat for the Leopard Darter, a threatened species.			

Project Name/ Ranger District	Date Project Approved	Project Area (acres)	Status
South Sebastian Poteau	(pending, in Forest level review)	10,850	Integrated Resource Timber Contract would be planned for offer and award in Fiscal Year 2012.
South Sebastian Activities: 1,500 CCF timber on 245 acres would be sold with an estimated value of $90,000.00. Service work to be completed would involve activities on OHV trails to protect and restore water quality in a municipal water supply area and include: relocation of 2.3 miles and obliteration of 2.5 miles of trail; installation of 9 culverts along trails; maintenance on 18 miles of trails; installation of gates at two trailheads; and, obliteration of existing unauthorized trails for a total estimated cost of $58,000.00. South Sebastian Retained Receipts: Retained receipts would be used for trail improvements including hardening and installation of 2 bridges.			

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Appendix A – Amendments to the 2005 Forest Plan

A List and Brief Description of Amendments to the 2005 Forest Plan (through September 2010)
1. Amendment # 1 - Non-significant **7/10/2008 (Wagoner) Reallocated an old growth restoration area within South Waldron Ridge and East Newman ecological management units.**
2. Amendment # 2—Non-significant **10/19/2009 (Wagoner) – Reallocated lands in MAs 9, 14, 17, and 21 to make Management Area boundaries easier to find and manage including the following:** • **Add areas that meet Recreation Opportunity Spectrum (ROS) criteria for motorized and non-motorized semi-primitive recreation settings to MA 17** • **Emphasize habitat diversity (MA 14) and Riparian Communities (Management Area 9), where appropriate.** • **Extend MA 17 boundaries north to include the entire Poteau7 Mountain OHV trail.** • **Align MA 17 and MA 21 boundaries with topographic changes or other physical features rather than section lines so these boundaries are easier to locate from the ground by anyone wanting to visit these areas.**
3. Amendment # 3—Non-significant **1/4/2010 (Wagoner) Under authority of 36 CFR 261.13, public use of motorized vehicles, including off-highway vehicles (OHVs), was limited to the designated routes, as identified on a motor vehicle use map (MVUM).**

Appendix B - Projects under 2005 Plan

Unit	Span of Decision Dates	# Decisions*	# Vegetation (other than forest products)	# Fuels	# Wildlife, Fish, Rare Plants	# Forest Products	# Special Use	# Rec-reation	# Road	# Water-shed	# Minerals and Geology	# Heritage	# Land Mgmt Plng	# Land Acquisition/ Land Ownership	# Facility Mgmt	# Special Area	# Research	# Grazing
Caddo	12/15/2005 - 09/27/2010	35	8	12	5	16	7	1	3	4	2	0	0	2	0	1	0	0
Womble	11/02/2005 - 09/29/2010	61	16	14	5	12	8	12	3	3	11	0	0	0	3	1	0	0
Total Caddo/Womble		96	24	26	10	28	15	13	6	7	13	0	0	2	3	2	0	0
Choctaw	12/15/2005 - 05/31/2006	2	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0
Kiamichi	12/08/2005 - 08/26/2010	77	33	28	13	8	15	5	4	1	1	0	2	2	0	1	0	3
Tiak	11/30/2005 - 02/12/2006	6	4	1	2	1	2	0	0	0	1	0	0	0	0	0	0	1
Total Oklahoma		85	37	29	15	9	18	6	4	1	2	0	2	3	1	1	0	4
Cold Springs	12/05/2005 - 06/21/2010	24	16	8	5	2	4	6	6	6	3	5	4	1	0	0	0	0
Poteau	11/03/2005 - 02/24/2010	29	15	7	1	3	4	6	2	4	8	1	1	0	0	0	0	0
Total Poteau/ Cold Springs		53	31	15	6	5	8	12	8	10	11	6	5	1	0	0	0	0
Fourche	11/04/2005 - 03/26/2009	21	17	17	13	3	2	0	3	0	0	1	1	0	0	0	0	0
Jessieville	11/14/2005 - 08/19/2010	44	18	14	22	15	5	3	6	4	4	4	2	0	1	1	4	0
Winona	11/21/2005 - 09/08/2006	6	1	3	1	2	2	2	1	1	0	1	1	1	0	0	0	0
Total Jessieville/ Winona/ Fourche		71	36	34	36	20	9	5	10	5	4	6	4	1	1	1	4	0
Mena	12/12/2005 - 09/14/2010	46	12	25	23	11	11	9	8	8	0	5	0	1	2	3	0	0
Oden	04/14/2006 - 09/21/2009	16	9	5	7	7	5	6	6	7	0	7	0	0	0	0	0	0
Total Mena/ Oden		62	21	30	30	18	16	15	14	15	0	12	0	0	1	2	0	0
Ouachita/ Ozark NF		6	2	1	1	1	3	4	2	1	0	2	1	1	1	0	0	0
Total All		373	151	135	98	81	69	55	44	39	30	26	12	9	8	7	4	4

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