Monitoring and Evaluation Report

for the

Land and Resource Management Plan

Arkansas and Oklahoma

Fiscal Year 2011

October 1, 2010 - September 30, 2011

United States
Department of
Agriculture

Forest
Service

FY 2011 Monitoring and Evaluation Report

Ouachita National Forest
Arkansas and Oklahoma

Arkansas Counties:
Ashley, Garland, Hot Spring, Howard, Logan, Montgomery, Perry, Pike, Polk, Saline, Scott, Sebastian, Yell

Oklahoma Counties:
Leflore, McCurtain

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Forest Supervisor's Certification

This is the sixth M&E Report for the 2005 Revised Forest Plan (Forest Plan), effective December 2005. I have evaluated and do endorse the monitoring results and the priorities, recommendations, and focus areas presented in this Monitoring and Evaluation Report (M&E Report).

Monitoring and evaluation are important tools in determining if management direction contained in the 2005 Forest Plan is effective in achieving the desired conditions for the Ouachita National Forest, if program priorities and objectives are being accomplished, and if the Plan standards (design criteria) adequately guide project implementation. This and future M&E Reports will contribute to review and updates to the 2005 Forest Plan.

I have directed that the actions necessary to respond to the priorities, recommendations, and focus areas in this report be implemented. I have considered funding requirements necessary to implement these actions.

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NORMAN L. WAGONER Date
Forest Supervisor

Priorities, Recommendations, and Focus Areas

As monitoring results are analyzed, trends are identified; and as expected, some of those trends reveal resource management concerns. Additionally, some focus areas are identified due to new research or through monitoring and lack of definable trends. In the discussions below, there is a mix of both monitoring result-driven focus areas and emerging science-driven focus areas. Discussions are presented in the order they appear in the Monitoring and Evaluation (M&E) Report.

Early Seral

Previous analysis reported in the Five-Year Review found "Poor" scores for early seral stage. 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. 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.

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 and this management 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 needs more closely aligned with early seral stage development. The Ouachita NF predominately uses natural regeneration to propagate stands of mature timber and provide early seral stage vegetation.

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 Revised 1990 Forest Plan objective for early seral creation was 5,800 acres per year. The 2005 Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year using even-aged methods. 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." Forest-wide, less than 17,000 acres of early seral habitat have been created since Plan Revision in 2005, averaging less than 3,000 acres per year.

Monitoring trends reveal that the Ouachita NF is falling short of planned early seral creation using even-aged methods. Some species notably, Northern Bobwhite and Eastern Wild Turkey, appear to be adversely affected while trends for other species dependant on early seral habitat do not appear to be as affected. It is recommended that a task force comprised of the Forest Planner, Forest Siviculturist, Forest Sales Adminitrator, Forest Fire Staff Officer, Forest Wildlife Biologist, and Forest Monitoring Coordinator be formed to review and recommend solutions to lack of early seral creation. It is anticipated that this work will be a priority work effort and results of this work would be available by the end of FY 2014.

MA 22 – Renewal of the Shortleaf Pine/Blue-Stem Grass Ecosystem and RCW Habitat

Based on acres clearcut of off-site loblolly pine, the Ouachita NF is only converting an average of 76 acres per year, compared to the objective of 500 acres per year. Constraints may be age and acreage/spacing limitations.

A focus area for the Ouachita NF should be the conversion of loblolly pine plantations to the native shortleaf pine habitat.

American Burying Beetle

In May 2010, the Ouachita National Forest was issued a Revised Programmatic Biological Opinion for the American Burying Beetle (ABB) that mapped the ABB areas on the Forest and incorporated the 2010 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 in Arkansas and Oklahoma with ABB habitat. 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.

It is recommended that the Forest Plan be amended to show the two new American Burying Beetle conservation areas (AR and OK) and reference the Conservation Plan in the Plan Standards.

Wilderness

Within the Ouachita NF, Congress has designated six wilderness areas totaling approximately 64,469 acres, 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).

Forest Plan OBJECTIVE 29 states 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." Progress has been made toward achieving this objective: inventories are complete on four of the six wilderness areas.

NNIS inventories have been completed on Dry Creek, Poteau Mountain, Blackfork, and Flatside wilderness areas. There have been 35,466 acres of (55 percent of total) wilderness inventory completed. The most common invasive species is *Sericea lespedeza*. Infestations appear to be limited to former roads and existing 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.

The Forest Plan objective specific to Wilderness Management Plans has not been accomplished: OBJECTIVE 30: "Update all Wilderness Management Plans, including monitoring components, wilderness education, and restoration needs, by 2008." Surveys of the Wilderness areas reveal that they are in reasonable condition due, primarily, to low levels of recreation use.

It is recommended that Wilderness Management Plans be updated within the next six fiscal years to be complete by 2019 and that work continue to inventory and identify non-native invasive species be continued. It is further recommended that completion of the required NEPA work be a priority for the Ouachita NF to address treatment of NNIS be initiated no later than the beginning of FY 2014.

Tribal and Native American Interests

OBJ 22. Revise the Programmatic Agreement with SHPOs and THPOs by 2011.

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 will expire January 2013. A recently revised agreement, is the result of consultations, with the Oklahoma SHPO and State Archeologist, the Arkansas SHPO and 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.

It is recommended that the new agreement that will streamline the Section 106 processes, clarify specific processes, and strengthen our commitment to working with the State Historic Preservation Officers and Tribes be signed by the time the existing agreement expires in January 2013. This work should be considered a priority for the Ouachita NF.

White-nosed Syndrome

An emerging issue, since its discovery in the northeast United States, is white-nose syndrome (WNS) in bats. WNS has been confirmed in 19 states, including the adjacent states of Missouri, Oklahoma, and Tennessee. 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 WNS in any caves in Arkansas.

It will be a priority, if WNS is discovered to have caused mortality in bats associated with caves on the Ouachita NF, to take immediate steps to protect bat populations. Additional monitoring may be warranted. It is expected that all Ranger Districts with suitable bat habitat be aware of this issue and maintain a vigilant management perspective.

Climate Change

Climate change is an emerging issue and 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 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. The Ouachita NF participated in a national pilot study to determine the effect of climate change on water quality and aquatic biota and found that full implementation of current road and trail maintenance standards will lower the risk to aquatic ecosystems both in today's climate and in possible climate scenarios of the future.

As an emerging issue, there is still much to learn about climate change: however, future land management plan amendments and/or revisions should consider climate change and weigh alternatives based on their effects on climate. It is also a Ouachita NF priority that current

management practices be implemented during all land management activities and that specialists continue to monitor for any natural resource effects possibly attributable to climate change.

Lake Level Management

The Forest Plan desired conditions for fishable waters are high-quality angling opportunities and good to excellent water quality, site productivity, associated vegetation, and habitat for associated riparian and aquatic dependent species. 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.

It is recommended that the management protocol of coordinating with the Forest Supervisor and the Forest Fisheries Biologist prior to lowering lakes or ponds for maintenance be continued.

Watershed Health

There is a specific Forest Plan objective that relates to watershed function: "OBJ 14. Maintain or improve watershed health." Concerns about high open road densities and less than adequate maintenance of roads and OHV trails continue to be an issue for the Ouachita NF. 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 addressed in each watershed study. 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.

It is recommended that travel analysis and reviews for open road density be considered a priority for Districts in project level work. The Ouachita NF expects to complete a minimum road system review by FY 2015 that should contribute positively to identifying unnecessary roads.

Summary of the 2011 Monitoring and Evaluation Report

Implementation of the Forest Plan

The Forest Plan continues, primarily, to be implemented through project level decisions. Actions like timber harvest and prescribed burning that may affect the human environment require documented decisions; however, routine management actions such as road and trail maintenance do not require documented decisions. During FY 2011 there were 51 projects on the Ouachita NF for which NEPA decision documents were signed. Of the 51 documented decisions, six are decision notices and the rest are decision memos. Implementation Monitoring Reviews (IMR) are one way that progress towards desired conditions and objectives is measured; however, during FY 2011, there were no IMRs conducted.

Landownership and Land Administration

The Forest manages and protects its boundaries and pursues a policy of consolidating forest ownership where it is feasible. To protect land ownership title, four encroachments were resolved during FY 2011. 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 exchanged, 260.8 acres (To Proponent, 221 acres and 40 acres to FS) during FY 2011. Overall, the total of National Forest System lands has remained fairly stable, increasing by 5,062 acres from FY 2005 – FY 2011.

Transportation System and Access Management

As of the end of FY 2011, there were 5,790 miles of road included in the transportation system for the Forest. Of those 5,790 miles, 2,560 miles or approximately 44 percent are classified as closed roads, and do not require maintenance. Overall, the miles of road operated and maintained by the Forest remains stable. Beginning with FY 2011, the Ouachita NF will report road maintenance expenditures as a part of the M&E Report.

The Ouachita NF continued its program of inspecting one-third of the 130 bridges in inventory and no critical deficiencies were found.

The Forest implemented the travel management rule by publishing the first Motor Vehicle Use Maps (one for each District cluster) in May 2011.

MA – 8 Administrative Sites

Management Area 8 consists of district ranger offices, district work centers, district residences, Forest Service communication facilities and sites for communication facilities under special use permit, and the administrative site within the seed orchard. 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.

Annually, buildings are inspected for compliance with health and safety standards in accordance with Forest Plan Objective 35. For FY 2011, the facility inventory included 341 buildings that are categorized as follows: Existing – Active, Existing – Inactive, or Existing – Excess. Of those 341 buildings, 292 (86%) have a Facility Condition Rating (FCR) rating of “Good” or “Fair.”

Special Uses
There were 435 authorizations of various types on the Ouachita NF during FY 2011. The number of road authorizations has increased on the Forest due to more landowners seeking legal access and Forest Service efforts to resolve unauthorized occupancies.

Commodity and Commercial Uses
- **Minerals and Energy Development:** There is very little Forest discretion within the minerals management program as most leases, licenses, and permits are granted with legal stipulations attached. During FY 2011, the Bureau of Land Management retracted all of the gas lease consents from Arkansas and no new ones were auctioned.
- **Livestock Grazing/Range Activities:** Livestock grazing is demand driven. Interest in grazing on the Ouachita NF has declined and is not expected to increase in the future.

Timber Sale Program
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. The Ouachita NF sold 71.59 percent of the Allowable Sale Quantity (270,000 CCF) during FY 2011 which is consistent with past performance. The Forest sold 200,053 CCF of timber during FY 2011 which is consistent with Forest Plan Objective 41 to sell an average of at least 200,000 hundred cubic feet (CCF) of timber per year. Demand for firewood remains high and stable with no discernible trends.

Air Quality
For 2011, levels of fine particulate matter at monitors near the Forest are generally improving; however, levels of ozone concentrations near the Forest increased to above the air quality standard in FY 2011. After additional checking, it has been determined that days of exceedance were not days when fire was occurring on the Ouachita NF; however, if exceedance of federal standards continues, this area will be categorized as non-attainment.

Terrestrial Ecosystems
Throughout all the communities, there is a need to create additional early seral vertical structure for wildlife habitat and forest health purposes. A silviculture/wildlife study is recommended to review why the level of early seral habitat creation remains so far below the Forest Plan objective.

Common Pine-Dominated Upland Communities: Habitat Diversity Emphasis, Old Growth, and Pine/Bluestem Grass Ecosystem
There are five communities regarded as common pine-dominated upland communities including the following.
- **Ouachita Shortleaf Pine-Oak Forest and Woodland** comprises approximately 69 percent of the Forest and occurs in all management areas to some extent. This system has been divided into three subsystems (pine-oak forest, pine-oak woodlands, and pine-bluestem woodlands).
- **Ouachita Shortleaf Pine-Oak Forest** represents approximately 62 percent of the most densely wooded, generally closed-canopy component of the pine-oak system occuping about 45 percent of the Forest. Previous analysis reported in the Five-Year Review found “Poor” scores for early seral stage and road density as well as the “Fair” scores for fire regime and areal extent.

- **Ouachita Shortleaf Pine-Oak Woodland** (332,681 acres) is one of two relatively open-canopy, fire-dependent subsystems with abundant herbaceous ground cover which should cover 20-45 percent of the pin-oak system. Currently, lack of 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.
- **Ouachita Shortleaf Pine-Bluestem Woodland (includes Red-cockaded Woodpecker Habitat)** represents approximately 172,914 acres of the most open-canopy, pine-dominated, fire-dependent component of pine-oak systems on the Ouachita NF. Currently, this subsystem constitutes approximately 14 percent of the shortleaf pine-oak dominated communities and almost 10 percent of the Forest. Previous analysis reported in the Five-Year Review found improved overall SVE condition score for the pine-Bluestem Woodland from Fair to Good Condition when compared to FY 2005.
- **West Gulf Coastal Plain Pine-Hardwood Forest** ecological system (8,007 acres) represents 0.4 percent of the Ouachita NF 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. Previous analysis found this ecological community type to be holding steady or slightly declining due to less than optimal creation of early seral habitat, road density and need for more frequent fire.

MA 6 – Rare Upland Communities

The seven relatively rare upland communities comprise only approximately 2.6 percent of the total Forest area. These systems are usually small, isolated, disjunctive, and are generally “embedded” in a larger landscape matrix. Given the emphasis on restoration of the health of all communities, inventories for rare upland communities 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 associated species.

The seven rare upland communities comprising MA 6 are: 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; and Southern Arkansas Calcareous Prairie

The Five-year Review found that three of the seven community types’ condition scores revealed improvement (Mesic Hardwood Forest, Ouachita Dry Oak Woodland, Southern Arkansas Calcareous Prairie), and that four (Ouachita Dry-Mesic Oak Forest, Ouachita Montane Oak Forest, Ouachita Novaculite Glade and Woodland, Central Interior Highlands Dry Acidic Glades and Barrens, Central Interior Acidic Cliff and Talus) revealed scores that indicate condition declines.

MA 14 – Ouachita Mountains and MA 15 – West Gulf Coastal Plain (Habitat Diversity Emphasis)

Management Area (MA) 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 comprise over 42 percent of the Ouachita NA and 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. This 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. Throughout all the communities, there is a need to create additional early seral vertical structure for wildlife habitat and forest health purposes.

MA 21 – Old Growth Restoration (Pine Grass Emphasis)

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 decades between 1920 and 1940. 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.

MA 22 – Renewal of the Shortleaf Pine/Blue-Stem Grass Ecosystem and RCW Habitat

Based on acres clearcut of off-site loblolly pine, the Ouachita NF is only converting an average of 76 acres per year, compared to the objective of 500 acres per year. Constraints may be age and acreage/spacing limitations.

Terrestrial Habitat and Health

- **Soils:** 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. Soil monitoring and observations have revealed that management actions have not had an overall detrimental impact to soil conditions. There are no changes recommended to soils standards.
- **Fire Influences and Fuels:** Fire Management activities across the Forest are relatively stable with a general trend of less than 100 wildland fires occurring annually. The fuels treatment program has resulted in gains toward restoration of ecosystems, reduction in risk of unwanted wildfires, and wildlife habitat improvement. 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 proven difficult to achieve. During FY 2011, 96,720 acres (including acres utilizing wildland fire) were treated with prescribed fire for fuel reduction, wildlife stand improvement, and site preparation. 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.
- **Terrestrial Non-native Invasive Species (NNIS):** The Forest treated 149 acres of non-native invasive plant species and completed 2000 acres of feral hog eradication in FY 2011. There were 16,342 acres inventoried for NNIS during FY 2011. In total, 35,466 acres of wilderness inventory have been completed on four of the six wilderness areas, Dry Creek, Poteau Mountain, Blackfork, and Flatside wilderness areas.
- **Insects and Disease:** Ips species are currently at high population levels on the Ouachita NF. This is a reflection of both 3 dry years and the high density of timber found on the Ouachita NF. Trapping for SPB was conducted on all districts in the spring and a

reduced number during fall of FY 2011; however the trapping did not indicate presence of SPB on the Forest. Trapping off-forest in the northern part of Arkansas is also on-going to detect the presence of any movement of the emerald ash borer into the State. It is not likely that species on the Ouachita NF or threats to species will change dramatically in the near future 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.

- **Vegetation Management - 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 -2011 resulted in 14,781 acres of regeneration. Additionally, uneven age harvests occurred on 9,547 acres resulting in approximately one-seventh of those acres (1,364 acres) in regeneration. Natural regeneration systems are very successful with less than 10 percent of the area in need of supplemental planting. 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.

Terrestrial Habitats and Conditions - Vertical Structure

- **Early Seral Stage:** 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. The 2005 Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year using even-aged methods, has not been met since 2006.
- **Mid-Seral Stage:** The Mid-Seral Stage is tracked in FSVeg as a transitory stage between early and late seral stages; however there are no species of concern that are considered obligates of this vegetation condition.
- **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. The 2011 data indicates that 68 percent of the Ouachita NF is now in late seral structure stage, a decrease from the 2010 Five-Year Review, which showed to be 73 percent of the Forest in late seral stage. The acres of mature hardwood forest and mature pine forest indicate that the Ouachita NF is slowly becoming an older forest.

Other Terrestrial Habitat Components – Wildlife

- **Cave and Mine Habitat:** Bear Den Cave Monitoring for Indiana Bat: During the 2010 survey, 25 Indiana bats were identified in Bear Den Cave. There were no Indiana bat surveys conducted at Bear Den Cave in FY 2009 or 2011. A protective order for closure at Bear Den Cave has been in place for many years to protect the cave and the Indiana bat hibernaculum. There is also a regional closure order for caves and mines across the south, signed in May 2010, to protect against the spread of white-nose syndrome.
- **Mast Production:** Hardwoods greater than 100 years old are used as a surrogate for mature hardwood forests. In FY 2011, there were 75,743 acres of hardwood forest greater than 100 years old (4.2% percent of the Forest) compared to 73,830 acres greater than 100 years old in FY 2010. This is an increase of 6,299 acres over the

previous year. The acres of mature hardwood forest and mature pine forest indicate that the Ouachita NF is slowly becoming an older forest.

- **Habitat Capability Modeling:** Modeling habitat capability using the Computerized Project Analysis and Tracking System (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. Current data indicates that habitat for the Scarlet Tanager is comparable to previous years. Habitat capability for Pileated Woodpecker has increased which is a reflection of the Forest becoming an older forest. Habitat Capability for Eastern Wild Turkey, Northern Bobwhite, Prairie Warbler and white-tailed deer all indicate declines which is a reflection of the lack of early seral.

Management Indicator Species and Wildlife Habitat Management

- **Eastern Wild Turkey:** Population trends for Eastern Wild Turkey indicate that the number of turkey poults per hen has varied from 1.99 in 2006 to 1.4 poults per hen in 2011 in the Ouachita region of Arkansas. There is a clear downward trend for successful turkey reproduction.
- **Northern Bobwhite:** 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:** There is no discernible population trend for the Pileated Woodpecker because indicators from Ouachita NF Landbird data and habitat capability data are mixed. Landbird monitoring data on the Ouachita NF indicate the long term trend to be stable to slightly decreasing for Pileated Woodpecker.
- **Prairie Warbler:** Based on the data available, the Prairie Warbler shows a slight upward trend since FY 2006; however, the long term trend remains downward. The Landbird point count data for the warbler show a slight decrease in numbers from 2010 to 2011, but an overall slight upward trend. Throughout the Prairie Warbler range, a downward trend is indicated.
- **Scarlet Tanager:** The Landbird point data collected from FY 2006-2011 indicate an overall stable to increasing trend for the Scarlet Tanager.
- **White-tailed deer:** The estimated habitat capability for deer for fiscal years 2006-2011 shows a downward trend; and has fallen below the desired habitat capability of 48,250 acres for FY 2015. 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 harvest is showing an upward trend with an increase of 12 percent from 2010 to 2011. Deer are widespread, abundant, and the habitat capability still remains above the Forest Plan projection.

Other Habitat Considerations –Wildlife: In addition 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 concerning management of hunting regulations and opportunities, Wildlife Management Areas, and Walk-In Turkey Areas.

R8 Sensitive Species and Terrestrial Species of Viability Concern

The comprehensive list of "species of viability concern" pertaining to the Forest is a fine-filter list of species that was compiled from Arkansas and Oklahoma species specialists' recommendations from all species of local concern that may occur or are known to occur on the Forest. These species may not have Global viability concerns, but do have local viability concerns (for example: edge of range, local rarity, Forest population status, etc.). There are 67 species on the R8 Sensitive Species list that are known to occur on the Ouachita NF. Of those, 44 are known to be terrestrial species.

- **American Bald Eagle:** Recent reviews ranked the Bald Eagle as viable with acceptable habitat and populations. Surveys in FY 2011 on the Ouachita NF documented four known nest sites (Lake Hinkle, Irons Fork Lake, Lake Ouachita and North Fork Lake), with one confirmed nest success at Lake Hinkle site.
- **Caddo Mountain Salamanders:** No surveys were conducted in FY 2011 for the Caddo Mountain Salamander, since initial research efforts are concluded. The 2005 SVE score for this species declined from a "Good" to a "Fair" ranking in 2010 primarily due to road density and fire history.
- **Rich Mountain Slit-mouth Snail:** In FY 2011, the Oklahoma Ranger District conducted surveys at 8 sites (30 minutes each site) finding a total of 5 Rich Mountain slit-mouthed snails which is fewer than usual; however drought conditions may have been an influence.
- **Sensitive Bats (Eastern small-footed bat and Southeastern Myotis):** The FY 2011 acoustic surveys are in the process of analysis; however the SVE scores (2010) for both bat species remain in the "Good" category.

Terrestrial Proposed, Endangered, and Threatened Species Habitat

- **American Burying Beetle:** In FY 2011, a total of 36 transects, were monitored using the current USFWS protocol. No ABBs were captured on the Ouachita NF during FY 2011.
- **Indiana Bat:** 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. 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.
- **Least Tern and Piping Plover;** FY 2011 has been recorded as one of the worst droughts in history and was especially one of the worst droughts recorded for Red Slough in the 15 years the Forest Service has been actively managing it. With very little to no water, the fewest number of Least Terns ever using the project only eight Least Terns were recorded -. There were no Piping Plover observed for Red Slough for FY 2011
- **Red-cockaded Woodpecker; Populations** of this species exhibit an increasing trend. Barring any major catastrophic events, this species should continue to improve under present management practices. RCW active territories have increased from a low of 11 territories in FY 1996 to 59 active territories in FY 201 and there is successful history of RCW management on the Ouachita NF.
- **American Alligator:** 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. 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").

Riparian and Aquatic Ecosystems

MA – 9 Water and Riparian Communities

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."*

According to all monitoring and inventory efforts, the water and riparian communities are being conserved and protected from any detrimental impacts from Forest activities through implementation and direction of the MA 9 design criteria in the Forest Plan.

Watersheds, Aquatic Habitat and Health

- **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.
- **Ponds, Lakes, and Waterhole MIS:** The three pond, lake, and waterhole management indicator species (MIS) are 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 2011, 23 electrofishing samples were taken at 19 lakes and ponds. All three species indicate a declining trend which could be attributed to the timing of the sampling.
- **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 2011, 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:** The White Crappie population in Dry Fork Lake has been tracked due to anglers' interest in the species at this particular lake. 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 (250 mm or 9.8 inches) sized crappie followed some years later by a high catch rate and lower harvestability of the preferred sized crappie.
- **Threadfin Shad:** During fall electrofishing of North Fork Lake in 2006, threadfin shad were discovered. With no threadfin shad showing up in one gill netting and three electrofishing samples in 2009, none with the same effort in 2010 and none seining and during three electrofishing samples in 2011; it appears the threadfin shad probably have died out. North Fork Lake will continue to be seined and electrofished at least annually.
- **Shoreline Seining:** Shoreline seining was conducted in, or at least attempted, in 34 lakes and ponds across the Ouachita NF in 2011. Adequate reproduction was found for sunfish and bass in most of the waters that were easily seined with the following exceptions. Difficulties in pulling seines were encountered and noted at several ponds, most of which also had low numbers of bass young.

Stream and River MIS

There are 14 species of fish associated with stream and river habitat. Monitoring and MIS analysis for 12 species is conducted every five years utilizing a Basin Area Stream Survey along with annual data from long-term permanent stream monitoring sites. Johnny and channel

darters data 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.

- **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. Overall 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.

R8 Sensitive and Other Aquatic Species of Viability Concern

There are 67 species on the R8 Regional Forester's Sensitive Species List, including 22 freshwater mussel species, 7 crayfish species and 11 fish species. Of those, only the Quachita Darter is an aquatic species that is monitored on an annual basis.

- **Ouachita Darter *(Percina* sp. nov.):** 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.

Connectivity of Fish Habitat

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 this desired condition and Forest Plan objective, the Forest completed 11.5 miles of improved fish passage at four crossings and stabilized 145.8 miles of stream habitat.

Mussels General

- **Pink Mucket-*Lampsilis abrupta* and Winged Mapleleaf-*Quadrula fragosa:*** There were no specific freshwater mussel surveys conducted on the Ouachita NF during FY 2011. The federally endangered pink mucket mussel and the winged mapleleaf freshwater mussel have not been found to occur in any of the previously surveyed waters.
- **Scaleshell-*Leptodea leptodon:*** In Arkansas, the only sites where scaleshell mussels have been found occurred in the South Fork Fourche LaFave River. In Oklahoma, the scaleshell has not been found within the Forest Proclamation boundary, but is known to occur along with the Ouachita Rock-pocketbook mussels.
- **Ouachita Rock-pocketbook-*Arkansia wheeleri:*** Although not found within the Forest boundaries, populations of the freshwater Ouachita Rock-pocketbook mussel are known to occur in the Kiamichi River in Oklahoma, and Little River systems in Oklahoma and Arkansas. The potential for occurrence along with the federally endangered status of this species makes this a species of viability concern for the Ouachita NF.
- **Arkansas Fatmucket-*Lampsilis powellii:*** Catastrophic population declines have resulted in the extirpation of the federally threatened 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 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:*** Based on the counts at 16 of the 18 permanent monitoring sites snorkeled during the summer of 2011, leopard darter counts were the third lowest (annual pooled count per minute) since the use of permanent monitoring sites began in 1998. Monitoring has resulted in highly variable results; therefore, the trend line for the annual pooled counts of leopard darters is not statistically significant.
- **Harperella-*Ptilimnium nodosum:*** Harperella is the only federally listed endangered plant known to occur on the Ouachita NF. In 2011 the Arkansas Natural Heritage Commission found two new locations of Harperella on the Forest. Harperella has been monitored annually in the past; but in 2011, only two of the populations were monitored. Both populations were on Irons Fork Creek, and they appear to be stable.

Aquatic Habitat Enhancement Activities
During FY 2011, 48 lake fish attractors were installed and 696 acres of fishing ponds or lakes were enhanced with fish stocking, aquatic weed control, and fertilizer and/or lime. Additionally, 11.5 miles of improved fish passage at 4 crossings, and 145.8 miles of stabilized stream habitat was accomplished through maintenance and reconstruction of roads.

Watershed Function and Public Water Supply
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. 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.

Herbicide Monitoring
Lab reports indicated that the presence of herbicides was insignificant for all sites monitored. Four sites were monitored on three Districts. Monitoring protocols should be continued.

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. Three Management Areas (MA 1 Wilderness; MA 20 Wild and Scenic Rivers and MA 17 Semi-Primitive Areas) offer essentially primitive recreational opportunities in a natural setting

Recreation Management
- **MA 1 – Wilderness:** There are six Congressionally designated 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). Surveys of the Wilderness areas reveal that they are in reasonable condition due, primarily, to the general lack of recreation use. Eleven streams with wilderness area headwaters were sampled in 2011 and all 11 stream samples indicated no or minimal effects from acid rain.

- **MA 20 - Wild and Scenic Rivers:** The Cossatot and Little Missouri Rivers are the only designated Wild and Scenic Rivers within the Ouachita NF. About 16.5 miles of the Glover River are eligible for designation as a part of the National Wild and Scenic River system; however no action was taken during FY 2011 to designate the Glover River as a part of the Wild and Scenic River system.
- **MA 17 - Semi-Primitive Areas:** This Management Area offers motorized and non-motorized semi-primitive recreation settings for recreation. No management changes are recommended for this management area.

Scenery Management

- **MA 2 - Special Interest Areas:** There are four areas specifically designated as scenic areas. In addition to Irons Fork three of these areas—Blowout Mountain, Dutch Creek, and Crystal Mountain—are also designated to sustain characteristics of old growth shortleaf pine-hardwood forests.
- **MA 16 - Lands Surrounding Lake Ouachita and Broken Bow Lake:** The management activities within this area are designed to address wildlife and recreation objectives and the protection of resource values for each lake. Of 38 scenic overlooks on the Forest, all were maintained. During FY 2011 the Hickory Nut Vista that provides views over Lake Ouachita was reworked, removing safety hazards and reconstructing the viewing platform. Also stabilization work was accomplished at the Jack Creek Overlook. Although growing vegetation that interferes with viewing continues to pose challenges at some vistas, no management changes related to scenery management are recommended.
- **MA 19 - Winding Stair Mountain Recreation Natural Area and Associated Non-Wilderness Designations:** This area 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, including the Talimena Scenic Drive. No management changes are recommended for this Management Area.

MA 3 – Developed Recreation Areas

- **Fee Sites:** Fee collections for FY 2011 were the lowest they have been since FY 2005 at $258,418. The FY with the highest fee collections was 2009 with collections totaling $357,699, almost $10,000 more than was collected during FY 2011. There are no discernible trends related to fee collections.
- **Trails:** The Forest provides equestrian, off-highway-vehicle (OHV), hiking/mountain bike, and interpretive trails. 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, on the International Mountain Bicycling Association “epic” Womble mountain biking trail, and along 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. 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 Participation
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.

Public and Agency Safety
Law Enforcement Activities: Law Enforcement and Investigation continues to collaborate with local county law enforcement officers in Arkansas and Oklahoma under seven Cooperative Law Enforcement Agreements. Among other work items the following were accomplished:

- Assisted with 42 accidents within or adjacent to the Ouachita NF
- Conducted 20 search and rescue (SAR) operations
- Investigated 6 assault cases
- conducted 19 compliance checkpoints
- Completed 97 timber spot inspections
- Issued 487 Federal and State Violation Notices, 4774 Warning Notices, and 476 Incident Reports
- Made 123 arrests
- Eradicated 124 marijuana plants
- Investigated 80 fires and found 50 arson or human-caused fires
- Participated in 123 hours of public relations programs

Heritage Resources

- **Heritage Stewardship:** The Heritage Overview, originally due in 2007, has been completed in draft form except for the historical background chapter; this chapter, however, should be finalized by the end of this fiscal year. The process of drafting the Heritage Overview has been prolonged due to other priority projects, causing the GIS data originally analyzed for the Heritage Overview to be somewhat dated. The final draft is expected to be available by the end of the calendar year 2012.
- **Tribal and Native American Interests:** 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 2013, at which time it will expire. The new agreement will streamline the Section 106 processes, clarify specific processes, 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 2013.

Performance History

- **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.
- **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.

- **Budget:** The Forest Plan management areas, management prescriptions, and standards 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 for FY 2011 were $9.8 million.
- **Resource Management Accomplishments:** The M& E Report contains a chart showing resource Management accomplishments. Noteworthy among accomplishments were increased watershed improvements and maintenance (about 50,000 acres more than in the past); continued performance in soil and stream inventory; and due to dry conditions only a slightly below average performance in prescribed fire performance.

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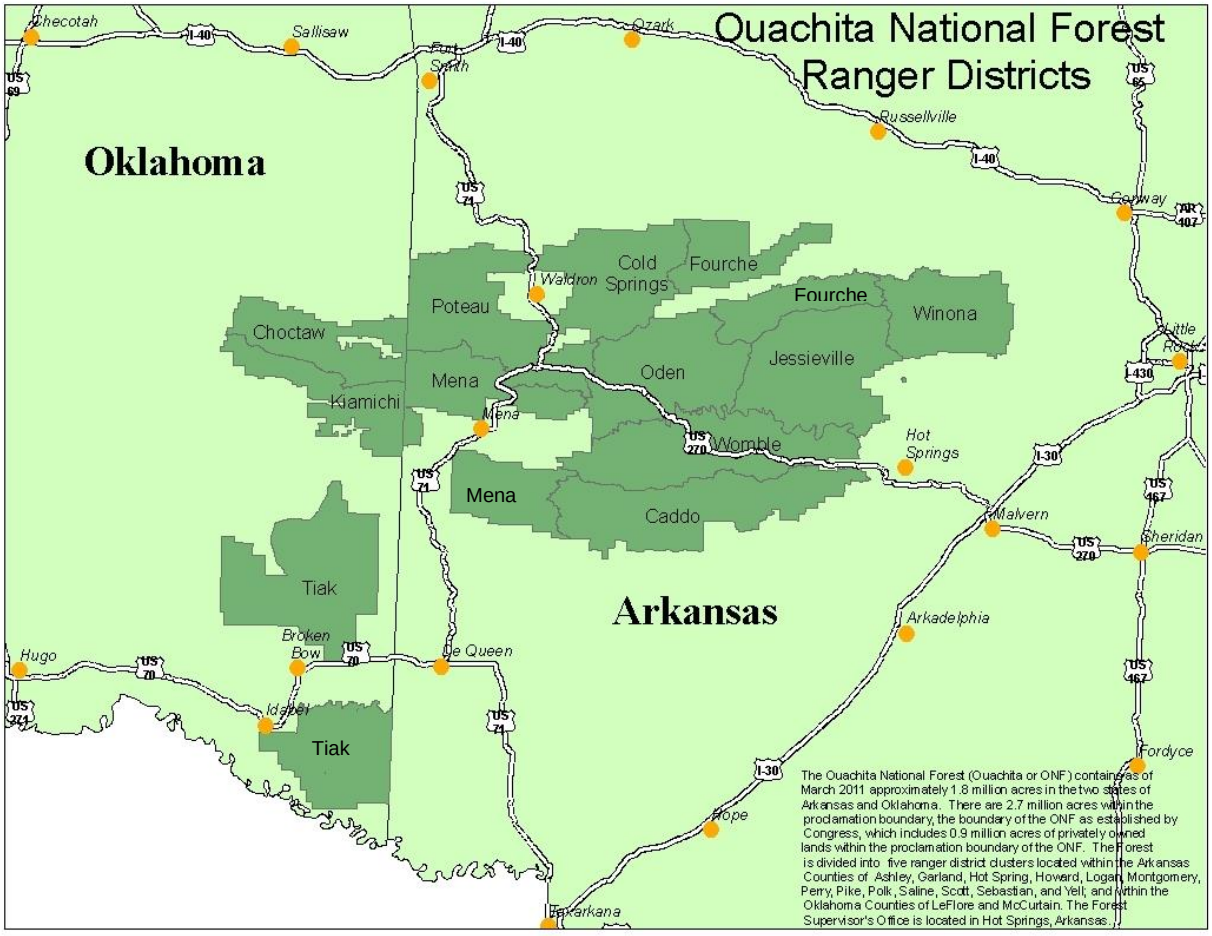
The Ouachita National Forest

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) contains approximately 1.8 million acres of federally managed land in the two states of Arkansas and Oklahoma as National Forest System (NFS) lands. 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 NFS system managed lands. Privately owned lands within the proclamation boundary total nearly 1 million acres.

The Ouachita NF is divided into five ranger district clusters located within 13 Arkansas counties: Ashley (Crossett Experimental Forest), Garland, Hot Spring, Howard, Logan, Montgomery, Perry, Pike, Polk, Saline, Scott, Sebastian, and Yell; and within 2 Oklahoma counties: LeFlore and McCurtain. The Ouachita NF Supervisor's Office is located in Hot Springs, Arkansas. Individual Ranger Districts are shown in the map 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



Monitoring of the Forest Plan

The 2005 Land and Resource Management Plan (Forest Plan) for the Ouachita National Forest (Ouachita NF) provides broad, strategic direction for managing the land and its resources. The Forest Plan sets out the vision, desired conditions, priorities and objectives as well as standards to achieve the desired conditions and priorities. The Forest Plan direction provides a framework to guide future management decisions and actions. Over time it is necessary to assess progress toward achieving the desired conditions, meeting the objectives, and adhering to the standards in the Forest Plan. A cycle of adaptation is formed when management direction in the Forest Plan is implemented, reviewed, and then adjusted in response to knowledge gained through monitoring and evaluation. Monitoring is conducted by Forest Service resource specialists; Forest Service research scientists; universities; state, federal, and resource agencies; and other cooperators. Persons who contributed data, assisted in compilation of data, or helped to prepare this Monitoring and Evaluation Report (M&E Report) are listed in Appendix A to this report.

Purpose of the Monitoring and Evaluation Report

The 2005 Forest Plan was completed under 36 CFR Part 219, also known as the 1982 National Forest Management Act. These regulations specify that forest plan "implementation shall be evaluated on a sample basis to determine how well objectives have been met and how closely management standards and guidelines have been applied. Based upon this evaluation, the interdisciplinary team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the forest plan as are deemed necessary." Thus, the purpose of the M&E Report is to identify needed changes to management on the Ouachita National Forest utilizing the results of monitoring and evaluation. The M&E Report combines the results of the evaluations that occur throughout the year into a summary document. Based on the data gathered during monitoring, trends can be established and management corrections made, as necessary. Monitoring helps to track progress toward achievement of Desired Conditions (Forest Plan, Pages 6 – 43) and Plan Objectives (Forest Plan, Pages 58 – 69); implementation of Standards (Forest Plan, Pages 73 – 122); and occurrence of environmental effects as predicted. Monitoring indicates whether Ouachita NF management is addressing plan priorities. The evaluation of monitoring results allows the Forest Supervisor to initiate actions to improve compliance with management direction where needed, improve cost effectiveness, and determine if any amendments to the Forest Plan are needed to improve resource management on an annual basis or in more comprehensive reviews that result in periodic updates of the Forest Plan.

Organization of the Monitoring and Evaluation Report

For Monitoring Reports completed for years FY 2006 – FY 2009, the M&E Report was structured similarly to the Forest Plan. However, over the course of those years, it became evident that a more cohesive accounting of plan progress could be achieved through consolidating all monitoring by subject matter. Beginning with the FY 2011 M&E Report, the format will change to a summary of monitoring and evaluation by subject and topics will not be repeated in various places throughout the report.

Implementation of the Forest Plan

The 2005 Forest Plan (Forest Plan) for the Ouachita NF 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 undergo review for compliance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act, and the Endangered Species Act. The Forest Plan is implemented through project work primarily accomplished at the District level.

Project Decisions Made in Fiscal Year 2011

For additional information, contact Lisa Cline at (501) 321-5256 or lcline@fs.fed.us.

Decisions to implement management actions fall into two categories: non-documented and documented. Routine management actions do not require documented decisions, *i.e.* road and trail maintenance. Other actions that may affect the human environment require documented decisions, *i.e.* timber harvest and prescribed burning.

Appendix B to this report contains a list of 51 projects on the Ouachita NF for which NEPA decision documents were signed from 10/01/2010 through 09/30/2011. Of the 51 documented decisions, six are decision notices and the rest are decision memos. Decision notices are prepared for project analyses that are documented in environmental assessments, *i.e.* large timber sales. Decision memos are prepared for projects that are categorically excluded from documentation in an environmental assessment, *i.e.* special use authorizations.

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.

Implementation Monitoring Reviews

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

Implementation monitoring review (IMR) is broken into three components – implementation, effectiveness, and validation. The report from an IMR provides managers with information towards adaptive management adjustments. During FY 2011, no implementation monitoring reviews were conducted.

General Forest

Landownership and Land Administration

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

Land Line Location, Maintenance, or Management

For additional information, contact Charlie Storey at (501) 321-5306 or cstorey@fs.fed.us.

Forest Plan Objective 17 addresses the need for boundary management. Boundaries were marked or maintenance performed on 608 miles of National Forest System boundary during FY

2006 through FY 2011. A summary of miles of boundary located or maintained since FY 2006 is shown in the tabulation below.

Miles of Boundary Located or Maintained, by FY, ONF

Year	2006	2007	2008	2009	2010	2011
Miles	52.58	65.00	135.40	136.50	114.02	105.00

To protect land ownership title, four encroachments were resolved during FY 2011. During FY 2006 thru FY 2011, 38 encroachments, trespass, or unauthorized occupations have been resolved. 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

For additional information, contact Jessica Soroka at (501) 321-5226 or jasoroka@fs.fed.us.

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 since the Forest began implementing the 2005 Forest Plan.

ONF Land Program, Acres Purchased by FY

Year	2006	2007	2008	2009	2010	2011
Acres Purchased	2,257	120	0.00	0.00	27.80	0.00

During FY 2011, 260.8 acres were exchanged by the Forest Service (To Proponent, 221 acres and 40 acres to FS). 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).

During FY 2011, just less than one acre of land (0.8 acres) was exchanged in Montgomery County for use as a cemetery. By the end of Sept 2011, the Forest Service conveyed out 221 acres and acquired 40 acres in an exchange for a net decrease of 181 acres. The 40 acres that were acquired on the Mena Oden District and 220 acres conveyed out were on the Caddo Womble Ranger District in Polk County.

ONF Land Program, Acres Exchanged by FY

Year	2006	2007	2008	2009	2010	2011
Acres Exchanged	72.95	3,978	0	260	160	260.8

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	2011
Acres Sold	162.45	9.98	0.00	4.57	0.41	0.00

Overall, the total of National Forest System lands has remained fairly stable, increasing by 5,062 acres from FY 2005 – FY 2011. 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	2011
Total NFS Acres	1,784,610	1,786,714	1,789,690	1,789,690	1,789,666	1,789,853	1,789,672
Change from Previous Year	+1,945	+2,104	-214	0	-24	+187	-181

Transportation System and Access Management

Transportation System

For additional information, contact Lea Moore at (501) 321-5311 or lvmoore@fs.fed.us.

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.*

The tabulation below displays the total road miles listing miles in each of the categories.

Maintenance Level	FY 2011 Miles	Percentage
1 – BASIC CUSTODIAL CARE (CLOSED)	2560.35	44.2%
2 – HIGH CLEARANCE VEHICLES	2013.87	34.8%
3 – SUITABLE FOR PASSENGER CARS	1140.69	19.7%
4 – MODERATE DEGREE OF USER COMFORT	56.66	1.0%
5 – HIGH DEGREE OF USER COMFORT	18.47	0.3%
Grand Total	**5790.04**	100.0%

During FY 2011, 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.

Also, during FY 2011, 11.35 miles of arterial/collector roads (3 roads) were reconstructed, compared to 7.96 miles of arterial/collector roads reconstructed in FY 2010. No new arterial/collector roads were constructed during FY 2011. The tabulation below shows arterial/collector roads reconstructed for FY 2011 and the past five years.

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	FY 2011
Miles	**15.56**	**6.44**	**6.44**	**1.94**	**7.96**	**11.35**
Number of Roads	**7**	**4**	**4**	**4**	**3**	**3**

Work has been accomplished to reconstruct local roads. During FY 2011, 14.71 miles of local roads were reconstructed. The tabulation below displays local road reconstruction. 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	FY 2011
Miles	**55.4**	**34.20**	**28.17**	**1.94**	**13.62**	**14.71**

In addition to the 14.71 miles of local road reconstruction, during FY 2011, 11.13 miles of local roads were constructed and added to the system, compared to FY 2010 when 3.29 miles of local 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	FY 2011
Miles	15.99	4.28	8.54	21.00	3.29	11.13
Number of Roads	22	NR	NR	8	5	11

NR=Not Reported

There were 20.70 miles of roads removed from the system (decommissioned) during FY 2011. The tabulation below displays the miles of roads removed from the system by fiscal year.

Roads Removed from the NF System by FY, ONF

Roads Removed from the System	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Miles	204.35*	12.30	2.70	2.04	0.00	20.70

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

During FY 2011 $776,000 was spent on road maintenance including funds in the budget line item, CMLG, for construction and maintenance of legacy roads and trails. Funding under CMLG is for specific purposes and the Forest does not receive funding in that category every year. Spending for road maintenance has not been previously tracked in the M&E Report, but will be included in succeeding years.

Bridge Inspections

For additional information, contact Bubba Brewster at (501) 321-5368 or bbrewster@fs.fed.us.

Another facet of maintenance of the transportation system is a robust monitoring program of inspection of bridges and their condition. In inventory, there are 130 bridges on 73 roads within National Forest System management. Bridge inspection is a continuous process, and each year approximately 1/3 of those bridges are inspected. For FY 2011, 44 bridges were inspected (36 FS and 8 County). Over 86 percent of all bridges inspected were found to be free of any structural deficiency. Those requiring maintenance have been entered into a maintenance inventory and will addressed as funding is available or closed if a deficiency becomes a safety hazard.

Access/Travel Management

For additional information, contact Alett Little at (501) 321-5372 or alittle@fs.fed.us.

Development of the Ouachita NF transportation system was substantially completed prior to 1985. 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/or use of temporary roads accomplished by using road purchaser provisions in the timber sale contract.

Funding for road maintenance has essentially remained flat for over ten years 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.

There is one Forest Plan objective specific to travel management: *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.

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. The 2005 Forest Plan contained the following desired condition, *"Recreation opportunities for OHV (Off-Highway Vehicle) enthusiasts will be available within an integrated system of designated roads and trails."*

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 nation-wide 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. For FY 2011, this effort resulted in a set of MVUMs designating routes on NFS lands where motor vehicles are allowed to travel. MVUMs require annual reviews and updates where needed.

MA – 8 Administrative Sites

Management Area 8 consists of district ranger offices, district work centers, district residences, Forest Service communication facilities and sites for communication facilities under special use

permit, and the administrative site within the seed orchard. Roads, rights-of-way, utility easements, and other linear features are not included as a part of Management Area 8 but are interspersed within other management areas. The Desired Condition for Administrative Sites is that visitors will encounter a variety of well-maintained facilities, including roads, buildings, parking areas and other facilities, typically in a forest setting with a high level of site reinforcement and regularly occurring maintenance.

Facility Operation and Maintenance

For additional information, contact Bubba Brewster (501) 321-5368 or bbrewster@fs.fed.us.

Objective 31 of the Forest Plan is to *"Eliminate three leased facilities by 2015."* Since FY 2006, 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 2013 and construction in FY 2014.

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 2013: 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. The inventory is expected to be completed by the end of FY 2013.

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 during FY 2011 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. The Forest has also began collecting utility information on administrative buildings and is conducting a survey of all HVAC systems at administrative sites in order to develop a schedule for replacement of older, more inefficient systems..

Annually, buildings are inspected for compliance with health and safety standards in accordance with Forest Plan Objective 35. Since FY 2005, 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 2011, 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.

Special Uses

For additional information, contact Elaine Sharp at (501) 321-5228 or esharp01@fs.fed.us.

Special Uses of the Ouachita NF are authorized by special use permit. As shown in the tabulation below, there were 435 authorizations of various types on the Ouachita NF during FY 2011. 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 roads/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	FY 2011
Roads	318	317	330	298	278	262
Water Lines, Electric, Telephone Utilities, & Oil and Gas Pipelines	58	58	58	60	60	57
Research or Resource Surveys	13	11	12	7	11	12
Dams and Reservoirs	24	24	24	24	24	24
Communication Uses*	74	60	72	61	59	49
Recreation Uses	10	7	11	10	10	11
Agricultural Uses	--	--	7	4	4	4
Community Uses	7	7	7	7	7	8
Misc. Uses	21	15	42	7	10	8
Total	532	506	563	478	463	435

*A list of the approved communication sites and those pending approval as of September 2011, is included in Appendix C.

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.

During FY 2011 no road easements for FS use were acquired. This compares to FY 2010, when three cost-share road easements were acquired. During FY 2008, three road easements were acquired and two were acquired during FY 2009; however during FY 2006 and FY 2007, no road easements were acquired.

Commodity and Commercial Uses

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

- Mineral and Energy Development
- Livestock Grazing or Range Activities

Minerals and Energy Development

For additional information, contact Mike White at (501) 321-5313 or mawhite@fs.fed.us.

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 since FY 2006, 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; however in FY 2011 the Bureau of Land Management retracted all of the gas lease consents from Arkansas and no new ones were auctioned. There were also no requests from the public. 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
FY 2011	0*	0

*Bureau of Land Management retracted all of the gas lease consents from Arkansas and no new ones were auctioned this year. There were also no requests from the public.

Livestock Grazing/Range Activities

For additional information, contact Susan Hooks at (501) 321-5323 or shooks@fs.fed.us.

Desired Condition: Livestock grazing opportunities are maintained consistent with other resource values in designated livestock grazing areas (allotments).

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

Year	2005	2006	2007	2008	2009	2010	2011
Number of Livestock	715	530	300	154	142	133	116
Number of Permittees	24	20	15	8	6	5	5
Active Allotments	16	16	16	6	4	3	3

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

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. The number of cattle being grazed is also on the decline: therefore, resource damage from grazing is minimal. Such use is consistent with the two 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 at 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 condition and plan objectives. All indicators [Number of Livestock, Permittees, and Active Allotments] show that the Range program has been on a decline for the last 7 years. This trend is expected to continue.

Timber Sale Program

Firewood

For additional information, contact Ray Yelverton at (501) 321-5240 or ryelverton@fs.fed.us.

Demand for firewood remains high and stable with no discernible trends. The Forest Plan contains two 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 by FY are shown in the following tabulation.

Cords of Firewood Sold (Cords = CCF x 1.54)

Year	2006	2007	2008	2009	2010	2011
Cords Sold	2,107	1,650	1,686	1,299	1,364	1,609

Source: Timber Cut and Sold Report

Timber – Allowable Sale Quantity (ASQ)

For additional information, contact Ray Yelverton at (501) 321-5240 or ryelverton@fs.fed.us.

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 71.46 percent of ASQ since FY 2005, 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 2011, 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
2011	167,190	6,747	26,116	0	193,306	6,747
Average	183,303	1,968	9,656	75	192,959	2,042
Average Total	185,271		9,731		195,001	

Source: CDW – PTSAR - Reports PTSR201F & PTSR202F

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."* Since FY 2005, the Ouachita NF has sold an average of over 97 percent of the 200,000 CCF objective, as shown in the following tabulation. The Forest Plan objective was exceeded in three of those years, FY 2007, FY 2008, and FY 2011.

Comparison of Timber Volume Offered & Sold (CCF) to Net Budget Allocation for All Timber Dollars, FY 2006 – FY 2011, ONF

	FY 2006*	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Annual Average
Volume Offered	75,699	198,606	215,206	161,741	204,688	198,790	175,788
Volume Sold	197,119	206,306	201,858	175,388	189,283	200,053	195,001
Timber Budget ($)	6,722,677	7,182,961	7,216,888	7,093,596	7,960,905	8,439,629	7,436,109
$/CCF Offered	88.81	36.17	33.53	43.86	38.89	42.45	47.29
$/CCF Sold	34.10	34.82	35.75	40.45	42.06	42.19	38.23

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 2011 is $39.03.

The following tabulation compares actual acres sold to proposed and probable activities as presented in the 2005 Forest Plan.

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**	**Actual Annual Activity FY 2011**	**Annual Average**
Regeneration harvest (by modified seedtree/ shelterwood methods)	Acres	5,000-6,000	2,658	4,363	3,186	1,848	2,270	1,837	2,163
Management Area 14	Acres sold	4,000-4,700	1,374	3,981	2,968	1,685	2,033	1,274	2,219
Management Area 15	Acres sold	140	0	0	179	0	0	0	23
Management Area 16	Acres sold	--	401	97	39	0	21	33	99
Management Area 17	Acres sold	250	52	0	0	78	0	297	71
Management Area 21	Acres sold	160	232	0	0	0	0	0	39
Management Area 22	Acres sold	1,000-1,200	599	285	0	85	216	233	236
Other MAs	Acres sold	250	0	0	0	0	0	0	0
Uneven-aged management	Acres sold	9,000-12,500	3,216	3,065	1,246	1,291	715	444	1,663
Management Area 14	Acres sold	7,200-7,850	1,307	1,972	1,031	508	378	0	866
Management Area 16	Acres sold	1,000-1,300	1,841	676	114	0	0	375	501
Management Area 17	Acres sold	--	19	0	0	636	0	0	109
Management Area 19	Acres sold	800-850	0	417	101	147	337	0	167
Other MAs	Acres sold	--	49	0	0	0	0	69	20
Commercial Thinning	Acres sold	20,000-28,500	13,060	9,922	10,981	12,407	10,864	10,978	11,369
Management Area 14	Acres sold	10,000-13,700	5,946	7,368	9,070	7,722	5,700	5,512	6,886
Management Area 15	Acres sold	1,000	0	0	288	0	0	0	48
Management Area 16	Acres sold	--	845	608	0	0	764	1,493	618
Management Area 17	Acres sold	400-500	60	0	67	415	0	1,462	334
Management Area 21	Acres sold	1,500-1,600	493	0	615	1,099	1,000	0	534.5
Management Area 22	Acres sold	7,000-8,200	5,571	1,946	534	3,171	2,294	1,780	2,549
Other MAs	Acres sold	--	145	0	0	0	1,106	731	330

Source for Actual Acres: TIM

Air Quality

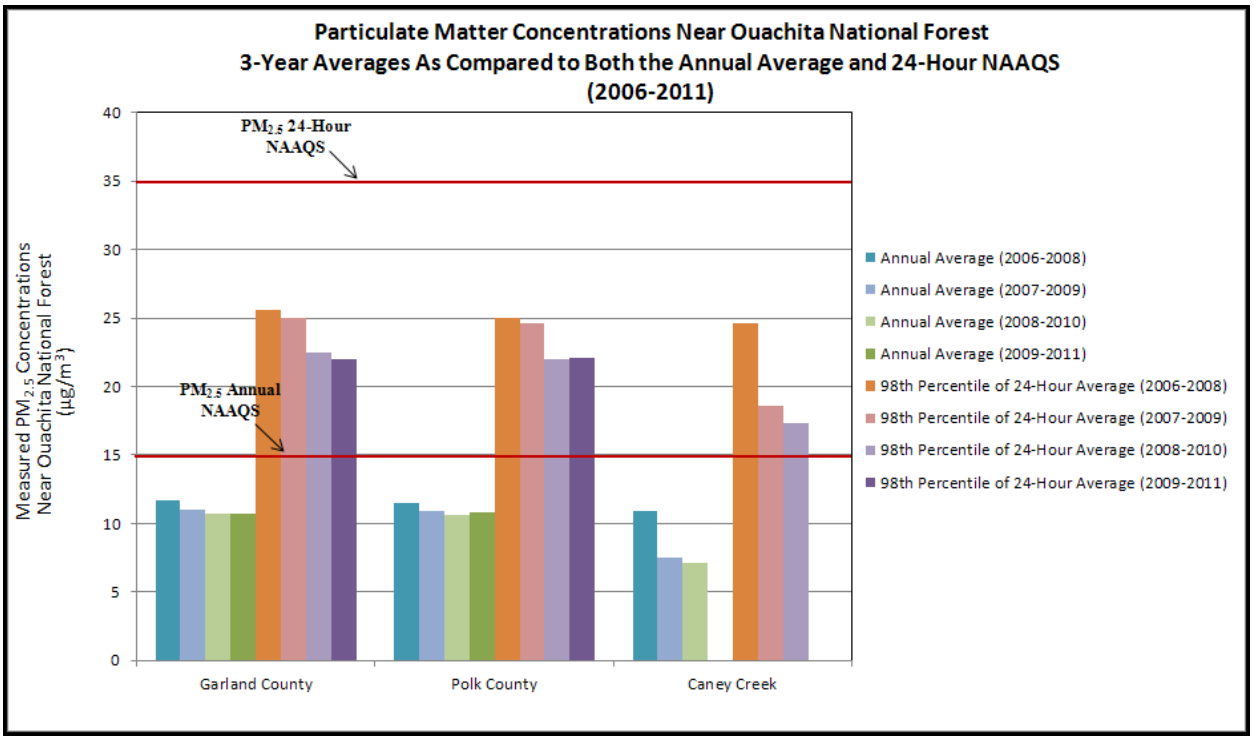
For additional information, contact Melanie Pitrolo at (828) 257-4213 or mpitrolo@fs.fed.us.

Air pollution often has a subtle but critical impact on ecosystems and vistas, and can alter ecosystems by harming plants and animals, or changing soil or water chemistry. Ecosystems then become more vulnerable to damage from insects and diseases, drought, or invasive species. Additionally since many visitors to National Forests value pristine areas with magnificent vistas, air pollution can spoil their experience and lessen their enjoyment of National Forests. To view the full Air Quality Report, please see Appendix D at the end of this report.

Within the Ouachita NF, air pollutants such as ozone, fine particulate matter, and acidic deposition can cause negative impacts to flora, visibility, and water. Ambient monitoring of levels of ozone, fine particulate matter, and visibility-impairing pollutants occurs on or near the Forest to evaluate any potential effects. Additionally, monitoring of acidic deposition levels occurs nearby and is representative of conditions on the Forest. Due to the lag in data available, no new acidic deposition data or visibility data are available at this time for FY 2011, and the graphics presented in the prior Monitoring and Evaluation Report are still current.

Fine Particulate Matter

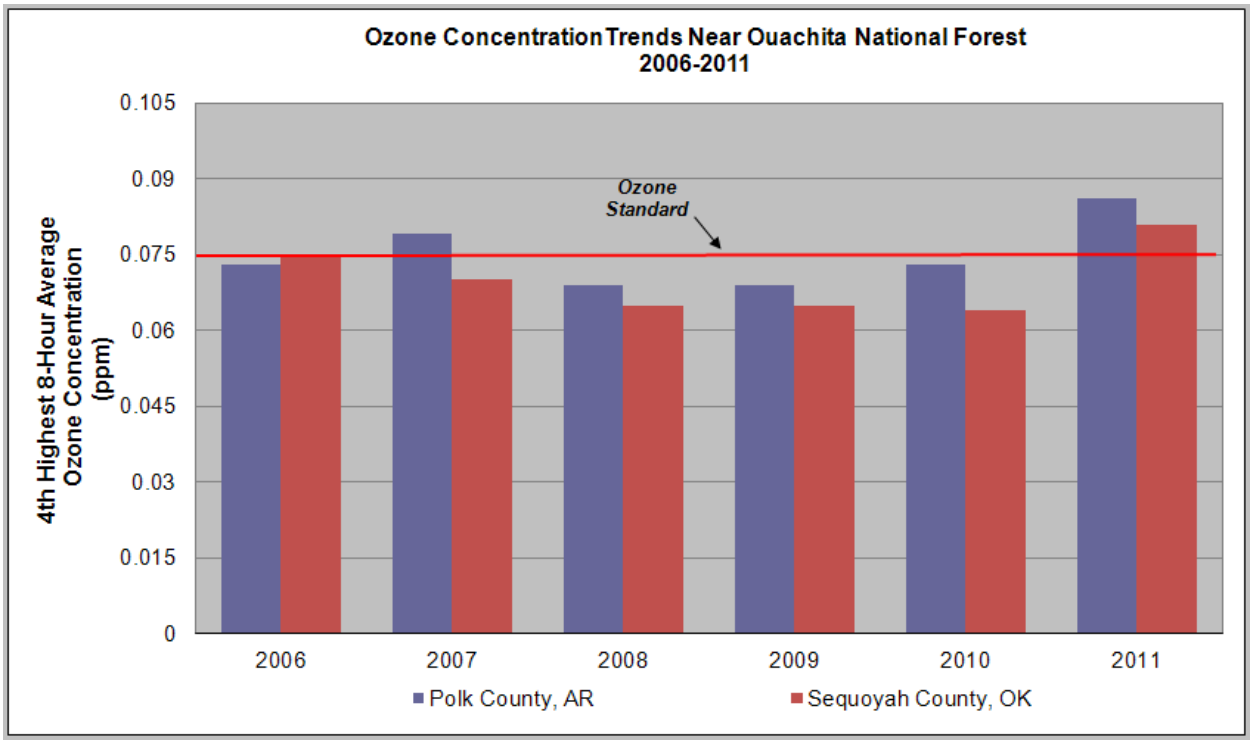
For 2011, levels of fine particulate matter at monitors near the Forest are generally improving, as shown below.



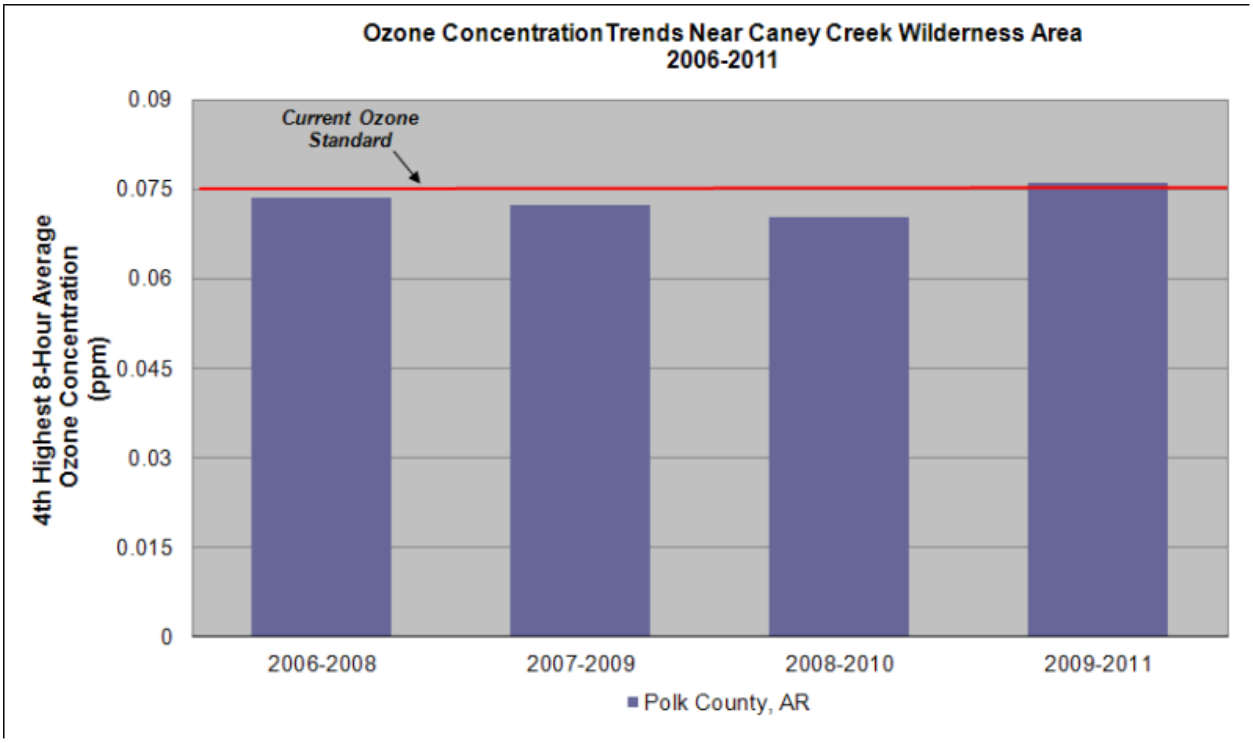
Ozone

Levels of ozone concentrations near the Forest increased to above the air quality standard in 2011, as shown in the graphic below. After additional checking, it has been determined that that days of exceedance were not days when fire was occurring on the Ouachita NF. At elevated

concentrations of ground-level ozone, sensitive vegetation may experience foliar symptoms. If this trend continues, this area will be categorized as non-attainment.



The following graph shows the three-year average (EPA data), for 2009-2011 indicating that this monitoring station is collecting data that exceeds the national standard.



Terrestrial Ecosystems

Terrestrial Community Types

Terrestrial communities include all non-aquatic Ouachita Mountain and West Gulf Coastal Plain Ecological Community Systems listed by NatureServe (2003). 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*
- Southern Arkansas Calcareous Prairie*
-

*These communities are considered Rare Upland Communities and are discussed as a part of Management Area 6 below.

Desired conditions by terrestrial ecosystem are described on pages 6-18 of the 2005 Forest Plan. The areal extent of the Nature Serve Communities on the Ouachita NF is displayed in the tabulation below. These data were prepared for the Five-Year Review of the Forest Plan and are displayed here for comparison purposes. The next comparison of data will occur in 2015.

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**

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. Road density was derived from the 2010 roads layer.

Common Pine-Dominated Upland Communities: Habitat Diversity Emphasis, Old Growth, and Pine/Bluestem Grass Ecosystem

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

There are five communities regarded as common pine-dominated upland communities. These include the following:

Ouachita Shortleaf Pine-Oak Forest and Woodland
Ouachita Shortleaf Pine-Oak Forest
Ouachita Shortleaf Pine-Oak Woodland
Ouachita Shortleaf Pine-Bluestem Woodland (includes Red-cockaded Woodpecker Habitat)
West Gulf Coastal Plain Pine-Hardwood Forest

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 and occurs in all management areas to some extent. 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. Previous analysis reported in the Five-Year Review found "Poor" scores for early seral stage and road density as well as the "Fair" scores for fire regime and areal extent.

Ouachita Shortleaf Pine-Oak Woodland

Ouachita shortleaf pine-oak woodland (332,681 acres) is one of two relatively open-canopy, 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. Previous analysis reported in the Five-Year Review found improved overall SVE condition score for the pine-oak woodlands when compared to FY 2005.

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 Ouachita NF. Currently, this subsystem constitutes approximately 14 percent of the shortleaf pine-oak dominated communities and almost 10 percent of the Forest.Previous analysis reported in the Five-Year Review found improved overall SVE condition score for the pine-Bluestem Woodland from Fair to Good Condition when compared to FY 2005.

West Gulf Coastal Plain Pine-Hardwood Forest

This West Gulf Coastal Plain (8,007 acres) ecological system represents 0.4 percent of the Ouachita NF 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. Previous analysis found this ecological community type to be holding steady or slightly declining due to less than optimal creation of early seral habitat, road density and need for more frequent fire.

MA 6 – Rare Upland Communities

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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, disjunctive, and are generally “embedded” in a larger landscape matrix. These communities are maintained primarily through naturally occurring physical conditions such as elevation, soil moisture conditions, and soil productivity. Historically, wildfire was a major influence in all but the mesic hardwood forest.

Given the emphasis on restoration of the health of all communities, inventories for rare upland communities 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 associated species.

The seven rare upland communities are as follow:

- 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
- Southern Arkansas Calcareous Prairie

The Five-year Review found that three of the seven communtity types had condition scores that improved and four had scores that had declined slightly. The Southern Arkansas Calcareous Prairie has been burned appropriately and is improved to a "Very Good" score. Short discussions of each community type follow.

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. While a decline in canopy closure and increase in late seral stage vegetation was noted during the last evaluation, percent of this community treated with fire has improved. Overall the 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 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. Similar to the Ouachita Mesic Hardwood Forest, a decline in canopy closure and increase in late seral stage vegetation was noted during the last evaluation, but percent of this community treated with fire has improved. 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."

Ouachita Dry Oak Woodland

Oak species dominate the Ouachita Dry Oak Woodland system (12,755 acres, less than 1 percent of the Forest), which has an understory of herbaceous and shrub species. Drought stress and associated landscape fire are the major natural influences on this system. The fire regime for Ouachita dry oak community is improving as is the amount of herbaceous ground coverage; however, like other similar communities late seral stage is increasing. 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").

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, due to lack of fire during the growing season. Overall, the percent burned every 10 years increased substantially.

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 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 due to very few growing season burns.

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. The vertical structure needed to support good/very good conditions is an open glade condition maintained by prescribed fire. Although this system was treated with growing season burns, the total percentage being burned every 5-10 year declined slightly, influencing a slight decline in the overall condition score.

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 sites with more water and more soil, several fern species and sedges (*Carex* spp.) may become established. Wind, fire, and water erosion are the major forces influencing this system. The vertical structure needed to support good/very good conditions is an open, fire-maintained, herbaceous-dominated system with sparse woody vegetation. This community type would benefit from growing season burns.

Southern Arkansas Calcareous Prairie

This Calcareous Prairie system on the Ouachita NF is very small areally at 277 acres and 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, though small as a percentage of the Ouachita NF, represents some of the largest contiguos and highest quality of remaining examples. The vertical structure needed to support good/very good conditions is an open, fire-maintained grassland with sparse to absent woody vegetation. Overall condition score for Calcareous Prairie community has improved in the last five years.

MA 14 – Ouachita Mountains and MA 15 – West Gulf Coastal Plain (Habitat Diversity Emphasis)

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

Management Area (MA) 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 comprise over 42 percent of the Ouachita NF and 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. This 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. Throughout all the communities, there is a need to create additional early seral vertical structure for wildlife habitat and forest health purposes.

MA 21 – Old Growth Restoration (Pine Grass Emphasis)

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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 decades between 1920 and 1940. 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.

MA 22 – Renewal of the Shortleaf Pine/Blue Stem Grass Ecosystem and RCW Habitat

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us

The Ouachita Shortleaf Pine- Bluestem Woodland is a component of Ouachita Shortleaf Pine-Oak Forest and Woodland. Within the last five years, acres in this community type have increased and the condition score has improved from Fair to Good. This community provides valuable habitat for the Red-cockaded Woodpecker, an endangered species and is subject to intensive management, especially treatment with prescribed fire.

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 76 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 2011, ONF

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Annual Average
Acres Sold by Clearcut	74	0	193	0	152	39	76

Source: TIM

Terrestrial Habitat and Health

Soils

For additional information, contact Jeff Olson at (501) 321-5324 or jwolson@fs.fed.us.

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 2011 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 2011, there were a total of 430 acres of soil and water improvement accomplished and reported by the Districts. The tabulation below displays that progress for each year. 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	2011
Acres of Soil Restoration and Maintenance	87	45	41	75	64	118

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. Soil monitoring and observations have revealed that management actions have not had an overall detrimental impact to soil conditions. There are no changes recommended to soils standards.

Fire Influences and Fuels

For additional information, contact Andy Dyer at (501) 321-5217 or adyer@fs.fed.us or Jerry Soard at (479) 964-7210 or jsoard@fs.fed.us.

Fire regime includes how frequently fires occur and the season of the burn (dormant or growing season). For purposes of the M&E Report, 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.

There are two forest-wide 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. The majority of wildland fires are human-caused and burn an average of less than 100 acres per fire (calculated adding average acres/fire/year and dividing by total years). Lightning activity as a source of fire ignitions plays an important but usually small role in fire cause; however, FY 2011 saw the largest number of lightning ignited fires since monitoring for the 2005 Forest Plan commenced.

Fire Activity by FY 2006 – 2011, ONF

Objective or Activity	Unit of Measure	FISCAL YEAR					
		2006	2007	2008	2009	2010	2011
Wildland Fire	Number of Fires	187	68	41	60	75	130
Wildland Fire	Number of Acres	23,185	14,347	460	2,247	2,029	7,720
Wildland Fire	Average Acres/ Fire	124	211	11	37	27	59
Lightning caused	Number of Fires	46	20	4	7	12	68

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

Those three types have changed to only two types and further described below. 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. 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 proven difficult to achieve. 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. The following tabulation reports by purpose prescribed fire activity (including wildland fire acres) for FY 2006 through FY 2011.

Prescribed Fire Program by Purpose (acres)					
Fiscal Year	Fuel Reduction	Wildlife Stand Improvement	Site Prep	Wildland Fire	Ouachita NF Total
2006	36,855	5,760	478	23,185	66,278
2007	83,136	61,299	919	14,347	159,701
2008	89,197	30,106	985	460	120,748
2009	92,262	23,981	3,882	2,247	122,372
2010	101,173	33,464	6,151	2,029	142,817
2011	66,777	20,242	1,981	7,720	96,720

Under Watershed Restoration and Enhancement Agreement Authority, popularly known as the Wyden Amendment, the Forest Service is permanently authorized to enter into domestic cooperative agreements or grants with willing participants for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private land and for

the reduction of risk from natural disaster where public safety is threatened that benefit these resources within the watershed. While the number of acres treated through prescribed burning utilizing the Wyden Amendment 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 agreement.

Acres of Prescribed Fire accomplished under Agreement, ONF, 2006 – 2011

Objective or Activity	Unit of Measure	FISCAL YEAR					
		2006	2007	2008	2009	2010	2011
Prescribed Fire Agreements	Acres	>4,000	>9,000	2,563	>3,000	2,728	1,394

Prescribed fire is one of the most important actions that the Forest implements to manage against catastrophic wildfires as well as to improve and promote forest and vegetation community health. Prescribed fire is consistently used to aid in the prevention of wildfires, and is essential for forest health. The forest is comprised of primarily fire-dependent communities, particularly the pine-dominated communities, and is dependent on a definite and somewhat frequent fire regime for forest health. As shown in the following tabulation, the prescribed fire program for FY 2011 was considerably lower that the two previous years due to the intermittent wet spring and dry growing season.

Ouachita NF Community Treated with Prescribed Fire by Year

	Pine Oak Forest		Pine Oak Woodland		SLP Bluestem		Dry-Mesic Hardwood	
Annual Desired Range	Acres 56,000 to 80,000	7-10%	Acres 37,000 to 80,000	15-33%	Acres 31,000 to 68,000	15-33%	Acres 16,000 to 22,000	7-10%
FY 2006	29,568	4%	8,235	3%	7,717	5%	11,196	5%
FY 2007	46,238	6%	15,412	6%	51,617	26%	12,736	6%
FY 2008	59,702	6%	9,764	6%	30,000	14%	15,324	5%
FY 2009	46,405	5%	15,469	10%	37,105	19%	19,799	7%
FY 2010	47,812	7%	21,478	8%	32,551	18%	25,633	8%
FY 2011	26,446	4%	11,163	4%	19,489	11%	9,854	3%

The Forest Plan recognizes the importance of prescribed fire mimicking the role that wildfire played in the development of the fire-dependent 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 – 2011

Acres of Prescribed Fire during Growing Season March – September	Unit of Measure	FISCAL YEAR					
		2006	2007	2008	2009	2010	2011
Growing Season Prescribed Fire	Acres	18,162	17,327	92,614	57,102	112,957	83,925

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.

Terrestrial Non-native Invasive Species

For additional information, contact Susan Hooks at (501) 321-5323 or shooks@fs.fed.us.

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 Forest treated 149 acres of non-native invasive plant species and completed 2000 acres of feral hog eradication in FY 2011. There were 16,342 acres inventoried for NNIS.

Although 149 acres were treated for NNIS during FY 2011, 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.

Insects and Disease

For additional information, contact Dr. James D. Smith at (318) 473-7056 or jdsmith@fs.fed.us.

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 3 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 (SPB), 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. Trapping for SPB was conducted on all districts in the spring and a reduced number during fall of FY 2011. Trapping did not indicate presence of SPB on the Forest. Recently in the Homochitto NF in Mississippi a full blown outbreak of SPB is on-going; and trapping in advance of the outbreak did not indicate the presence of SPB.

Trapping off-forest in the northern part of Arkansas is also on-going to detect the presence of any movement of the emerald ash borer into the State.

Corresponding risks are associated with hardwood components of the Ouachita NF. Oak decline and red oak borer damage occurred extensively during 2000-2003, and affected 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. Due to potential impacts from the red oak borer, thinning and cultural management of hardwood stands is needed. Such treatment will ultimately lead to a healthier, more resilient, and more productive forest.

Trends
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 in the near future 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.

Vegetation Management

Forest Regeneration

For additional information, contact Jo Ann Smith at (501) 321-5250 or joannsmith@fs.fed.us.

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 -2011 resulted in 14,781 acres of regeneration. Additionally, uneven age harvests occurred on 9,547 acres resulting in approximately one-seventh of those acres (1,364 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. Increased growth rates and potentially eliminating release treatments have also occurred.

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.

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.

Forest Regeneration Trends

For additional information, contact Jo Ann Smith at (501) 321-5250 or joannsmith@fs.fed.us.

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 2011, ONF

Harvest Type	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Clearcut	74	0	193	134	152	39
Even-Aged Management (Seedtree/Shelterwood)	2,602	3,414	3,186	2,351	2,086	1,142 (150/992)
Uneven-Age Management (Group/Single Tree)	3,216	1,325	1,246	1,568	1,336	856 (856/0)
Commercial Thinning	13,046	10,601	10,981	10,409	8,120	6,175

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.

Terrestrial Habitats and Conditions

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us or Mary Lane at (501) 321-5201 or melane@fs.fed.us.

Vertical Structure

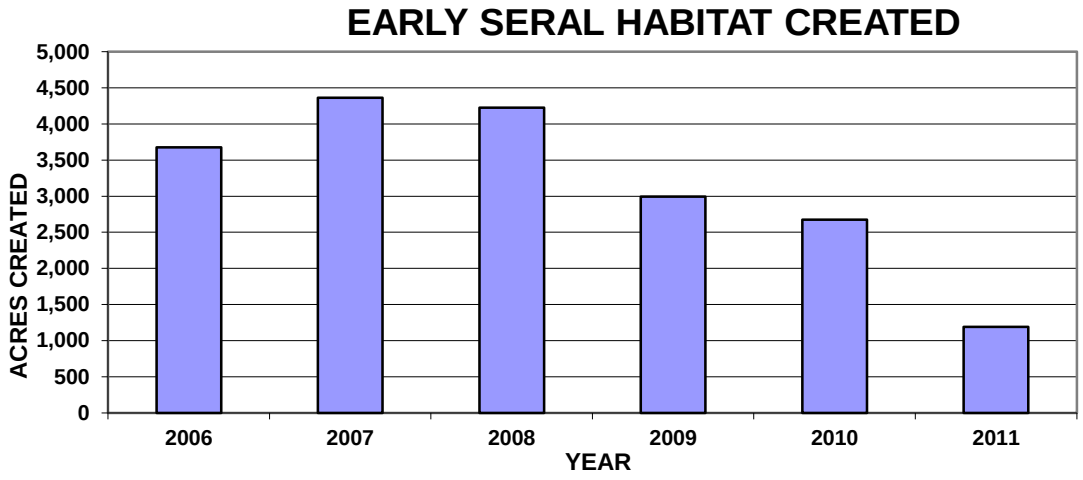
Fire, thinning, and other vegetation management practices help sustain the balance of structural and compositional diversity needed to support healthy populations of native plants and animals while maintaining the productivity of the land. Some plant and animal species can do well within any of the seral 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 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

Early Seral Stage

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.

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 using even-aged methods. 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."* The graph below shows the Forest has failed to meet that objective since 2006.



Inadequate levels of early seral stage habitat creation result in reduction of early seral species numbers. Forest-wide, less than 17,000 acres of early seral habitat have been created since Plan Revision in 2005, averaging less than 3,000 acres per year. In FY 2011, 1,907 acres, mostly from tornado damage, was salvaged; however, adding this to the acres of early seral created through green timber harvesting (1,190) would still not meet the plan objective. 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	2006	2,602
2001	953	2007	4,363
2002	772	2008	3,869
2003	2,268	2009	2,151
2004	1,866	2010	2,676
2005	3,031	2011	1,190

The early seral condition has an transient 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 an 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.

Mid-Seral Stage

The Mid-Seral Stage is tracked in FSVeg as a transitory stage between early and late seral stages; however there are no species of concern that are considered obligates of this vegetation condition.

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	FY 2011
Mature Pine Forest (Acres)	**435,112**	**565,683**	**495,176**	**507,068**	**553,923**	**588,733**	**568,851**
Change from Previous Year (Acres and %)	**N/A**	**+130,600 + 30**	**-73,500 - 12**	**+11,892 + 2**	**+46,855 +9**	**+34,810 +6**	**-19,882 -3**
Change from 2005 (Acres and %)	**N/A**	**+130,600 + 30**	**+ 60,100 + 14**	**+71,956 +14**	**+118,811 +27**	**+153,621 +35**	**+133,739 +31**

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 2011 data indicates that 68 percent of the Ouachita NF is now in late seral structure stage, a decrease from the 2010 Five-Year Review, which showed to be 73 percent of the Forest in late seral stage.

Other Terrestrial Habitat Components – Wildlife

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

In addition to the terrestrial ecosystems and the habitat they provide (discussed under Terrestrial Habitats and Conditions above) other terrestrial habitat systems provide habitat important for wildlife. Habitat components monitored annually include Cave and Mine Habitat and Mast Production. Other habitat components that are important to terrestrial ecosystems include Large Trees near Water; Snags, Cavity/Den Trees, Down Logs/Woody Debris; and Old Growth Habitat. A short discussion of Cave and Mine Habitat and Mast Production is included below.

Cave and Mine Habitat

Bear Den Cave Monitoring for Indiana Bat: During the 2010 survey, 25 Indiana bats were identified in Bear Den Cave. There were no Indiana bat surveys conducted at Bear Den Cave in FY 2009 or 2011. Previous surveys at Bear Den Cave did not find any Indiana bats using this winter hibernaculum from 2005 – 2008.

A protective order for closure at Bear Den Cave has been in place for many years to protect the cave and the Indiana bat hibernaculum. There is also a regional closure order for caves and mines across the south, signed in May 2010, to protect against the spread of white-nose syndrome.

Bear Den Cave Closure
Source: USFS

Mast Production

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us

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 hardwood-pine forests provide an important source of hard mast on the Forest. The availability of acorns has been demonstrated to influence population dynamics of demand species and non-game animals such as white-footed mice.

Hardwoods greater than 50 years old are used to determine hard mast capability. There were 422,992 acres of hardwoods greater than 50 years old in FY 2011. Management activities critical to mast producing tree species and predominately hardwood communities are thinning and prescribed burning.

Acres of Mast Capability by Year on the ONF

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Mast Capability (Acres)	**433,250**	**468,172**	**474,384**	**452,111**	**454,787**	**394,357**	**422,992**
Change from Previous Year (Acres and %)	**N/A**	**+35,000** **+ 8**	**+>6,000** **+ 1**	**- 22,273** **- 5**	**+2,676** **+1**	**-60,430** **-13**	**+28,635** **+7**
Change from 2005 (Acres and %)	**N/A**	**+35,000** **+ 8**	**+>41,000** **+ 9**	**+ 18,861** **+ 4**	**+21,537** **+5**	**-38,893** **-9**	**-10,258** **-3**

Hardwoods greater than 100 years old are used as a surrogate for mature hardwood forests. In FY 2011, there were 75,743 acres of hardwood forest greater than 100 years old (4.2% percent of the Forest) compared to 73,830 acres greater than 100 years old in FY 2010. This is an increase of 6,299 acres over the previous year. The acres of mature hardwood forest and mature pine forest indicate that the Ouachita NF 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	FY 2011
Mature Hardwood Forest (Acres)	**50,959**	**51,873**	**130,343***	**52,553**	**58,689**	**73,830**	**75,743**
Change from Previous Year (Acres and %)	**N/A**	**+>900 + 2**	**+78,500 + 251**	**-77,790 - 59**	**+6,136 +12**	**+15,141 +26**	**+1,913 +3**
Change from 2005 (Acres and %)	**N/A**	**+>900 + 2**	**+79,400 + 255**	**+1,594 + 3**	**+7,730 +15**	**+22,871 +45**	**+24,784 +49**

* 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.

Habitat Capability Modeling

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us

Modeling habitat capability using the Computerized Project Analysis and Tracking System (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 2011 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 declining in 2011, from the previous year. Habitat capability for Prairie Warbler, has been declining since 2007, and continues to be well 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, although it remains at the same level as the previous year. 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	Habitat Capability FY 2011	Projected Desired Habitat Capability FY 2015
Eastern Wild Turkey	18,461	17,601	18,316	18,370	16,204	14,610	14,736	9,177
Northern Bobwhite	65,002	62,571	69,349	74,223	68,888	76,690	71,468	101,748
Pileated Woodpecker	17,842	17,371	14,647	15,555	13,628	11,580	12,814	11,265
Prairie Warbler	90,313	85,691	93,830	87,788	71,582	75,531	64,686	112,590
Scarlet Tanager	90,583	86,455	85,046	84,040	73,136	66,744	66,743	69,500
White-tailed Deer	58,395	50,840	51,898	50,325	42,442	41,775	40,223	38,105

Management Indicator Species and Wildlife Habitat Management

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us

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, standards, and Management Area allocations; however specific information for each of the species is collected and reported here.

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. The tabulation that follows shows the 24 MIS for the Ouachita National Forest under the 2005 Forest Plan.

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 spadiceum***
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 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.

Eastern Wild Turkey *(Meleagris gallopavo)*

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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.)

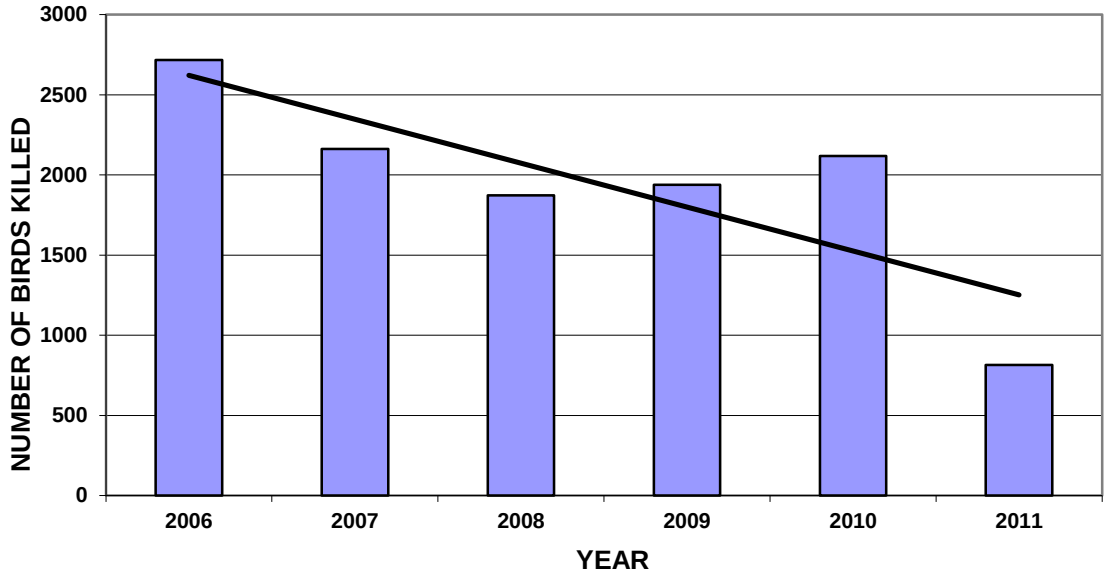
Data Sources: Sources of data include turkey poult surveys, spring turkey harvest data, habitat capability modeling using CompPATS and Landbird point survey data. In the 2005 Forest Plan, the minimum population objective is 3.3 turkeys per square mile (9,177 turkeys Forest-wide) after 10 years and 3.9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

Eastern Wild Turkey
Source: USFS

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 2011 in the Ouachita region of Arkansas. There is a clear downward trend for successful turkey reproduction.

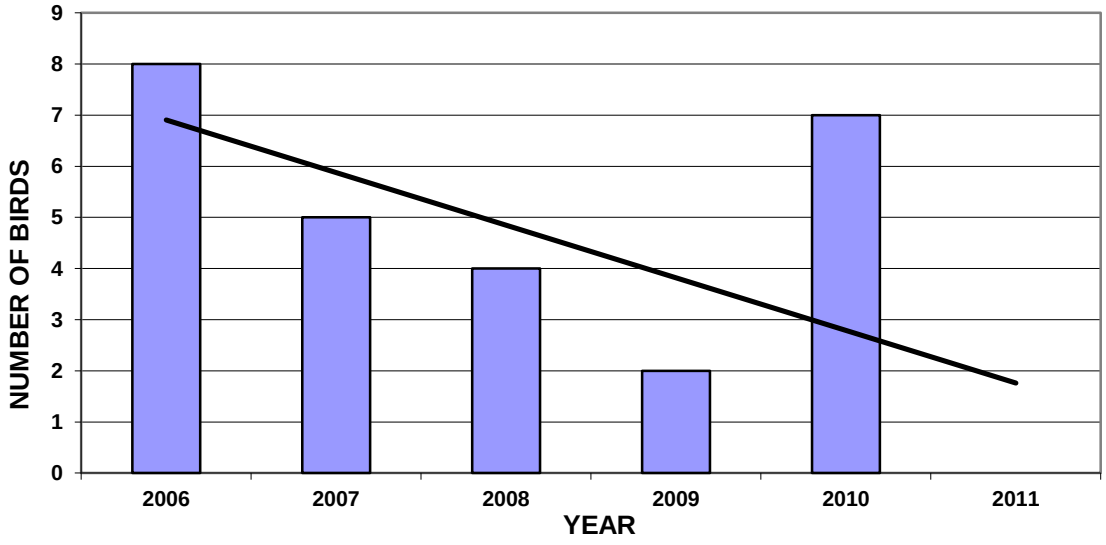
Spring turkey harvest achieved a high of about 2,718 birds in FY 2006. Spring 2011 harvest in the Ouachita Mountains was a 60 percent reduction from spring 2010 and a 40 percent reduction statewide from previous year while spring 2010 harvest was slightly more than the 2009 harvest. The Arkansas Game and Fish Commission addressed the turkey decline by adjusting the hunting season and eliminating the fall season entirely.

OUACHITA SPRING TURKEY HARVEST

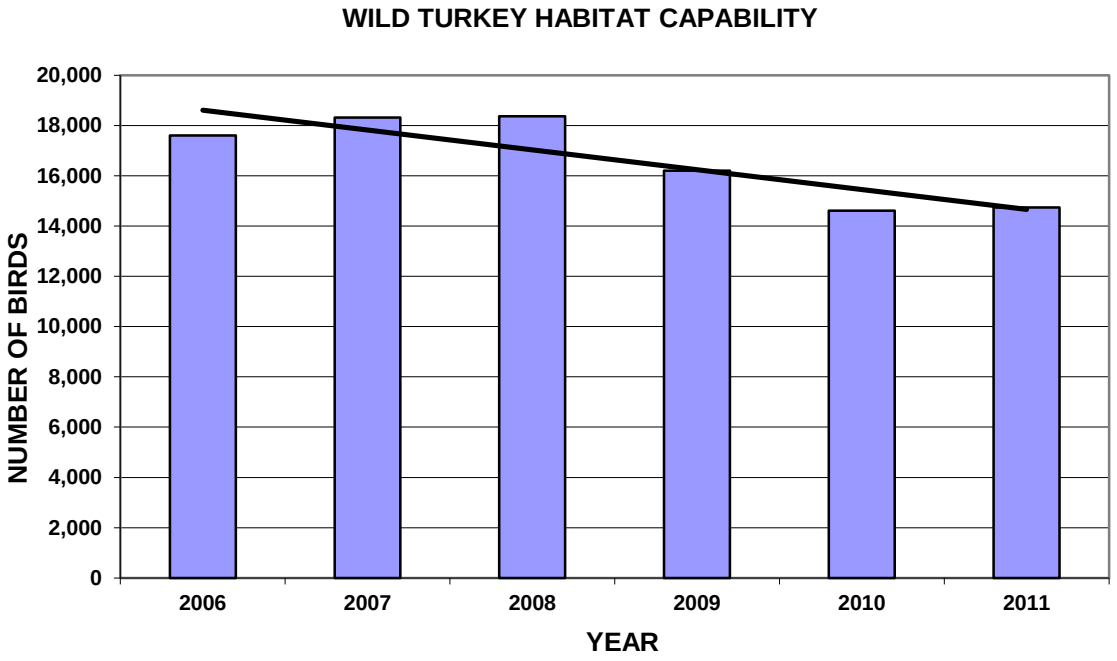


Landbird point surveys are conducted on many acres within the Ouachita NF. During the surveys in 2011, no wild turkeys were identified, resulting in an even greater downward trend. The Eastern Wild Turkey trend detected on the Ouachita NF Landbird point surveys is similar to the drop in harvested birds and poults per hen and is statistically showing a declining trend.

WILD TURKEY



Habitat capability for FY 2011 is estimated at 14,736 turkeys compared to an estimated 14,610 turkeys in FY 2010, 16,204 in FY 2009, 18,370 in FY 2008, and 18,316 in FY 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, there was a slight increase from FY 2010 to FY 2011. However, the Forest should have habitat to 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 2005 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. In addition, weather conditions (prolonged drought), maybe having a negative impact on the turkey. Data are contradictory, with habitat projections reflecting a negative, but stabilized trend in the past few years, 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.

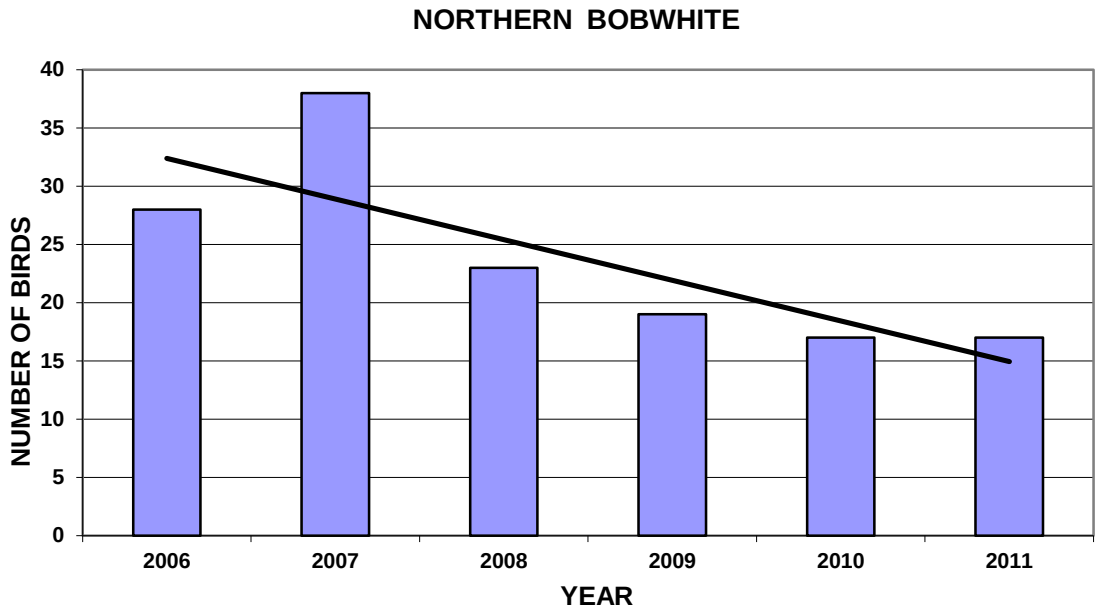
Northern Bobwhite (*Colinus virginianus*)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

Northern Bobwhite
Source: USFS

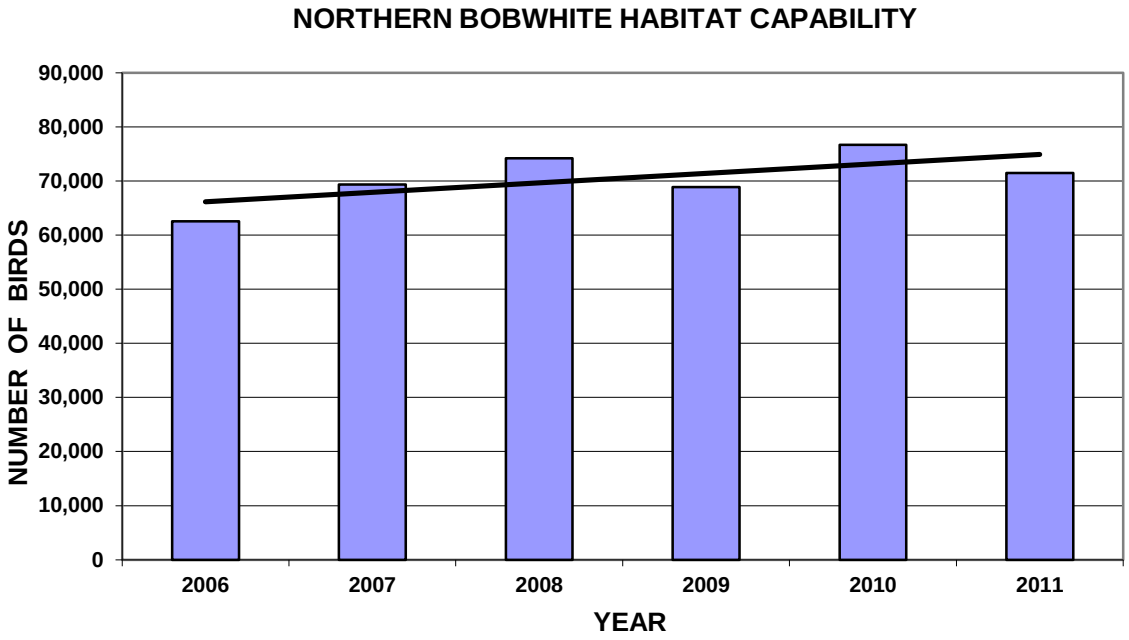
The Northern Bobwhite is a MIS for the Ouachita NF, selected to indicate the effects of management on meeting public hunting demand, and to indicate effects of management on the pine-oak woodland and pine bluestem communities (USDA Forest Service 2005b, p165.) Data Sources: Data sources and monitoring 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 14-year period. Since FY 2006, this trend has continued.



Estimated habitat capability for the Northern Bobwhite shows a modest increase since FY 2006; however, it is still far from reaching the projected FY 2015 desired forest-wide habitat capability

of 101,748 based on the 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)*

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

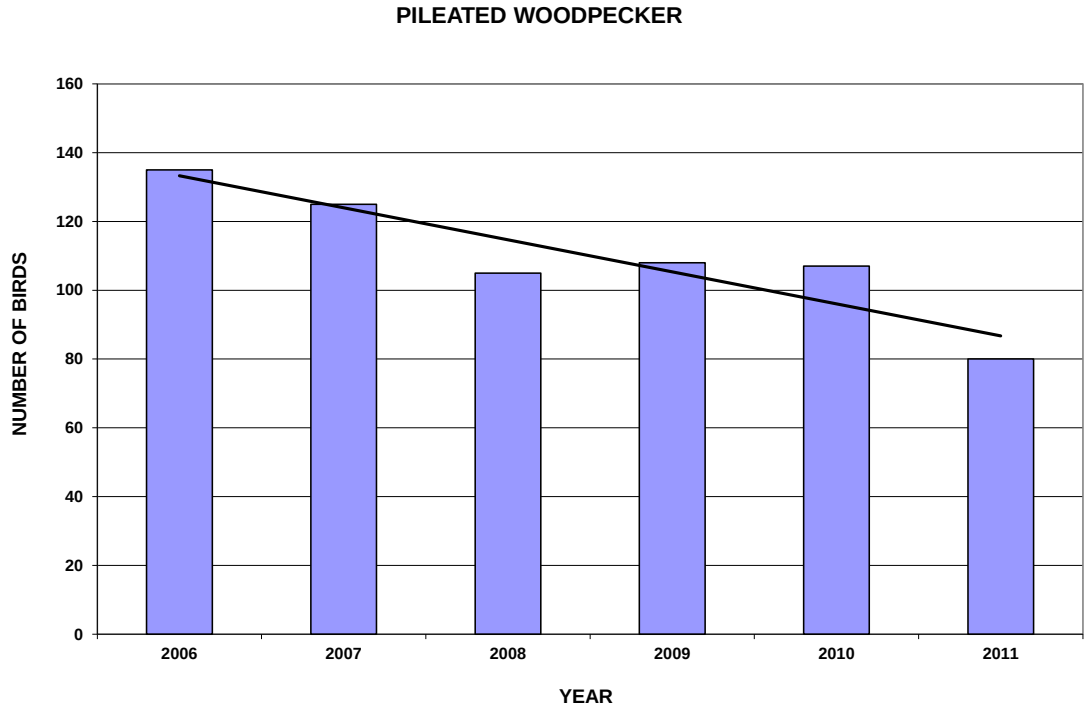
The Pileated Woodpecker is a management indicator species for the Ouachita NF, selected to indicate the effects of management on snags and snag-dependent species (USDA Forest Service 2005b, p166.) This species prefers dense, mature to over-mature hardwood and hardwood-pine forest types. It is a primary 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.

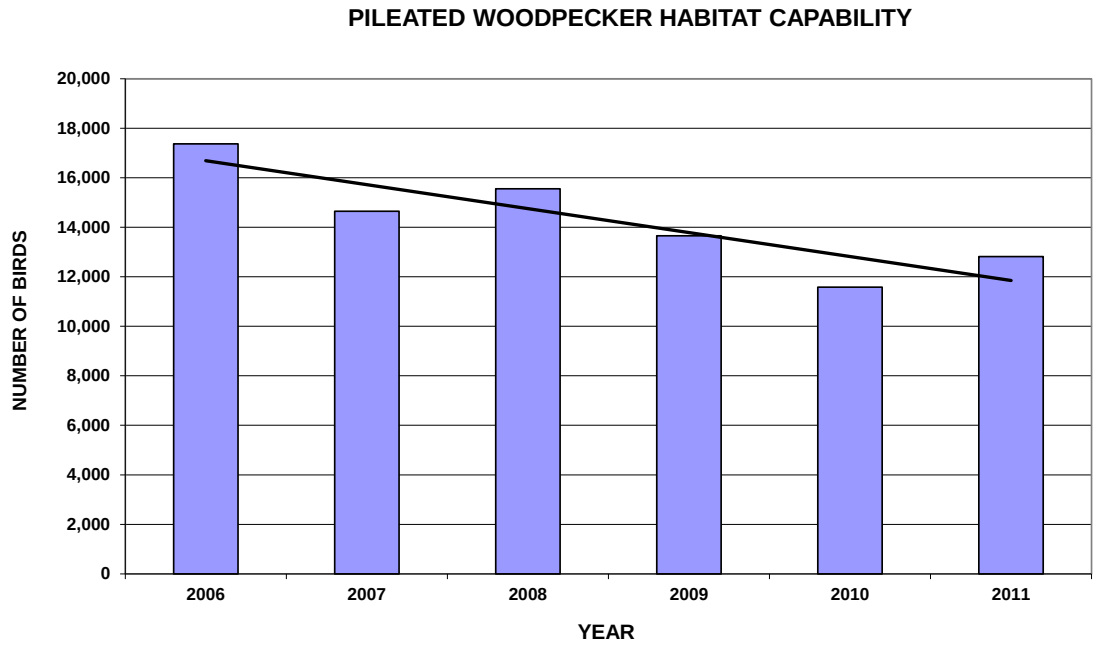
Population Trends: There is no discernible population trend for the Pileated Woodpecker because indicators from Ouachita NF Landbird data and habitat capability data are mixed.

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 since FY 2006 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 since FY 2006, 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 approximately 12,800 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)*

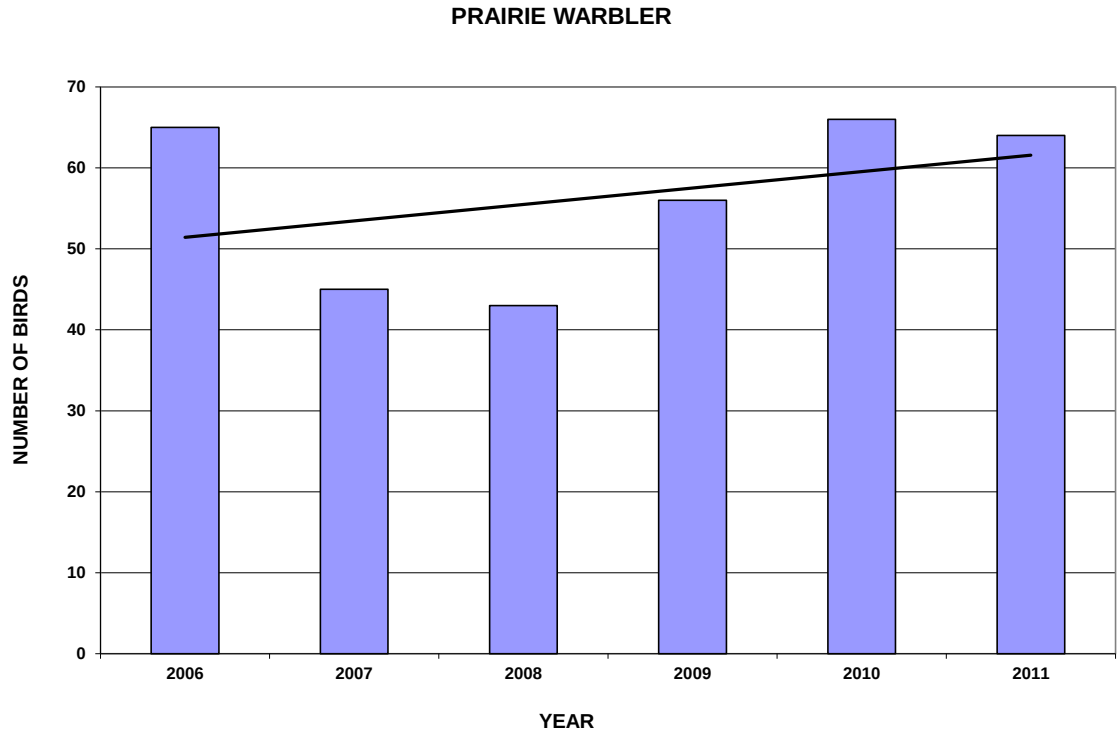
For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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.

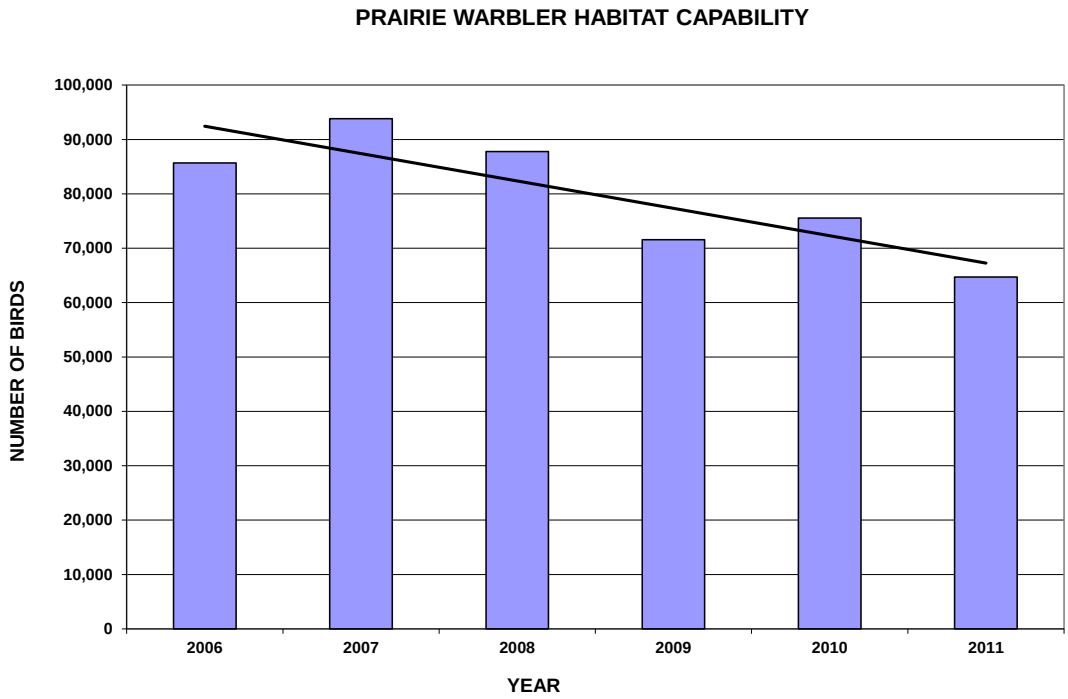
Prairie Warbler
Source: www.enature.com

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 – 2011) 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 since FY 2006; however, the long term trend remains downward. The Landbird point count data for the warbler show a slight decrease in numbers from 2010 to 2011, but an overall slight upward trend. Throughout the Prairie Warbler range, a downward trend is indicated.



Habitat capability for the Prairie Warbler on the Ouachita NF continues to show a downward trend, which is consistent with range-wide trends.



Interpretation of Trends for Prairie Warbler: The Prairie Warbler has demonstrated a slight increase since FY 2006 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. 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*)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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)*

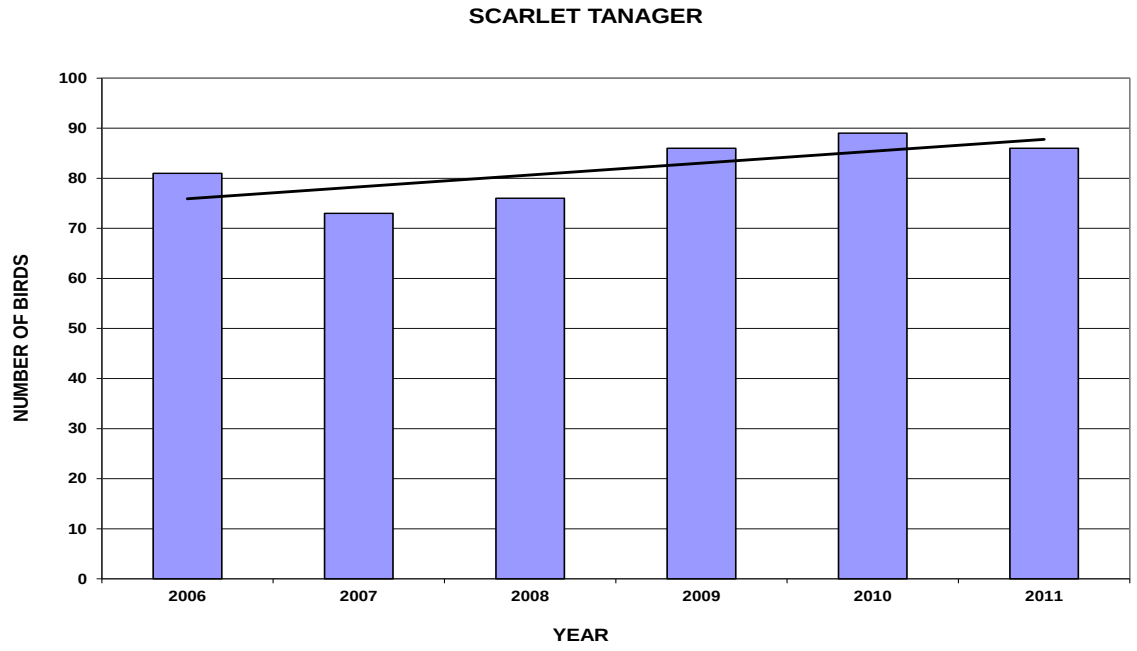
For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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.

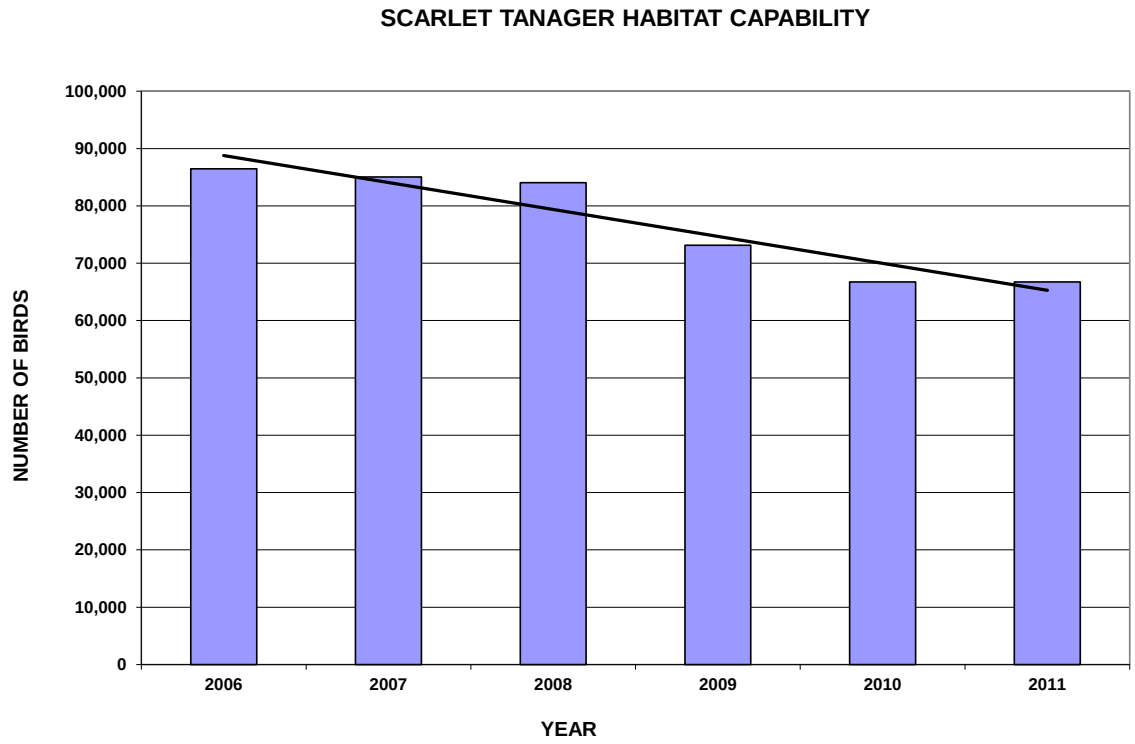
Scarlet Tanager
Source: www.enature.com

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 FY 2006-2011 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)*

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us,

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.

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

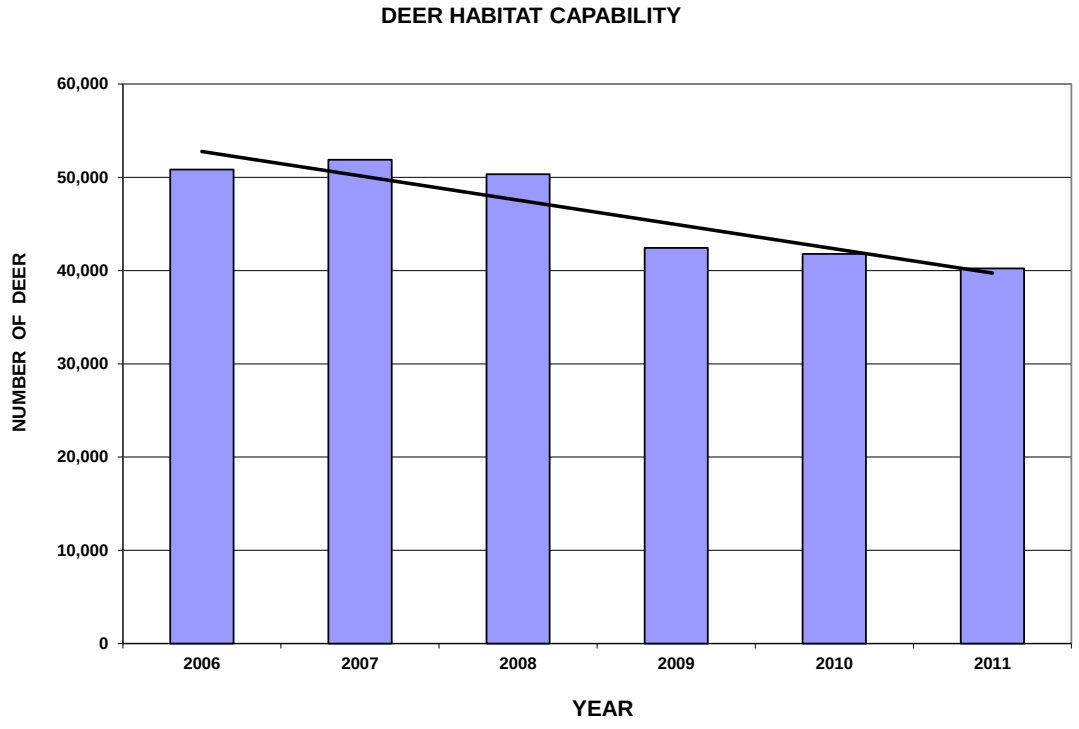
White-tailed Deer
Source: www.enature.com

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 2006-2011 shows a downward trend; and has fallen below the desired habitat capability of 48,250 acres for FY 2015. Habitat carrying capacity is calculated using acres within the Ouachita NF and is positively influenced by the amount of prescribed fire and early seral habitat created, including regeneration, thinning, mid-story removal, wildlife stand improvement, wildlife openings, and site preparation, but negatively influenced by timber stand improvement.

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 over the last 5 years.

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 -2011 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 1,190 acres were created by regeneration harvests and wildlife habitat improvement in FY 2011.



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 harvest is showing an upward trend with an increase of 12 percent from 2010 to 2011.

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

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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 66.

Other Habitat Considerations - Wildlife

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

In addition 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.

R8 Sensitive Species and Terrestrial Species of Viability Concern

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

The comprehensive list of "species of viability concern" pertaining to the Forest is a fine-filter list of species that was compiled from Arkansas and Oklahoma species specialists' recommendations from all species of local concern that may occur or are known to occur on the Forest. These species may not have Global viability concerns, but do have local viability concerns (for example: edge of range, local rarity, Forest population status, etc.).

The R8 Regional Forester's Sensitive (PETS) species list was compiled by the Forest species' specialists according to their Global ranking (G1-G3) and/or Forest viability concerns. Forest Service sensitive species are defined as: "Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a. Significant current or predicted downward trends in population numbers or density, or b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution." (Forest Service Manual 2670.5, 19.) There are 67 species on the R8 Sensitive Species list that are known to occur on the Ouachita NF. Of those, 44 are known to be terrestrial species.

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.

Bald Eagle (*Haliaeetus leucocephalus*)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

Bald Eagles were removed from the endangered species list in June 2007 because of species population recovery. 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. Surveys in 2011 on the Ouachita NF showed four known nest sites (Lake Hinkle, Irons Fork Lake, Lake Ouachita and North Fork Lake), with one confirmed nest success at Lake Hinkle site. The species is expected to remain stable.

Bald Eagle
Source: www.enature.com

Caddo Mountain Salamander *(Plethedon caddoensis)*

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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 sequencing techniques.

Surveys were conducted in FY 2009 for the Caddo Mountain Salamander research efforts as described below. The 2005 SVE score for this species declined from a "Good" to a "Fair" ranking in 2010 primarily due to road density and fire history.

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 which 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)*

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

In FY 2011, the Oklahoma Ranger District conducted surveys at 8 sites (30 minutes each site) finding a total of 5 Rich Mountain slit-mouthed snails. All of the sites are existing sites that are monitored on a three-year cycle. No surveys were conducted on the Mena/Oden Ranger District during FY 2011. In FY 2010, the Mena Ranger District found 6 live Rich Mountain slit-mouth snails on 2 new sites, and the Oklahoma sites revealed 1 live individual during eight 30-minute surveys. The 2010 viability analysis ranked the Rich Mountain slit-mouth snail in the Good category, an improvement from the 2005 rank of Fair.

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 9 sites over 3 days. Live snails were found at 3 sites for a total of 16 snails. Six 30-minute surveys (3 hours) were conducted at each of the 5 sites over 3 days in FY 2007 for a total of 15 live snails. Five 30-minute surveys (2.5 hours) were conducted at each of the 5 sites over 4 days in FY 2006, and 4 contained snails (8 total live snails were found).

Year of Surveys	2006	2007	2008	2009	2010	2011
# Rich Mountain Slit-mouth Snails	8	15	16	0	7	5
# 30-Minute Surveys	5	6	9	6	8	8

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

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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 (2010) for both bat species remain in the "Good" category.

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

Terrestrial Proposed, Endangered, and Threatened Species Habitat

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

The Endangered Species Act of 1973 requires that all threatened and endangered species and their habitats be protected on federally managed land. Proposed, Endangered and Threatened species include all federally listed species where their ranges include part or all of the Forest. There are 12 federally listed species that are considered as occurring on or potentially occurring on the Forest and 5 are known to be terrestrial species. Specifically 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, habitat 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. These data were prepared for the Five-year Review and will not be updated until 2015.

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*)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

In May 2010, the Ouachita National Forest was issued a Revised Programmatic Biological Opinion for the American Burying Beetle 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.

American Burying Beetle
Source: Frances Rothwein, USFS

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 (2 years) and extreme high temperatures, resulting in poor trapping success.

Within the 2005 Forest Plan, at Standards, 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 ABB conservation areas (AR and OK) along with a revised Standards 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, and following the most current USFWS protocol for monitoring."

In FY 2011, a total of 36 transects, were monitored using the current USFWS protocol. No ABBs captured on the Ouachita NF during FY 2011. Some of these transects were located in the American burying beetle areas (ABBAs) established in the Conservation Plan. The remaining transects occur outside the ABBAs, as indicated in the ABB Conservation Plan Monitoring Strategy.

Indiana Bat (*Myotis sodalis*)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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. 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).

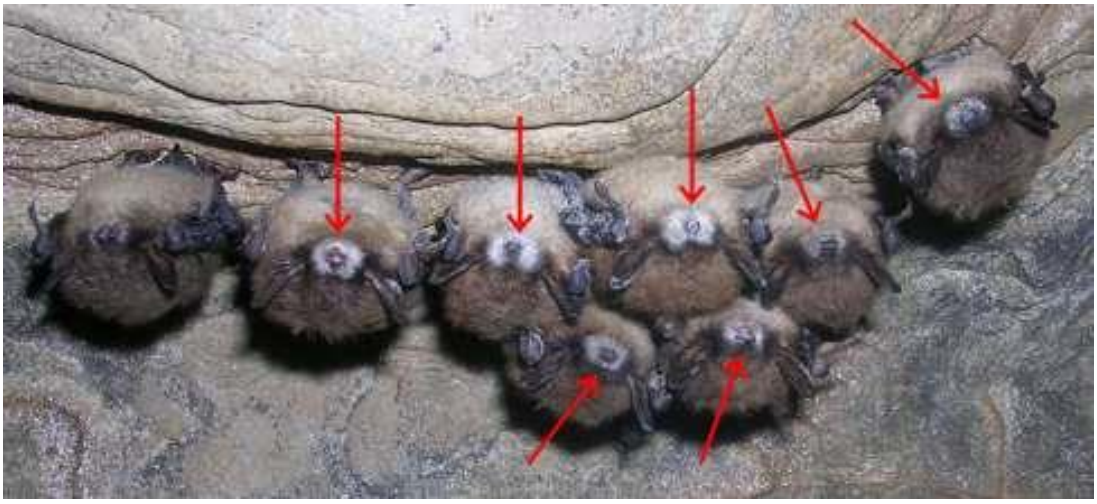
Indiana Bat
Source: www.enature.com

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 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)

For additional information, contact Mary Lane at (501) 321-5201 or melane@fs.fed.us.

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*)

For additional information, contact Robert Bastarache at (580) 494-6402 x107 or rbastarache@fs.fed.us Mary Lane at (501) 321-5201 or melane@fs.fed.us.

FY 2011 has been recorded as one of the worst droughts in history and was especially one of the worst droughts recorded for Red Slough in the 15 years the Forest Service has been actively managing it. With very little to no water, the fewest number of Least Terns ever using the project were recorded. Because of the drought, the breeding populations along the Red River suffered greatly, as well; and it is from those breeding colonies that the Least Terns that frequent Red Slough originate.

Most Piping Plovers that occur on the Ouachita NF in Arkansas and Oklahoma are passing migrants and are only occasionally seen foraging within the Red Slough Wildlife Management Area. The FY 2011 drought was widespread and affected populations of Piping Plover, and there were no Piping Plover observed for Red Slough for FY 2011.

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). The tabulation below for Least Terns and Piping Plovers shows that Least Terns are observed much more often than Piping Plovers (generally observed only during migration). Most, if not all, of the observed Least Terns are from breeding colonies along or in the near vicinity of the Red River.

	2006	2007	2008	2009	2010	2011
Least Terns	**17**	**56**	**81**	**21**	**63**	**8**
Piping Plovers	**1**	**0**	**0**	**0**	**0**	**0**

Red-cockaded Woodpecker (*Picoides borealis)*

For additional information, contact Warren Montague at (479) 637-4174 or wmontague@fs.fed.us or Mary Lane at (501) 321-5201 or melane@fs.fed.us.

The Red-cockaded Woodpecker (RCW) is both an endangered species and a management indicator species for the Ouachita NF. 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:

Red-cockaded Woodpecker
Source: www.enature.com

Habitat Management Areas
Acres by District, ONF

District	Cold Springs	Mena	Poteau	Tiak	Total
Acres	6,581	11,147	66,584	50,945	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.)

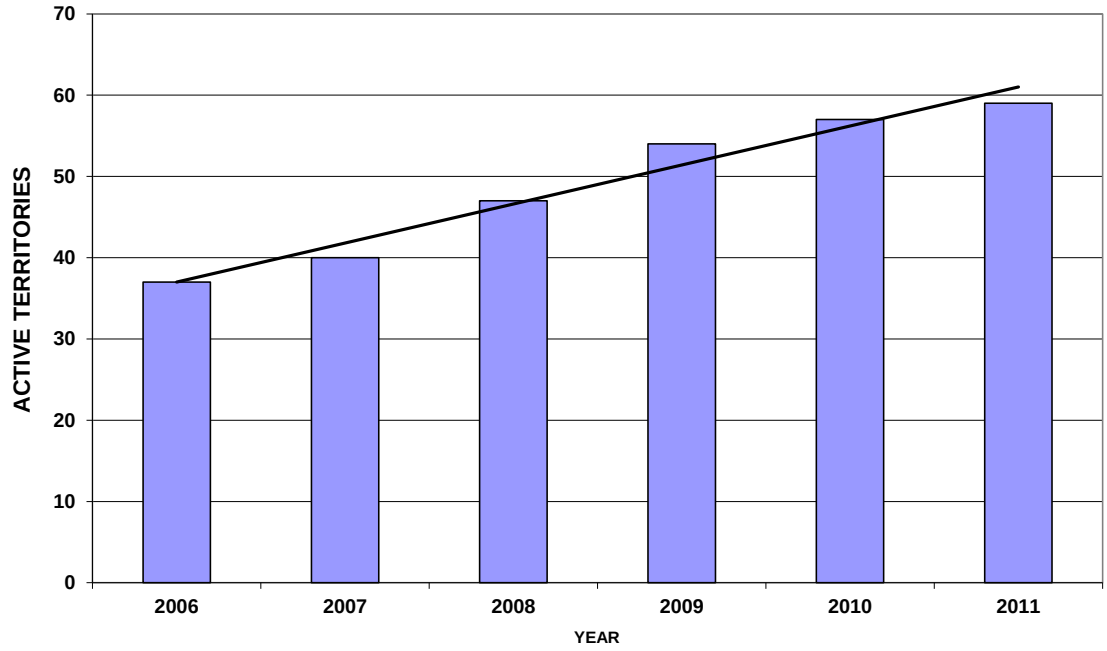
Red-cockaded Woodpecker Trends. RCW active territories have increased from a low of 11 territories in FY 1996 to 59 active territories in FY 2011. Over the period that RCW have been monitored, the number of active territories and number of adult birds have increased.

The tabulation below shows the successful history of RCW management on the Ouachita NF and displays, by breeding season, the number of active territories (individual or group of nesting or roosting RCW(s)), nesting attempts (nesting behavior which results in at least 1 egg), the estimated number of fledglings (# of nestlings that left the nest), and the number of adult birds. Of these, the most descriptive parameter of RCW population status is the number of nesting attempts, or what is often referred to in the RCW Recovery Plan as the # of PBGs (Potential Breeding Groups).

RCW Management Ouachita NF				
RCW Breeding Season	Active Territories	Nesting Attempts	Estimated Fledglings	Number of Adult Birds
1990	13	12	10	32
1991	16	12	18	32
1992	14	13	13	32
1993	15	12	14	38
1994	16	10	17	35
1995	14	12	17	34
1996	11	11*	16	26
1997	13	9	7	26
1998	14	11	16	24
1999	16	11	14	36
2000	21	15*	13	48
2001	22	18	40	51
2002	27	24*	40	58
2003	32	27*	47	68
2004	32	28	49	78
2005	35	29	18	87
2006	37	32	49	88
2007	40	37	67	103
2008	47	42	58	110
2009	51	47	77	120
2010	57	51	88	138
2011	59	57	86	145

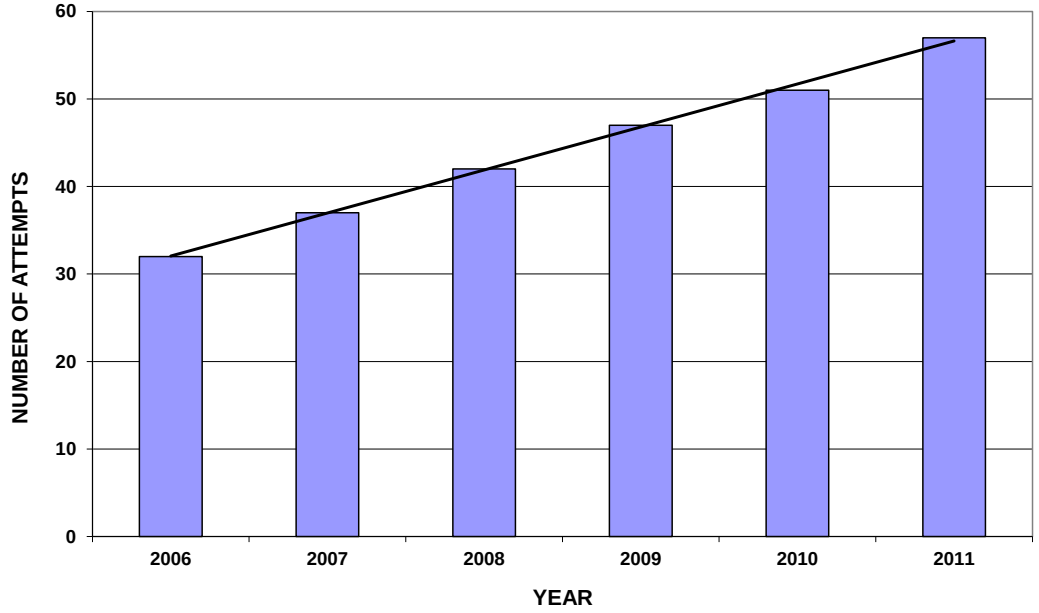
RCW active territories have increased from a low of 11 territories in FY 1996 to 59 active territories in FY 2011. The graph below shows the success of RCW management on the Ouachita NF for the past 6 years, with this increase being evident since the 1990's. The number of active territories has increased an average of 10 percent for each of the last 6 years.

RED-COCKADED WOODPECKER



Nesting attempts have also steadily increased over the past 6 years. The number of nesting attempts has increased an average of 12 percent for each of the last 6 years.

RCW NESTING ATTEMPTS



Implications for Management: Management of this species is guided by the RCW Recovery Plan with an objective of a minimum 5 percent population increase per year as specified in Section 8.A.1 of the Recovery Plan (page 162). Populations of this species exhibit 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.

American alligator (*Alligator mississippiensis*)

For additional information, contact Robert Bastarache at (580) 494-6402 or rbastarache@fs.fed.us.

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 2011 located 22 alligators in Red Slough and Ward Lake, a record high, as opposed to 19 alligators in FY 2010, 7 alligators in FY 2009, 4 alligators in FY 2008, 8 alligators in FY 2007 and 12 alligators in FY 2006.

Alligators Counted, FY 2006 – 2011, ONF

	2006	2007	2008	2009	2010	2011
Alligators counted	12	8	4	7	19	22

The FY 2010 and FY 2011 increase is attributed to successful hatchings on Ward Lake. The population on Red Slough has remained fairly steady at 8-10 individuals seen per year, though this number may increase if the young from the previous two nests survive and grow to adulthood.

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.

Riparian and Aquatic Ecosystems

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us or Alan Clingenpeel at (501) 321-5246 or aclingenpeel@fs.fed.us.

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."*

The primary MA associated with riparian and aquatic ecosystems is Management Area 9, Water and Riparian Communities, consisting of approximately 278,284 acres. 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.

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

- Ouachita Riparian
- Ouachita Mountain Forested Seeps
- 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

Riparian and aquatic associated ecosystems comprise approximately 16 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. Brief descriptions and desired conditions for individual riparian and aquatic associated ecosystems are provided in the following paragraphs.

Ouachita Riparian

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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.

Ouachita Mountain Forested Seeps

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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. Streamside buffer protective measures are being implemented effectively; however, the road density is still very high.

West Gulf Coastal Plain Small Stream and River Forest

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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.

South-Central Interior Large Floodplain

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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. Findings from the Five-year Review reveal that for South Central Interior Large Floodplain (832 acres) percent canopy remains at “Very Good,” but the road density calculated from best available databases ranked “Poor” at almost 6.4 miles per square mile.

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

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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, prior to becoming a part of the Ouachita NF. 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 areas, bottomland hardwoods, wet prairies, and scrub/shrub. The overall

condition score for the WGCP wet hardwood flatwoods (9,092 acres) was 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 (2010 data) road density of approximately 0.7 miles per square mile. The most recent fire history indicates 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.

Ouachita Rivers and Streams

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

The desired conditions for Ouachita rivers and streams are good to excellent water quality, site productivity, channel stability, intact riparian vegetation, sustainability of the sport fisheries, and connectivity of habitats for riparian-dependent species. Aquatic ecosystems function properly and support aquatic biota commensurate with the associated ecoregion. Permanent roads within the SMAs will be minimized but may occur at designated crossings and designated access points. Movement of fish and other aquatic organisms in otherwise free-flowing perennial streams and other streams are not obstructed by road crossings, culverts, or other human-caused obstructions. These desired conditions are achieved through designation of Streamside Management Areas (SMAs) and the implementation of the management standards associated with them. Implementation Monitoring Reviews will monitor towards the desired condition.

Ouachita Ponds, Lakes, and Waterholes

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

The desired condition for unstocked ponds and waterholes is habitat suitable for amphibians and other wildlife and a source of water for upland wildlife species. The desired conditions for fishable waters are high-quality angling opportunities and good to excellent water quality, site productivity, associated vegetation, and habitat for associated riparian and aquatic dependent species. Planned Implementation Reviews will monitor progress toward the desired condition.

Watersheds, Aquatic Habitat and Health

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us or Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

Monitoring of the habitat that is provided by aquatic ecosystems is reported in four main categories as listed below:

- 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
  - R8 Sensitive and Other Aquatic Species of Viability Concern
  - Aquatic Dependent Proposed, Endangered, and Threatened species and their Habitat
- Game Fish Habitat
- Aquatic Habitat Enhancement Activities

Aquatic Communities/Fisheries Habitat

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us or Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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
R8 Sensitive and Other Aquatic Species of Viability Concern
Aquatic Dependent Proposed, Endangered, and Threatened species and their 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 37 of this report.

Ponds, Lakes, and Waterhole MIS

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

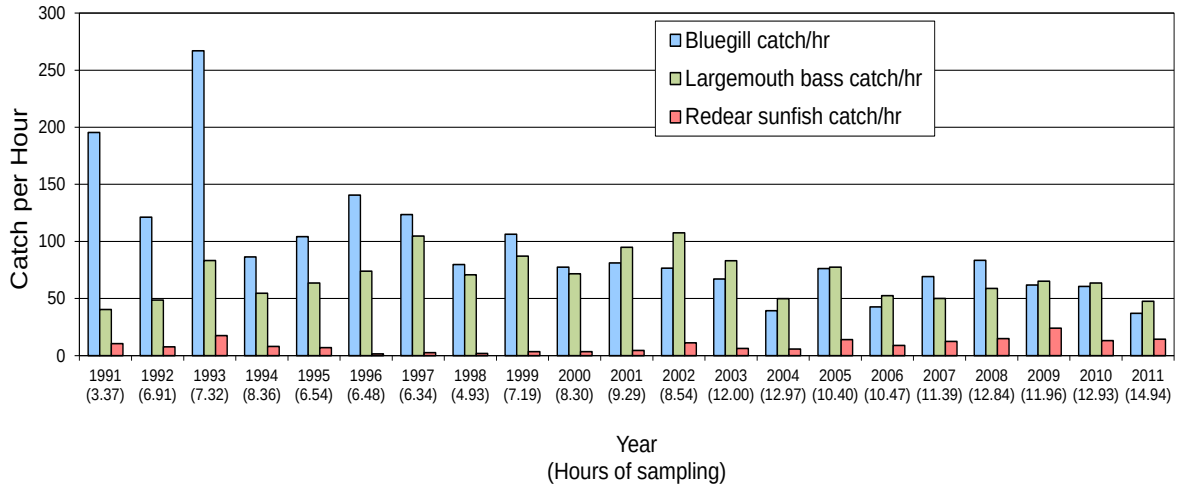
The three pond, lake, and waterhole management indicator species (MIS) are Bluegill, Largemouth Bass, and Redear Sunfish. Reviews of monitoring information for the three species were conducted to determine the status of the species and conservation needs. During calendar year 2011, 23 electrofishing samples were taken at 19 lakes and ponds. Shady Lake was sampled twice in the spring and once in the fall to monitor any recovery of the lake from recent

drainings or near drainings. North Fork Lake received one spring and two fall electrofishing samples due to the availability of Ouachita Baptist University students (shown in the picture below.) 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 2011 were similar to 2006. The 2011 spring electrofishing season was characterized by a wet spring with temperatures cooler than normal with the result that sunfish spawns were missed. Also, the fall electrofishing season was affected by a number of 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 and thus less susceptible 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 the time spent on sampling Shady Lake. The three samples resulted in very limited catches of game fish due to incomplete recovery from prior water level management practices that weren't conducive to maintaining a harvestable sized fish population.

Annual Pooled Catch per Hour



Typical catches of big bass were made at Cedar Lake in Oklahoma, with some nice bass and catfish taken from a number of other lakes and ponds.

Lake Sylvia, AR Largemouth bass

Cedar Lake, OK Largemouth bass

50-pound blue catfish caught with OBU students and channel catfish, all from North Fork Lake

The following discussions on bluegill, largemouth bass, and 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 2011 and the fall sampling took place at the start of FY 2012 and data for both are included in this report.

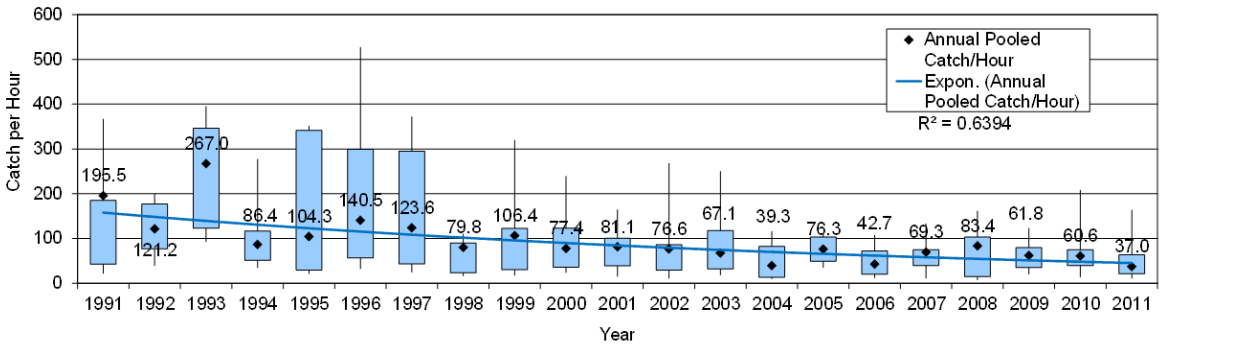
Bluegill *(Lepomis macrochirus)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

The bluegill electrofishing catch for 2011 was the 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, the spring sample catches the bass having spawned but with nest guarding still occurring, redear sunfish spawning and bluegill staging in shallower areas to spawn, so a good representation of all species and sizes is sampled. With work occurring in 10-12 lakes in the spring within this temperature/spawning condition window, ideal conditions are missed as often as they are attained.

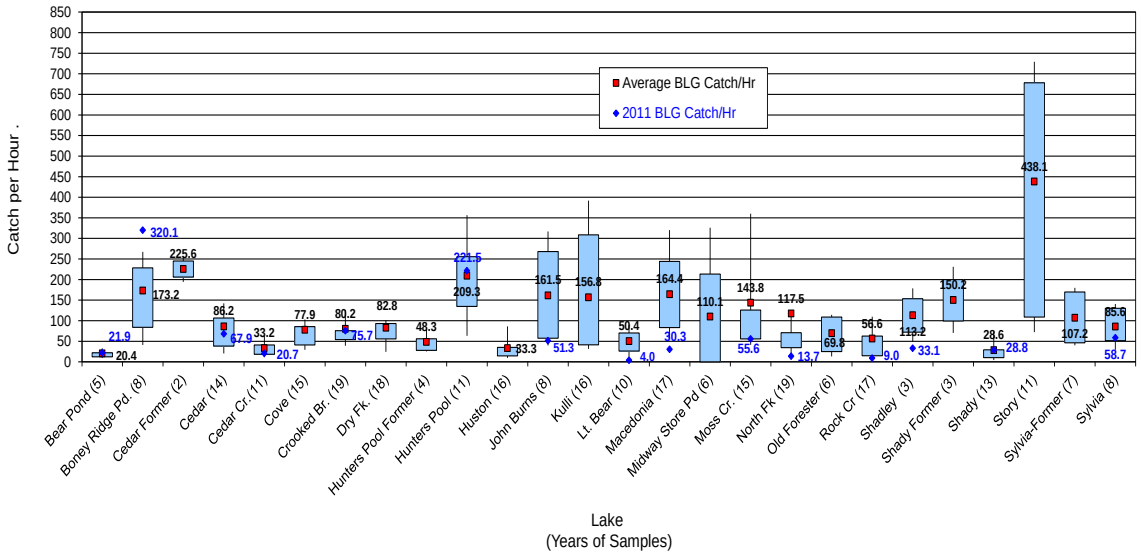
The trend line associated with the annual pooled catch per hour has a low statistical significance. Variability in sample sizes between water bodies is somewhat similar in 2011 to previous years. This graph displays the variability in annual samples with the widened bars displaying the 25-75 percent range of the samples and the lines displaying the variability to the 10 percent and 90 percent levels.

Bluegill Catch per Hour by Year Forest-wide



Five of the 2011 lake samples had bluegill catches above their average catch per hour and with ten with catches below their individual lake averages as shown in the figure below. Two major outliers that had higher than normal catches of bluegill were Boney Ridge and Hunters Pool. Lower than normal counts were seen at most of the spring sampled lakes indicating sampling might have been too early to catch bluegill moving in to spawn. Fall pond sampling also had quite a number of low catches, indicating the bluegill probably hadn't schooled up, thus, making them less accessible to the electrofishing.

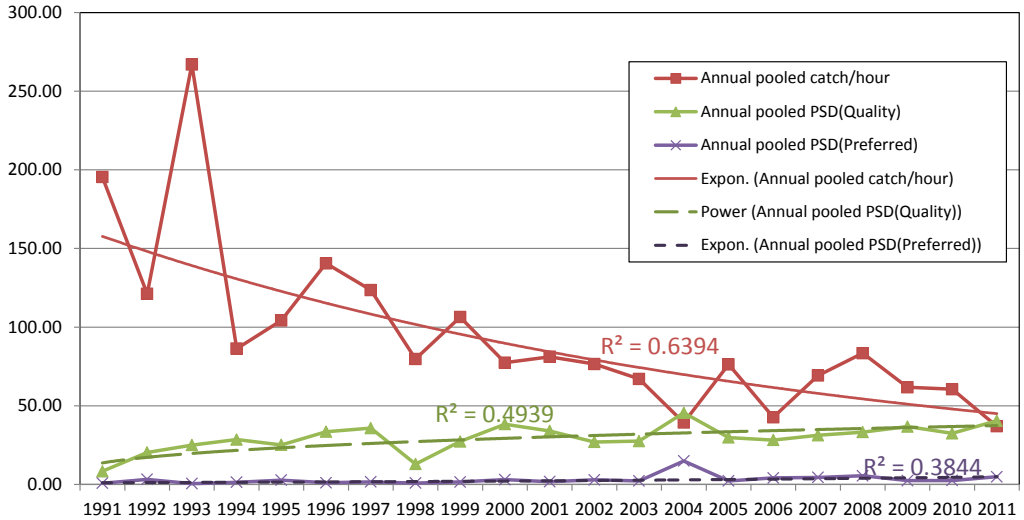
Bluegill Catch per Hour by Lake



Harvestability of bluegill in 2011, while the second highest in twenty-one years of sampling, was five percentage points above the 2010 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=.49).

Proportional Size Distribution (Preferred), previously known as RSD (Relative Stock Density) for bluegill equal to or greater than 200 mm (7.9 inches) long, while nearly double the 2010 value, shows relatively few catches of bluegill above that size with an increasing trend line that is not statistically significant (r^2=0.38). The pooled 2011 catch for preferred-sized bluegill is the third largest in the past twenty-one years.

Catch per Hour and Quality and Preferred Size Distribution for Bluegill by Year



With the 2011 bluegill capture rates showing such wide variability; the same would be expected and is seen for PSD (P) and PSD (Q).

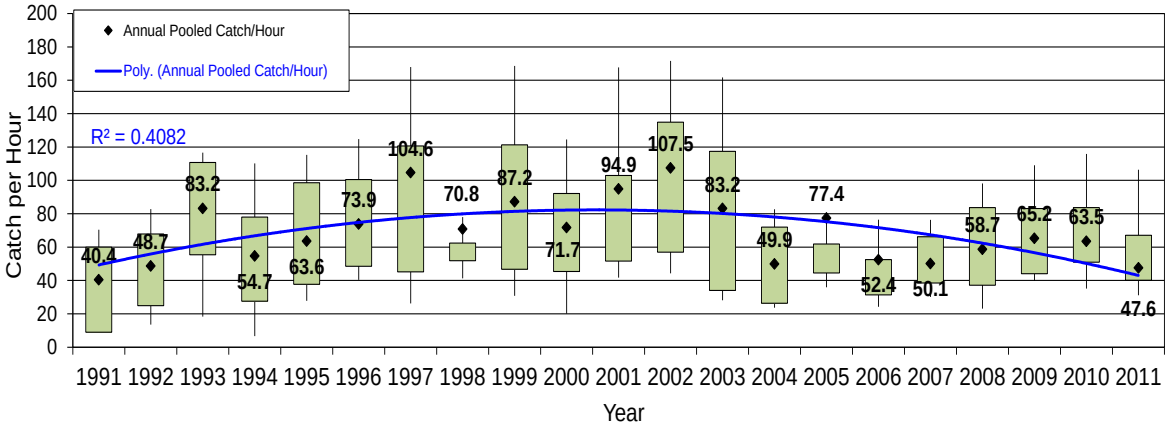
As sampled in 2011, given the above constraints and conditions, bluegill populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question.

Largemouth Bass *(Micropterus salmoides)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

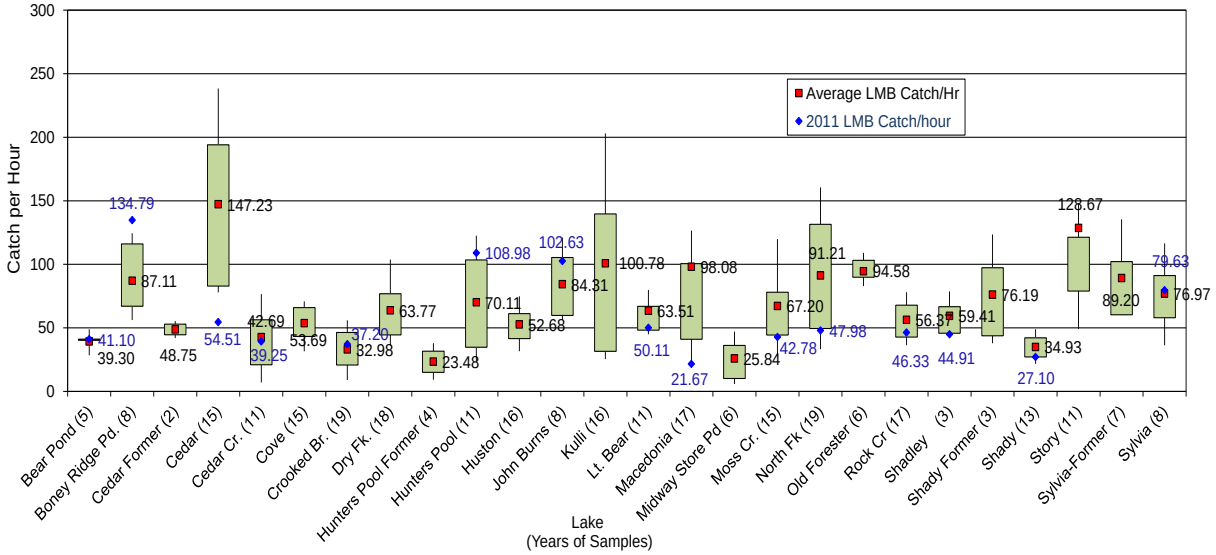
The largemouth bass electrofishing catch rate in 2011 sampling was the second lowest in twenty-one years of sampling with a trend of increasing catches from 1991 through 1999, decreasing catches bottoming out in 2007 and increasing again in 2008 and 2009 and then dropping slightly in 2010 with a bigger drop in 2011, but this trend is not statistically significant. The 2009 catch rate was the highest of the past five years with the 2011 results the s lowest for the same time period. Sampling results from the last twenty-one years are shown in the graph below.

Annual Pooled Largemouth Bass Catch per Hour



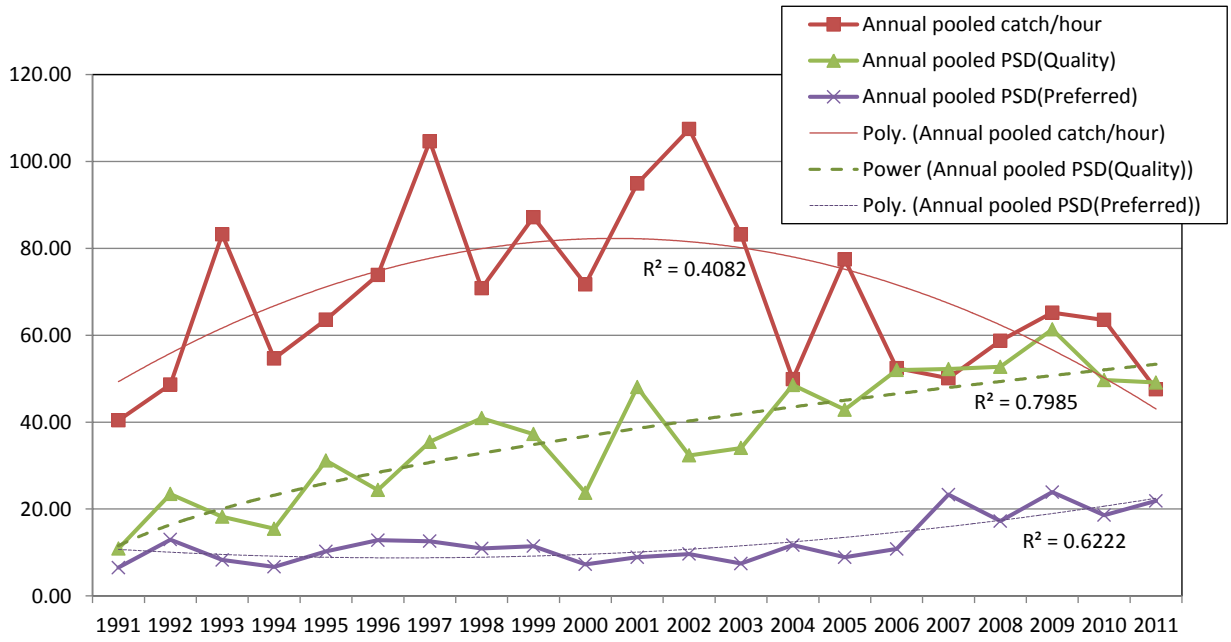
Much like the bluegill results, largemouth bass catch rates were low overall, with less variability than seen in the early samples. There also seems to be a slight increasing trend in catch per hour since 2006 until this year, even though the 21-year trend appears in a downward mode since 2003, though not statistically significant. Interestingly the highest bass catches per hour came from three of the ponds, Boney Ridge, Hunters Pool, and John Burns which were all fall samples. Shady Lake had its second lowest catch of bass. It would appear that the spring sampling missed the bass on the beds when they are most vulnerable, being in shallower waters. Much variability is shown in the 2011 bass catch across the lakes and ponds sampled.

Largemouth Bass Catch per Hour by Lake



Harvestability of quality-sized largemouth bass dipped slightly in 2011 from 2010 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).

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



With most PSD (Q) values again distributed outside of long-term averages of each waterbody in 2011, 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 21 years of samples with a pooled value of 21.88 percent of the total catch of stock size

bass and larger. The 2011 results are little lower than the 2007 and 2009 results. However, there is only a slightly statistically significant trend for these values with an $r^2 = 0.62$.

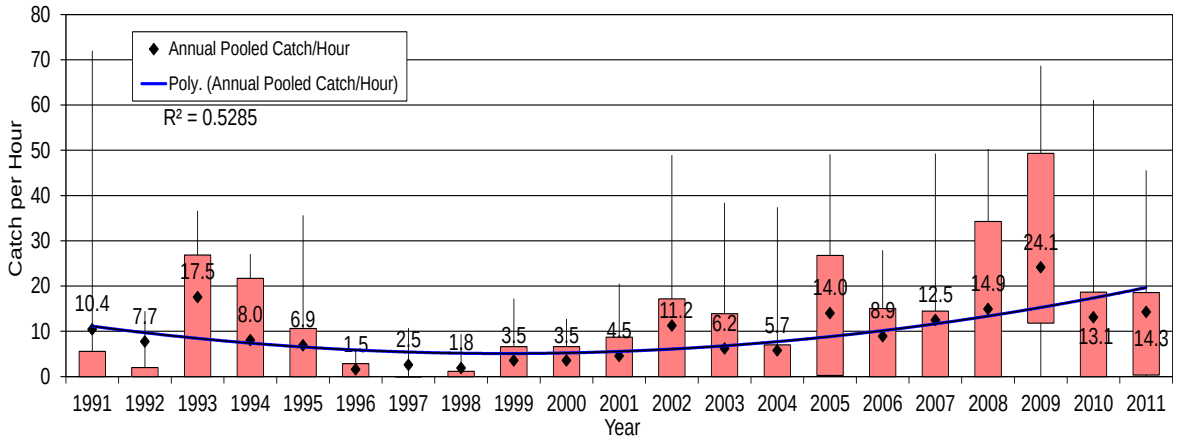
As sampled in 2011, largemouth bass populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question. Shady Lake results should continue to be monitored closely to observe bass populations that are smaller in numbers and sizes than would be expected.

Redear Sunfish *(Lepomis microlophus)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

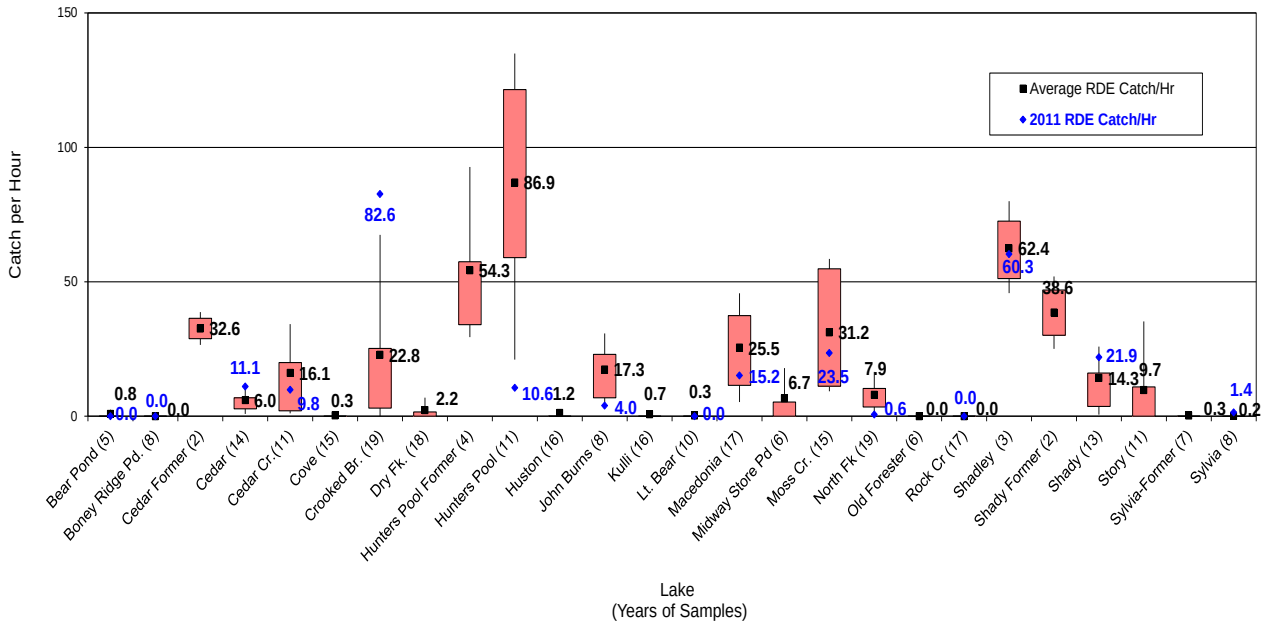
The redear sunfish electrofishing catches have ranged from four to 90 times less than bluegill or largemouth bass catches over the past 21 years. As shown in the graph below, the redear sunfish catch in 2011 is the third highest annual catch of redear sunfish to date. While the redear sunfish annual pooled catch rate trend line shows an increase since 1998, the trend has very low statistical significance.

Annual Pooled Redear Sunfish Catch per Hour



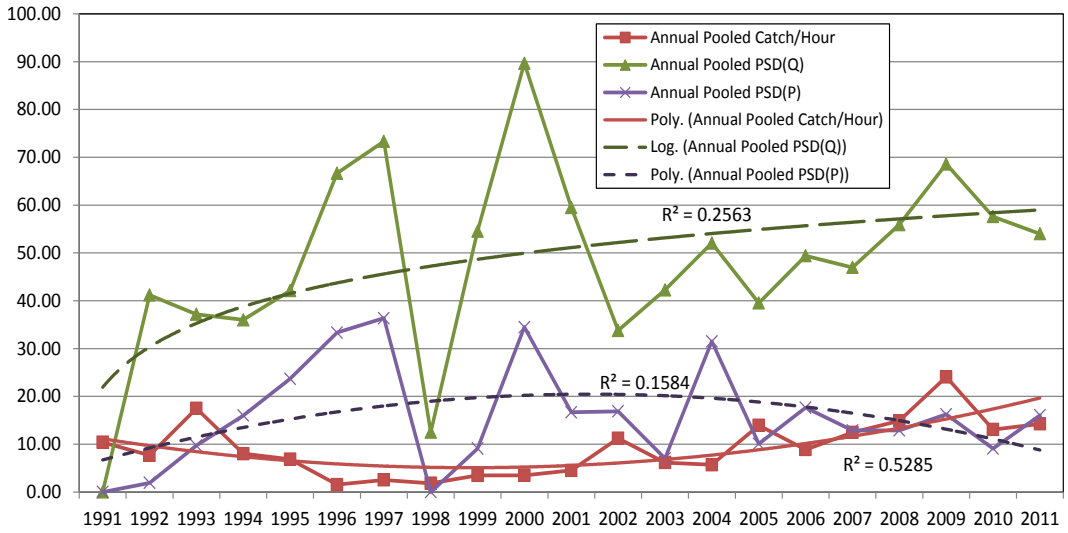
The 2011 redear catch was dominated by the catch of 82.6 redear per hour at Crooked Branch and 60.3 redear per hour at Shadley Lake as shown in the figure below. Most waterbodies had results below their average annual redear catch per hour in 2011, including Hunter's Pool which set a new low catch rate though the bluegill catch was nearly 20 times larger than the redear catch for the pond. Of the lakes newly stocked with redears in 2011, only a single redear was captured at Lake Sylvia. While the trend line shows an upward swing in catch since 2001, it is barely considered significant.

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 2011 catch of redear sunfish was dominated by quality sized and larger redear sunfish at Cedar Creek and Crooked Branch where enough were caught to influence the overall pooled harvestability. For the larger, preferred sized redear sunfish (230 mm or 9 inches), PSD (P) was higher in 2011 than in four of the last five years. The trend line is not statistically significant for either the quality or the preferred sized redears. Most of the lakes with high harvestabilities had very low catch rates for redears.

Quality and Proportional Size Distribution for Redear Sunfish by Year



As sampled in 2011, 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

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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 2011, 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)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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 anglers' interest in the species 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 (250 mm or 9.8 inches) sized crappie followed some years later by a high catch rate and lower harvestability of the preferred sized crappie. Dry Fork Lake was scheduled for sampling by electrofishing in 2011 but it was rained out and was not rescheduled due to the lateness of the season with rapid warming of the lake.

White Crappie

Gizzard Shad *(Dorosoma cepedianum)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

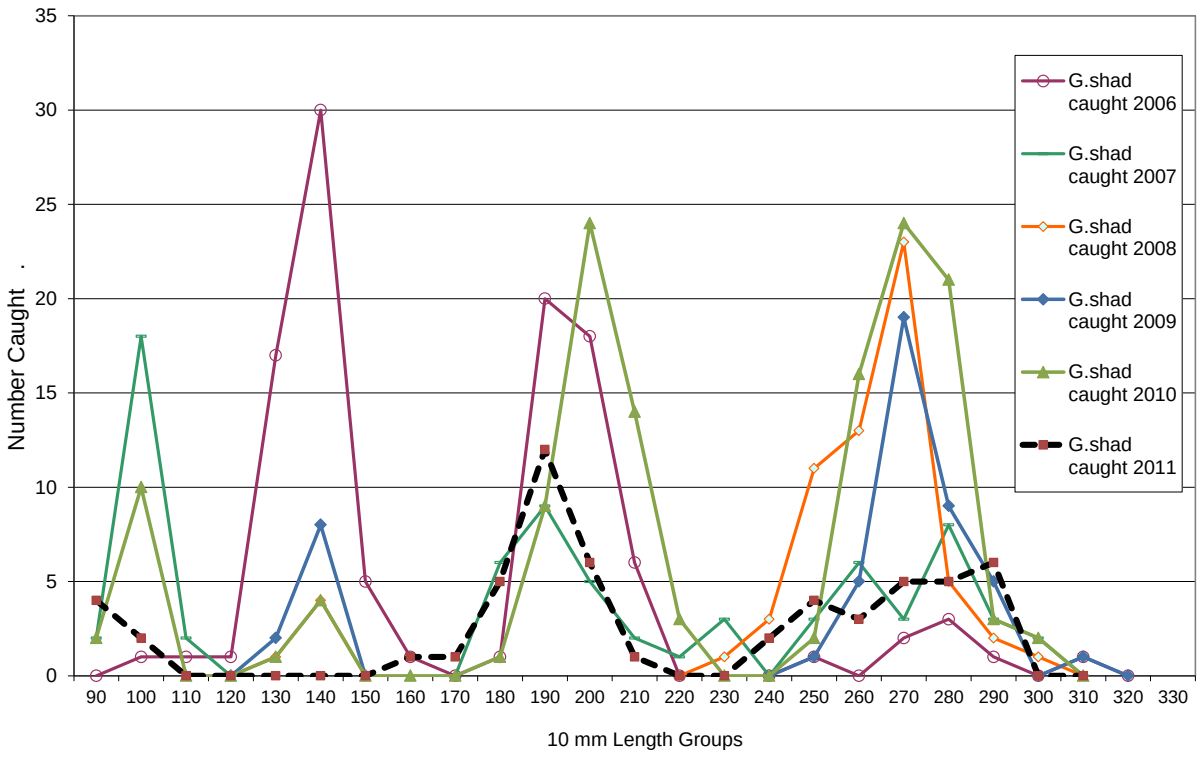
Gizzard Shad

Gill netting was first 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 2011. The gizzard shad length frequencies, as shown in the graph below, indicate three year/size classes were caught in the nets in 2006, three or more in 2007; only two year classes caught in 2008 and 2009; and four year classes or at least distinct lengths caught in 2010 and three to as high as five size classes caught in 2011. 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 the all of the results to date in that four distinct sizes of gizzard shad were caught. The 2011 results showed a smaller sized gizzard shad, the next size class was missing and the numbers caught of the larger-sized gizzard shad were fairly low.

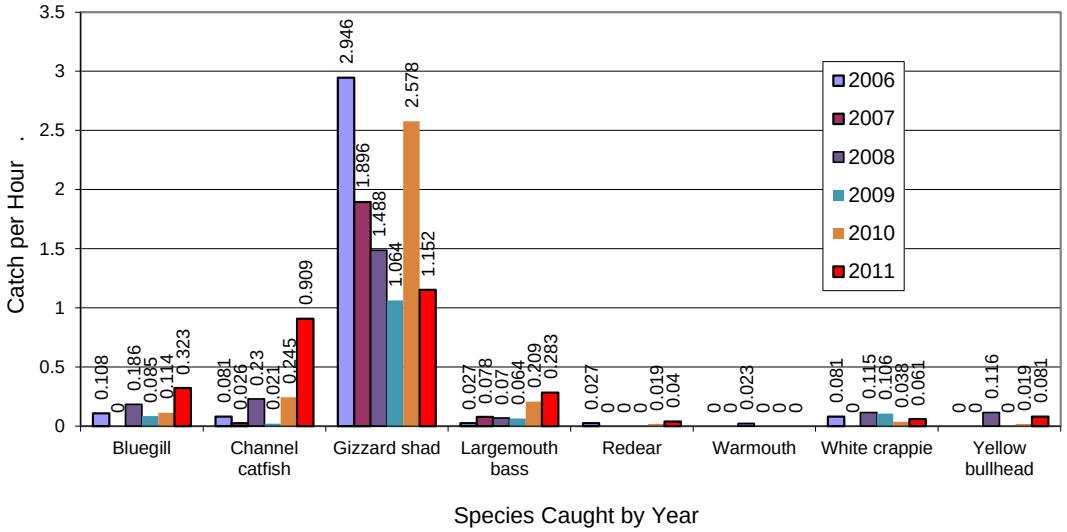
After review of the 2009 results, in consultation with the Oklahoma Department of Wildlife Conservation ODWC); it was decided that the gizzard shad population needed to be reduced in order to try to induce more reproduction/recruitment of smaller sizes and reduce the number of individuals in the population that were too large to serve as forage for the largemouth bass and crappie in the lake. In one day of electrofishing in 2010, using both the ODWC electrofishing boat with crew and the Forest's 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 the netting of the extra small size class of gizzard shad that hadn't been recorded since 2007. In 2011 the removal effort was continued with one day of both the Forest Service and the ODWC boats working the lake followed by an additional day of just the Forest Service boat. Results of the removal were much less with only 741 individuals and 251.2 pounds of gizzard shad removed for 8.72 individuals per acre and 2.95 pounds per acre removed. This with the previous efforts may have produced the considerably different 2011 gill netting results with the catch of fewer individual gizzard shad and a different length frequency distribution.

Cedar Lake Gizzard Shad Length Frequencies from Gill Nets (2) for 2006 - FY 2011



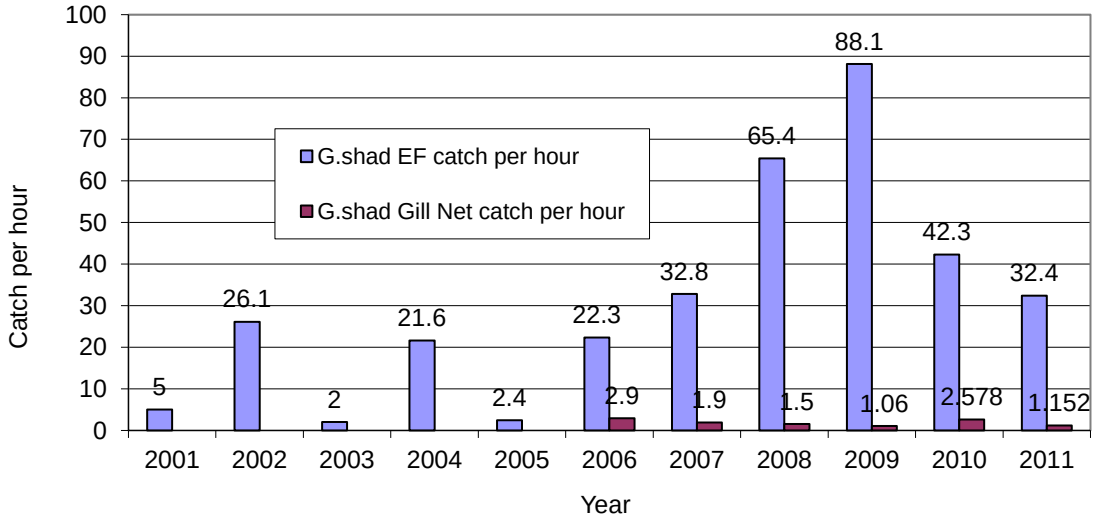
The gill net catch per hour for gizzard shad in 2011 is the second lowest at Cedar Lake and is very low for the non-targeted species (see graph below).

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



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 2011 is not as high as that in 2008 and 2009, the gill net catch is still high in spite of the spring 2010 and 2011 gizzard shad removals.

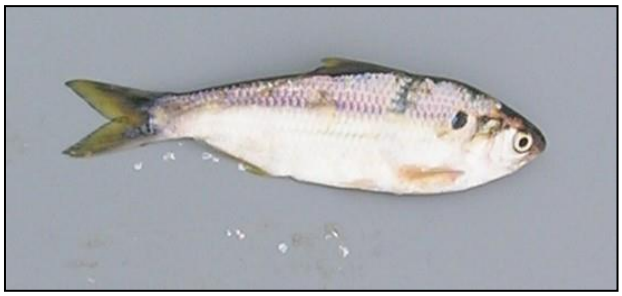
Cedar Lake Electrofishing Capture versus Gill Net Capture



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 continue be targeted for a reduction program to promote production of the smaller gizzard shad and that the work started with the Oklahoma Department of Wildlife Conservation 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 changes in abundance or length frequencies within the gizzard shad population.

Threadfin Shad *(Dorosoma petenense)*

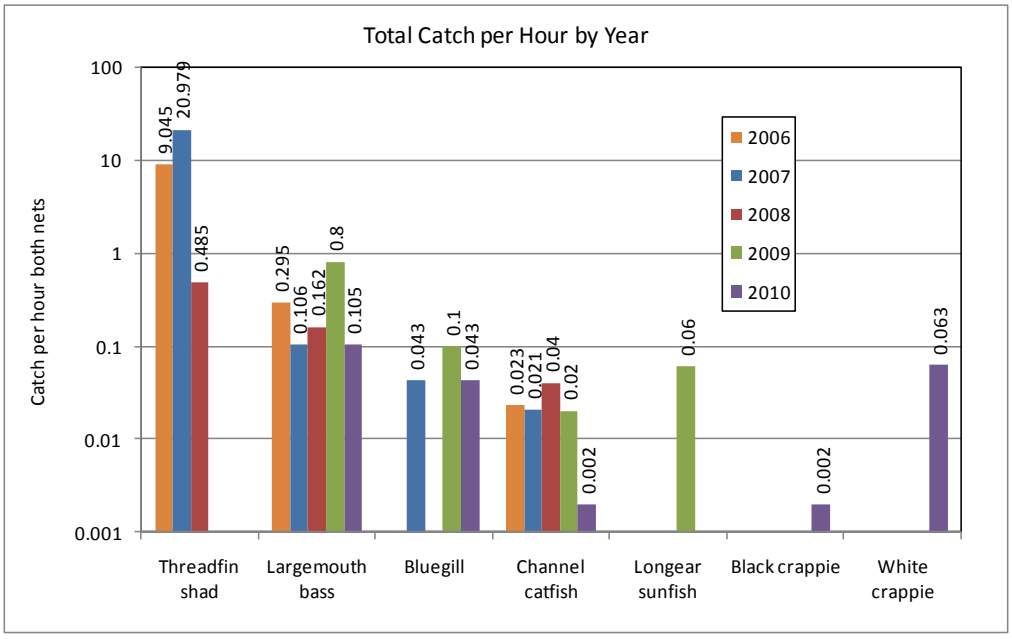
For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.



Threadfin Shad

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 shad population size and structure. The two nets were fished 44 total hours capturing fish smaller and larger than those electrofished. Data indicate that there were at least two 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. The lake was sampled with two gill nets in 2007 through 2010, with them 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 FY 2007 than what was caught in 2006, a very low catch in 2008 and none caught in 2009 and 2010. Since none were present in 2009 and 2010, no gill netting was conducted in 2011. Results in the graph below represent catches per hour from 2006 – 2010.

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

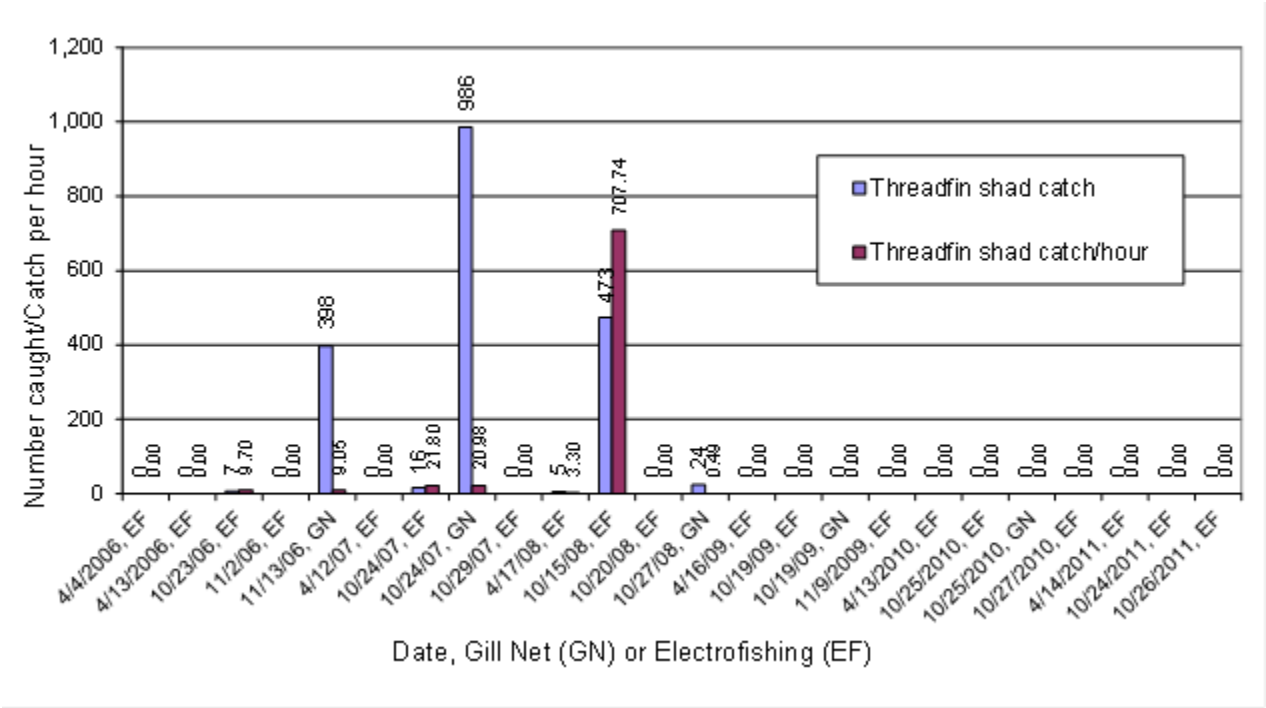


The 2010 netting had a low by-catch of species (other than white crappie) compared to the other years. The 2006 by-catch was of largemouth bass and channel catfish and totaled fourteen individual fish. Three species (above plus bluegill) and eight individual fish were caught in 2007. In 2008, ten bass and channel catfish were caught. Nearly forty times less threadfin shad were caught in 2008 for nearly the same soak time as in 2007, resulting in a 0.485 threadfin shad catch per hour in 2008, 20.979 shad 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 electrofished 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



With no threadfin shad showing up in one gill netting and three electrofishing samples in 2009, none with the same effort in 2010 and none seining and during three electrofishing samples in 2011; it appears the threadfin shad probably have died out. 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 gear used and sample duration. North Fork Lake will continue to be seined and electrofished at least annually. Additional gill net sampling will not be conducted unless threadfin shad should appear in electrofishing or seining samples.

Shoreline Seining

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

Shoreline seining was conducted in, or at least attempted, in 34 lakes and ponds across the Ouachita NF in 2011. Adequate reproduction was found for sunfish and bass in most of the waters that were easily seined with the following exceptions. 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 escape the seine. Several of the watershed lakes in the South Fork Fourche LaFave watershed had poor bass catches but they traditionally have received stockings of bass fingerlings though these fingerlings were not available in the spring of 2011. 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 Concerns

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

Events at Shady Lake and Clearfork Lake resulted in two fisheries at recreation facilities being lost or severely impacted in just two years. The Arkansas Game and Fish Commission expressed concern with such events and requested actions be taken to prevent flushing of fish stocked at public expense for public take. To view the full report submitted by the Forest Fisheries Biologist see Appendix E at the end of this report.

Pond, Lake and Waterhole MIS and Other Species Summary and Conclusions

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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

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, Increasing**	**Sustainable-Viability not in Question**	**None**
Redear sunfish	***Lepomis microlophus***	**Not Significant, Slightly Increasing**	**Not Significant, Slightly increasing**	**Sustainable-Viability not in Question**	**None**

Additional monitoring for white crappie, gizzard shad, and threadfin shad was conducted during 2011 even though these are not MIS species. The white crappie population in Dry Fork Lake is monitored because it has been the largest crappie population on the Ouachita NF. Gizzard shad in Cedar Lake are monitored to determine if the population is expanding. The calendar year 2011 was the sixth 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 so the lake was not gill netted in 2011. Monitoring for threadfin shad in North Fork Lake will only be by shoreline seining in the spring and spring and fall electrofishing at this time, but gill netting will be added should the threadfin shad reappear in any sampling.

Stream and River MIS

For additional information, contact Betty Crump (501) 321-5236 or bcrump@fs.fed.us.

There are 14 species of fish associated with stream and river habitat. Monitoring and MIS analysis for 12 species is conducted every five years utilizing a Basin Area Stream Survey along with annual data from long-term permanent stream monitoring sites. Johnny and channel darters data 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 Survey (BASS)

For additional information, contact Alan Clingenpeel at (501) 321-5246 or aclingenpeel@fs.fed.us or Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

Every 5 years, the watershed condition is evaluated to determine if the progress in condition ratings has occurred through the paired-stream Basin Area Stream Survey (BASS). A Forest-wide BASS was completed in FY 2011; data entry is complete and is currently being reviewed for quality assurance and quality control. Once the data is correctly recorded it will placed into the database. Analysis of the data will begin once the data is correct and in the database. To view the full report submitted by the Forest Hydrologist see Appendix F at the end of this report.

Arkansas River Valley Stream MIS

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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

Arkansas River Valley Stream MIS, ONF	
Highland (Central) stoneroller	***Campostoma spadiceum***
Creek chubsucker	***Erimyzon oblongus***
Green sunfish	***Lepomis cyanellus***
Longear sunfish	***Lepomis megalotis***
Pirate perch	***Aphredoderus sayanus***
Redfin darter	***Etheostoma whipplei***
Yellow bullhead	***Ameiurus natalis***

Results for these species are reported along with Basin Area Stream Surveys.

Gulf Coastal Plain Stream MIS

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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

Gulf Coastal Plain Stream MIS, ONF	
Highland (Central) stoneroller	***Campostoma spadiceum***
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 Arkansas River Valley Streams and the Gulf Coastal Plain Streams. Results for these species are reported along with Basin Area Stream Surveys.

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

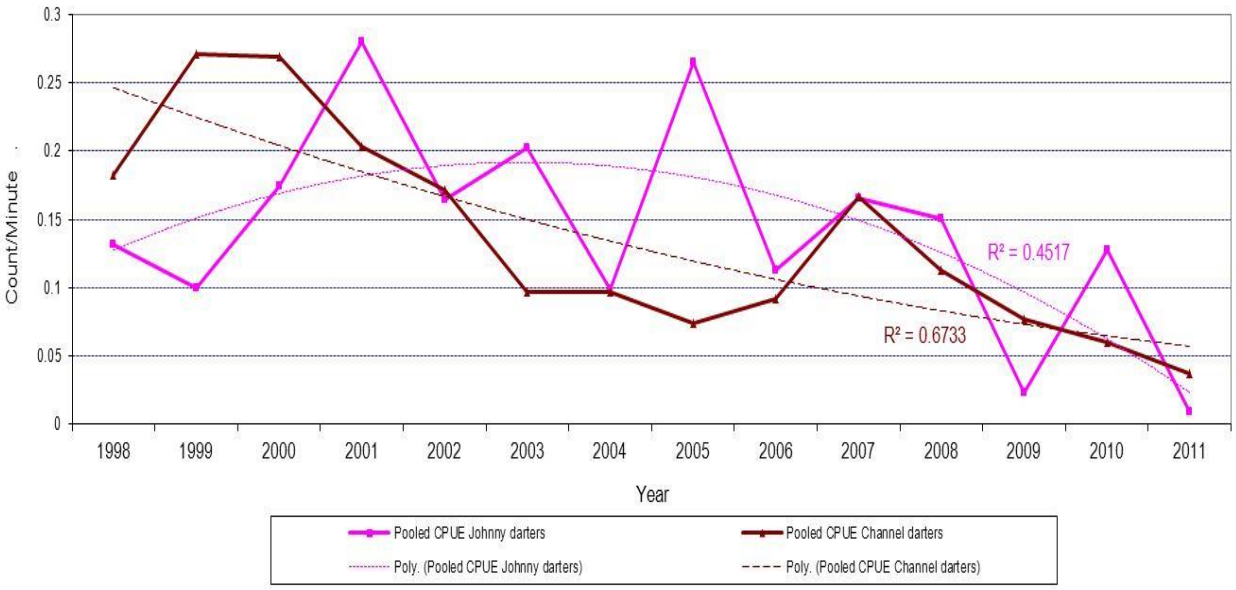
For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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 which are 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. The winter of 2004/2005 had fewer and smaller flushing storm events than normal, followed by an

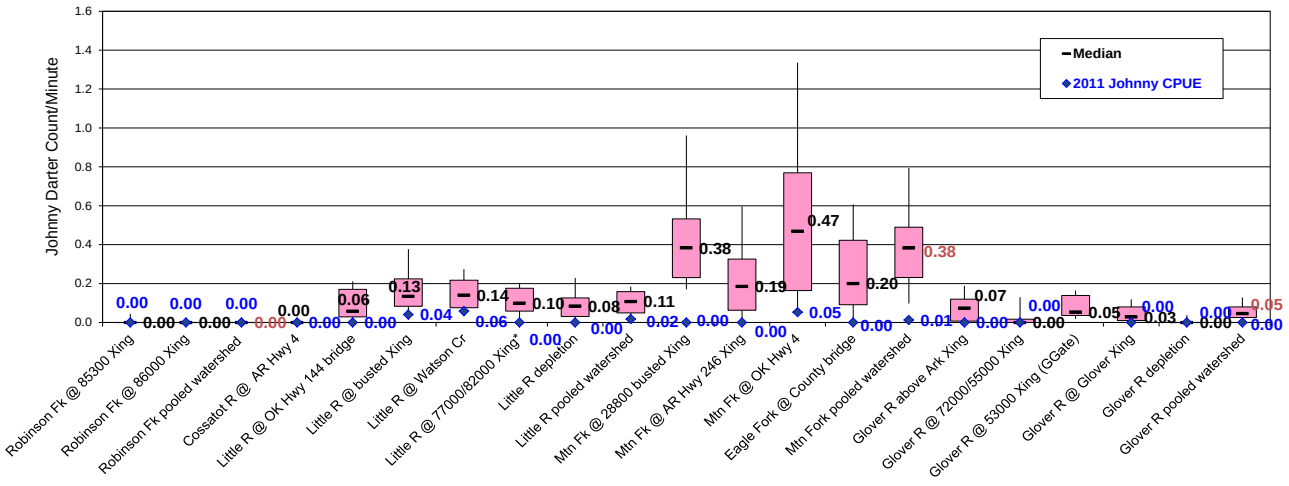
extremely dry summer with lots of silt and detritus buildups observed and noted in the survey records. The winter of 2005/2006 was wet with numerous spates that cleaned substrates, but it was followed by a dry summer that set numerous low flow records. The winter 2006/2007 was also wet and led into a wet spring/early summer that showed good darter recruitment. The 2005 Johnny and channel darter pooled counts/minute data showed a large increase in Johnny darter counts. 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. Over the same time period, 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 results 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 the summer of 2008. In the winter of 2008/2009 there were even more significant storms through 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. While the winter of 2011 was fairly mild without much flooding, high rains and flooding occurred in April and May followed by the 6th worst drought since 1921. Overall 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



Thirteen of the Johnny darter counts were zero in 2011, with only three sites having Johnny darters. Of these, all three of the sites were below their median values. 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 and had a count nearly 10 times below the median count in 2011. Eagle Fork had a count in 2010 that was over four times its median count but had a count of zero in 2011.

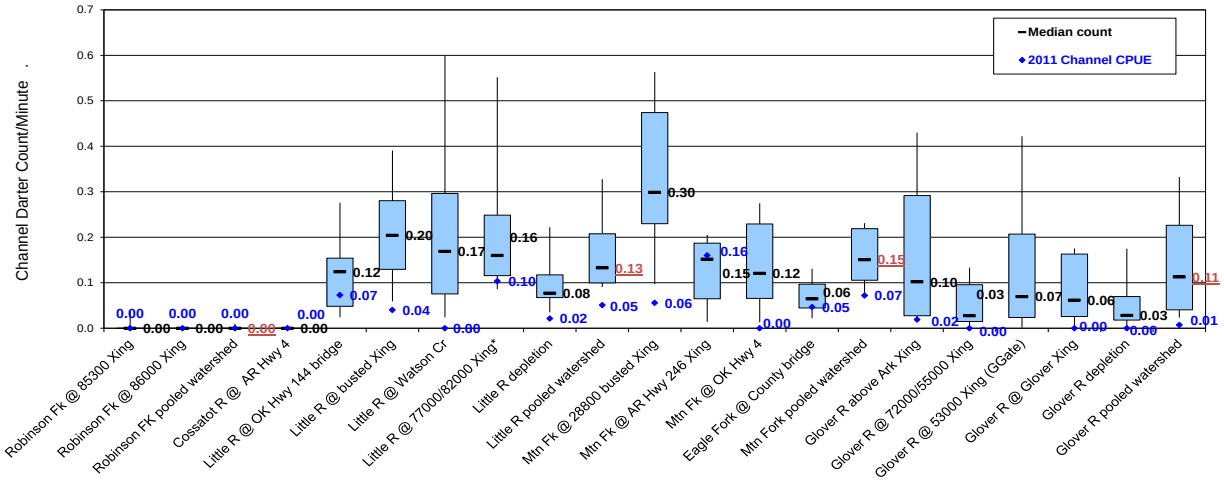
Johnny Darter Counts per Minute by Site



Channel Darters: For channel darters in 2011, twelve of sixteen sites had zero counts. The remaining four sites had counts significantly below the median for those sites. On a watershed basis, the Little River pooled counts for 2011 were slightly below half the long-term median and the Mountain Fork pooled counts were slightly above half the long-term median. The Glover drainage pooled count for 2011 was less than a tenth of the long-term median.

Channel Darter
Source: Richard Standage, USFS

Channel Darter Counts per Minute by Site, ONF



While the trends for both Johnny and channel darters look rather bleak, it 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. High flows were experienced in April and May of 2011 during juvenile growth periods followed by the sixth worse drought since 1921. 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 two years, and the Johnny darter pooled count for 2009 is the lowest in the thirteen years sampled and then made a sizeable rebound in 2010. Fluctuating populations may be the norm for these two species.

R8 Sensitive and Other Aquatic Species of Viability Concern

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

There are 67 species on the R8 Regional Forester's Sensitive Species List, including 22 freshwater mussel species, 7 crayfish species and 11 fish species. Of those, only the Quachita Darter is an aquatic species that is monitored on an annual basis.

Ouachita Darter *(Percina sp. nov.)*

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

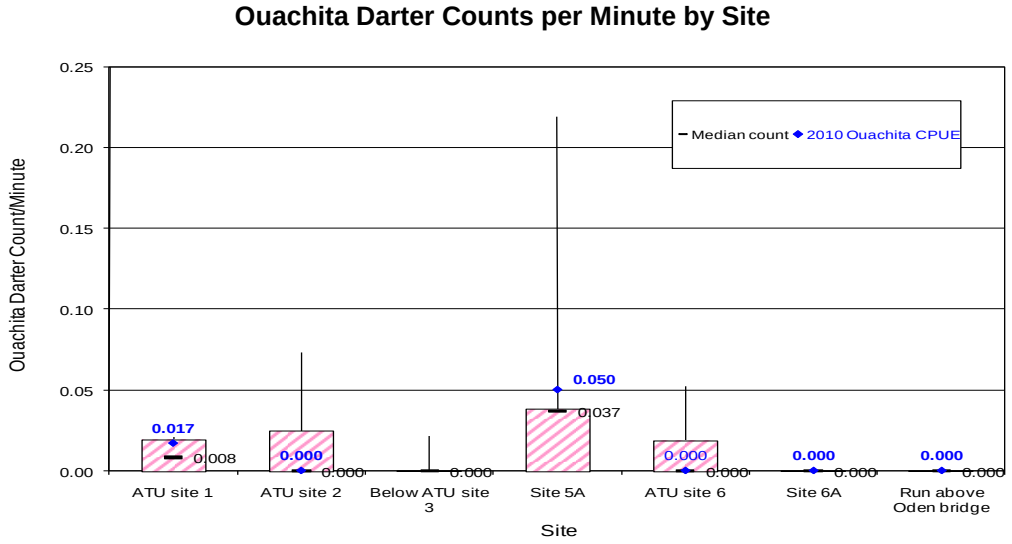
Ouachita darter snorkel surveys were initiated in 2004 as an annual survey from Shirley Creek Canoe Camp downstream to the Arkansas 379 Highway Bridge at Oden. During subsequent monitoring, sites originally surveyed during an Arkansas Tech University study have been utilized with modifications, such 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: Richard 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; however the complete report (thesis) has not yet been received. 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.



Connectivity of Fish Habitat

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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 this desired condition and Forest Plan objective, the Forest completed 11.5 miles of improved fish passage at four crossings and stabilized 145.8 miles of stream habitat. Three failing road crossings were replaced with aquatic organism passage-friendly structures. The 145.8 miles of stabilized stream habitat was the result of replacing one arch crossing that was being undermined but still provided fish passage and the remaining mileage was from heavy maintenance on hundreds of miles of roads and OHV trails to decrease sediment movement into streams.

The desired condition for game fish habitat in the 2005 Forest Plan is as follows: *"Fishable waters support high-quality angling opportunities," and* Objective 27 states, "*Maintain recreational fishing opportunities of stocked lakes and ponds."* In 2011, additional fish sampling was continued to monitor the gizzard shad population at Cedar Lake, and control measures were again undertaken as it appeared the gizzard shad population has begun to impact game fish populations negatively in Cedar Lake. 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) are added to increase fish cover. 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 continued in most managed recreational fishing waters in close coordination with the fish and game agencies of each state.

Aquatic Dependent Proposed, Endangered, and Threatened Species and Habitat

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

There are five freshwater mussel species, one fish species, and one aquatic plant species that are listed as federally threatened or endangered. Of the seven federally listed aquatic species, harperella carries the distinction of being the only endangered plant species.

Federally Endangered or Threatened Aquatic Species, ONF

Common Name	*Scientific Name*	Viability Concern Classification
Mussels		
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**

*Two mussel species have not been found to occur on the Ouachita National Forest within waters that are surveyed.

Listed Freshwater Mussels

There were no specific freshwater mussel surveys conducted on the Ouachita NF during FY 2011. Researchers are currently investigating the limits and phylogeography of *Lampsilinae* in Arkansas with emphasis on species of *Lampsilis*. Mussel surveys will continue to be conducted, in conjunction with the Arkansas and Oklahoma USFWS aquatic specialists and the AGFC malacologist to provide information for the Arkansas fatmucket (*Lampsilis powellii*) five-year status review. The species and numbers of all other mussel species encountered will also be noted during the next survey scheduled for FY 2012.

Pink Mucket (*Lampsilis abrupta)* and Winged Mapleleaf (*Quadrula fragosa)*

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

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 and the winged mapleleaf freshwater mussel have not been found to occur in any of the surveyed waters. There are no records that show that the pink mucket and winged mapleleaf mussels have ever occurred within the Forest's waters. These species will remain on the viability concern list, and survey efforts will continue. Any occurrences will be reported to the USFWS. Otherwise, provision for protection of aquatic habitat will follow the streamside management area direction.

Scaleshell Mussel (*L. leptodon)*

The South Fourche La Fave River is dominated by a few widely distributed and abundant species. The only scaleshell mussel record from this river is a single, live specimen found in 1991. The potential of additional mussel populations is unlikely due to the limited availability of

suitable substrate. Similarly, other major tributaries of the South Fourche La Fave River provide little opportunity for mussel occurrence; therefore, persistence of scaleshell mussel in this river is in doubt.

Although not found within the Forest boundary in Oklahoma, populations of the freshwater scaleshell mussel are known to occur along with populations of the Ouachita Rock Pocketbook in the Kiamichi River in Oklahoma, and Little River systems in Oklahoma and Arkansas. The potential for occurrence in Arkansas as well as Oklahoma, along with the federally endangered status makes this a species of viability concern for the Ouachita NF.

Ouachita Rock-pocketbook (*Arkansia wheeleri*)

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

Populations of this freshwater mussel are known to occur in the Kiamichi River 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. Protocols for this species will be the same as the other mussels that are not known to occur within the Forest's waters.

Ouachita Rock-pocketbook
Source: USFWS

Arkansas Fatmucket (*Lampsilis powellii*)

For additional information, contact Betty Crump at (501) 321-5236 or bcrump@fs.fed.us.

The federally threatened 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 the frequency of detection and the population sizes have been consistently decreasing.

Arkansas Fatmucket
Source: USFS

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.

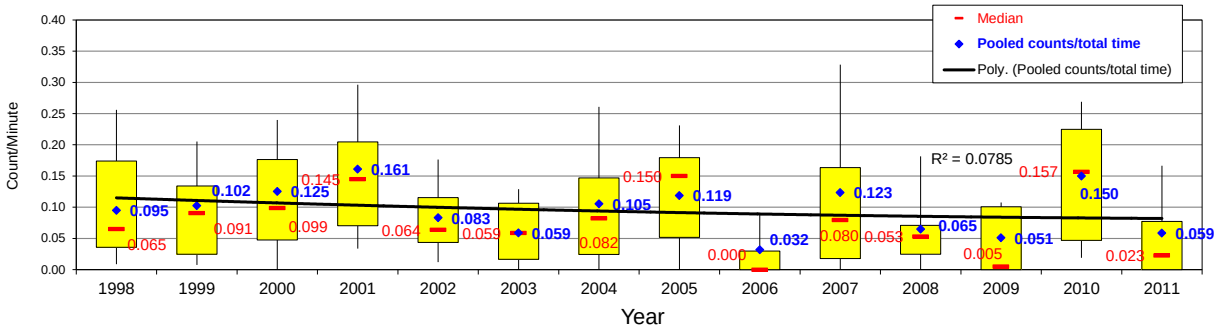
Leopard Darter (Percina pantherina)

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

Leopard Darter
Source: Richard Standage, USFS

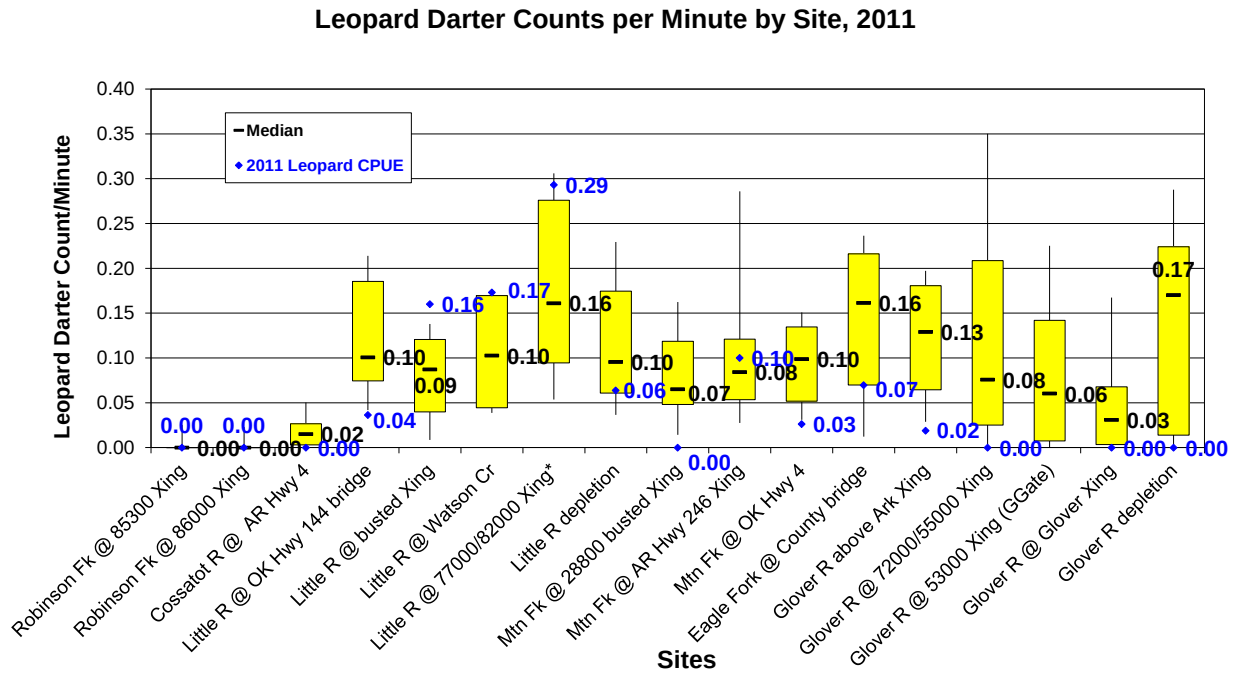
Based on the counts at 16 of the 18 permanent monitoring sites snorkeled during the summer of 2011, leopard darter counts were the third lowest (annual pooled count per minute) since the use of permanent monitoring sites began in 1998. Leopard darter counts in 2011 were nearly three times less than the counts from the summer of 2010 (the second highest counts) and only slightly higher than the summer of 2009 counts. From 1998 through 2007, there appeared to be a trend of a gradual four-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 and then in 2011 there was heavy flooding in April and May and a low water and hot summer (6th driest on record since 1921(from http://climate.ok.gov/index.php/drought/last -30-day/oklahoma_south-central_u.s.) that lead to the low pooled counts. (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, 1998 - 2011



Leopard darters were not seen at eight of the 16 surveyed sites in 2011. The 2011 leopard darter counts were above the median value at only four sites, and below the median value but

not zero at six 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. The Cossatot River site also had zero leopard darters counted during the set swim through the permanent transects Both of these off-forest population are the most vulnerable to extirpation because of small drainage areas isolated above a reservoir. The Glover River site at the 53000 crossing was not sampled for the third year in a row due to the change in the site from a pool to a steep riffle with the river channel restructuring itself out after the low-water crossing (basically a low-water dam) was removed and replaced with a bridge.



Graph shows 17 of the 18 permanent monitoring sites. One Little River site has been inaccessible for the past three years.

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*)

For additional information, contact Susan Hooks at (501) 321-5323 or shooks@fs.fed.us.

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 stabilize the stream temporarily. In 2010, the stream seemed to be stabilized and the head-cutting had subsided. In 2011 the head cutting appeared stable.

Each year, surveys are conducted during watershed assessments. In 2011 the Arkansas Natural Heritage Commission found two new locations of Harperella on the Forest. There have been five new populations of harperella 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 in the past; but in 2011, only two of the populations were monitored. Both populations were on Irons Fork Creek, and they appear to be stable. Annual monitoring will resume in 2012.

Aquatic Habitat Enhancement Activities

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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, 11.5 miles of improved fish passage at 4 crossings, and 145.8 miles of stabilized stream habitat resulted from this year's work. Three failing road crossings were replaced with aquatic organism passage-friendly structures. One crossing was specifically replaced to restore fish passage. The 145.8 miles of stabilized stream habitat was the result of replacing 1 arch crossing that was being undermined but still provided fish passage and the remaining mileage was from heavy maintenance on hundreds of miles of roads and OHV trails to improve sediment control to keep it out of streams.

North Fork Cedar Creek Crossing Rd 53000

Replacement crossing on North Fork Cedar Creek for fish passage

Original Road 31 crossing of the Cossatot River

Replacement crossing on Cossatot for fish passage and public safety

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

Activity	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Acres or Units					
Lake Fish Attractors Installed	**16**	**65**	**48**	**73**	**40**	**48**
Stream Fish Structure/Fish Passage Restored	**53**	**13**	***45**	**20**	**14**	**11.5**
Fishing Pond/Lake Constructed	**0**	**0**	**1**	****1**	**0**	**0**
Fishing Pond/Lakes Enhanced/fertilized, limed, etc.	**970**	**1,281**	**558**	**474**	**548.5**	**696**

* 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.

Watershed Function and Public Water Supply

For additional information, contact Alan Clingenpeel at (501) 321-5246 or aclingenpeel@fs.fed.us.

Within 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."*
In addition, there is a specific Forest Plan objective that relates to watershed function: "*OBJ 14. Maintain or improve watershed health."*

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.

Watershed Science

For additional information, contact Alan Clingenpeel at (501) 321-5246 or aclingenpeel@fs.fed.us.

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 standards of the Forest Plan, and 2. adverse effects of increasing sedimentation on watershed health (water quality and aquatic biota). For the full report submitted by the Forest Hydrologist, please see Appendix F.

Herbicide Monitoring

For additional information, contact Alan Clingenpeel at (501) 321-5246 or aclingenpeel@fs.fed.us.

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 on three Districts (Jessieville/Winona/Fourche – 2; Caddo/Womble – 1 and Mena/Oden – 1). Lab results indicated that the presence of herbicides has been insignificant for all sites. No changes to the monitoring protocols are recommended; however more timely results of monitoring are desirable.

Recreation and Scenery Management

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

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. The following Management Areas offer essentially primitive recreational opportunities in a natural setting:

MA 1 – Wilderness
MA 20 – Wild and Scenic Rivers
MA 17 – Semi-Primitive Areas

MA 1 - Wilderness (National Wilderness Preservation System)

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

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. A public sponsor will be required to advance the recommendations through the system. No action was taken during FY 2011 to advance these recommendations.

Forest Plan *OBJECTIVE 30, states, "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 a vacancy in the Forest Wilderness Specialist position 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.

Wilderness Stewardship Headwater Stream Sampling

For additional information, contact Judy Logan at (501) 321-5341 or jlogan@fs.fed.us.

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 (Pashubbe 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.

Eleven wilderness area headwater streams were sampled in 2011. Results indicate that the acid neutralizing capacity (ANC) for all 11 streams was >50 microequivalents/liter (µeq/l) falling in the 'Not or Minimally Affected by Acidification' category. None of the wilderness area streams that were sampled fell into the 'Sensitive to Acidification' (20-50 µeq/l), 'Episodically Acidic' (0-20 µeq/l) or the 'Chronically Acidic' (<0 µeq/l) categories.

These streams will be sampled again in FY 2012, providing a baseline dataset for use in monitoring 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.

MA 20 - Wild and Scenic Rivers

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

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. No action was taken during FY 2011 to have the Glover River formally designated as a part of the Wild and Scenic River system.

MA 17 - Semi-Primitive Areas

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

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. No management changes are recommended for Management Area 17.

Scenery Management

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

Projects that occur within Management Area 2, Special Interest Areas, Management Area 16, Lands Surrounding Lake Ouachita and Broken Bow Lakes, and Management Area 19 are focus areas for Forest management to consider Scenery Integrity Objectives.

MA 2 – Special Interest Areas

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.

MA 16, Lands Surrounding Lake Ouachita and Broken Bow Lake

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.

In addition to maintaining the scenic integrity of the Special Interest Areas and the Lands Surrounding Lake Ouachita and Broken Bow Lake, there is a specific Forest Plan Objective that addresses scenic overlooks (all of which are not located within MA 16): *OBJECTIVE 28: Improve or maintain all designated scenic overlooks at least once per decade.*

Of 38 scenic overlooks on the Forest, all were maintained. During FY 2011 the Hickory Nut Vista that provides views over Lake Ouachita was reworked, removing safety hazards and reconstructing the viewing platform. Also stabilization work was accomplished at the Jack Creek Overlook. Although growing vegetation that interferes with viewing continues to pose challenges at some vistas, no management changes related to scenery management are recommended.

MA 19 – Winding Stair Mountain Recreation National Area

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, including the Talimena Scenic Drive. No management changes are recommended for this Management Area.

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.

MA 3 – Developed Recreation Areas

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

There are approximately 5,189 acres devoted to developed recreation encompassing some 118 separate sites on the Ouachita NF; of these, several 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.
There are two Forest Plan Objectives that govern developed recreation:

OBJECTIVE 24: "Maintain all recreation facilities to standard."

In FY 2011, 117 of 118 recreation facilities were maintained to standard. The Albert Pike Recreation Area remained closed and maintenance was not performed at that site during FY 2011. "To standard" is calculated by the amount of deferred maintenance as a percentage of current replacement value. Using the Forest Service definition, the Ouachita NF is accomplishing 108 percent of the target of the maintained to standard measurement.

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

This objective was met with improvements to the Pigeon Roost Shooting Range. Improvements included the paving of an accessible trail and installation of a shooting bench.

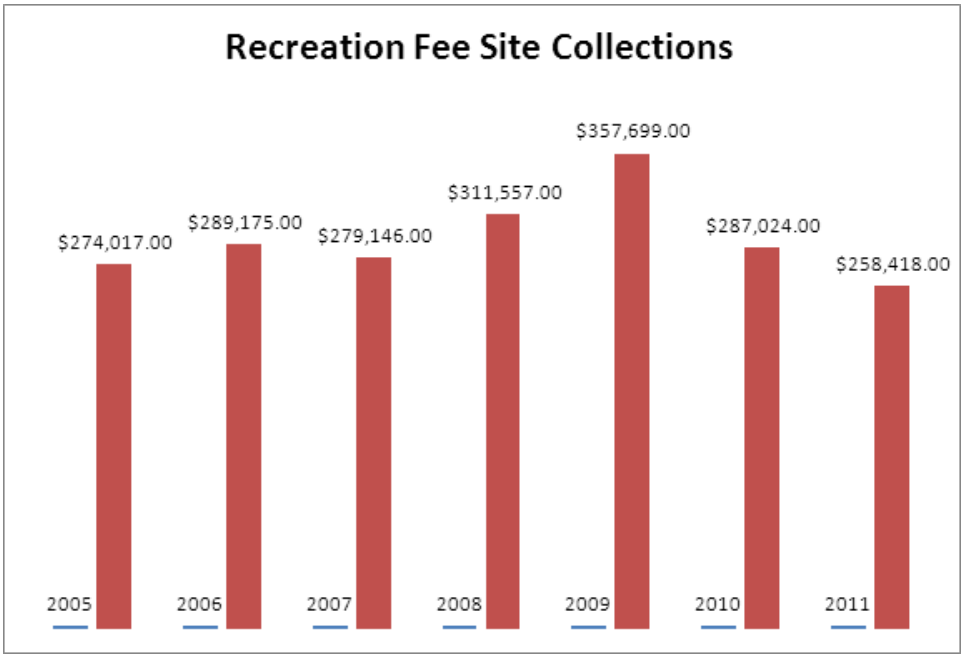
In April, 2011, a flash flood swept through the Charlton Recreation Area, resulting in damage to recreation infrastructure, but fortunately, no fatalities. The recreation site remained closed to visitors while hazards were mitigated and removed and infrastructure reconstructed to standard.

Fee Sites

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). The following tabulation displays the other 14 recreation sites where fees are collected. Fee collections for FY 2011 were the lowest they have been since FY 2005, at $258,418 due to flooding and subsequent closure of two recreation area.

Recreation Sites where Fees are Charged on the Ouachita NF	
Billy Creek Campground	**Camp Ouachita NFS - Organization Site**
Cedar Lake Campground	**Lake Sylvia Campground**
Cedar Lake Horse Camp	**South Fourche Campground**
Winding Stair Campground	**Shady Lake Campground**
Albert Pike Campground	**Little Pines Campground**
Bard Springs Campground	**Camp Clearfork NFS - Organization Site**
Knoppers Ford Campground	**Charlton Campground**

Total Recreation Area/Campground Fee Collections 2005-2011, ONF



The decrease in fee collections for FY 2011 is due to flooding that closed Albert Pike Camping Area and Charlton Recreation Area.

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.

Objective 23 of the Forest Plan is specific to trails: *"Conduct maintenance on at least 300 miles of trails (non-motorized use) per year."*

In FY 2011, 350 miles of non-motorized trail were maintained to standard. Thanks to the efforts of volunteer trail groups and district employees, the Ouachita NF accomplishes more maintenance each year than the annually assigned target of 292 miles of non-motorized trail maintained to standard.

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 Participation

For additional information, contact Chris Ham at (501) 321-5253 or cpham@fs.fed.us.

Based on the 2010 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.

Public and Agency Safety

For additional information, contact Alissa Land at (501) 321-5361 or aland@fs.fed.us or Tim Fincham at (501) 321-5357 or tfincham@fs.fed.us.

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 (LE&I) 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 2011 was seven full time officers. During FY 1010, there were 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 normal 80-hour, two-week pay period, resulting in Administratively Uncontrollable Overtime.

The Forest LEO's responded to or assisted with 42 accidents within or adjacent to the Ouachita NF. These numbers include minor injuries (sprains, dog bites, etc.), All-Terrain Vehicles (ATV), and motorcycle and motor vehicle accidents. Nineteen accidents were motor vehicles, 7 ATV accidents, 4 motorcycle accidents and 12 personal injury/other accidents. Twenty separate search and rescue (SAR) operations were conducted during FY 2011 for lost hikers and prison escapees. Three fatalities were reported as a result of homicide, suicide, and ATV accident. During FY 2011, LE&I investigated 6 assault cases.

Officers conducted 19 compliance checkpoints to address the growing traffic, ATV and alcohol violations occurring as a result of increased public visitation on the Ouachita. During FY 2010 18 compliance checkpoints were conducted. Ninety seven timber spot inspections were completed during FY 2011, as compared to 89 timber spot checks during FY 2010.

During FY 2011, Ouachita National Forest Law Enforcement personnel spent approximately 3,307 hours in support of various details on and off their home units. On the Forest, a total of 487 Federal and State Violation Notices, 4774 Warning Notices, and 476 Incident Reports were issued. A comparison of FY 2011 LE activity with FY 2006, FY 2007, FY 2008, FY 2009, and FY 2010 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
2011	487		4,774	476

During FY 2011, 123 arrests were reported compared to 162 arrests during FY 2010. Approximately 124 marijuana plants were eradicated from the Forest, and there were 86

separate investigations initiated during FY 2011. Officers investigated and assisted in 17 felony drug cases and 44 simple possession drug cases, down from 27 felony drug cases and 68 misdemeanor drug cases in FY 2010. Eighteen separate DUI and public intoxication incidents were documented. Eighty fires were investigated of which 50 were determined to be arson or human caused fires. The tabulation below shows these data since FY 2006, the first full year of monitoring for the 2005 Forest Plan.

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
2011	124	86	17	44	50

*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 123 hours in public relation programs. Ouachita NF LEO's traveled nearly 260,000 miles in FY 2011, in support of public and agency safety, as well as protection of natural resources and property. Law Enforcement reports show a total of 22,315 public contacts during FY 2011. A comparison of FY 2011 LE activity with FY 2006, FY 2007, FY 2008, FY 2009, and FY 2010 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
2011	123	260,000	22,315

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

Heritage Resources

For additional information, contact Meeks Etchieson at (501) 321-5252 or metchieson@fs.fed.us.

Heritage Resources are addressed by reporting Heritage Stewardship and Tribal and Native American Interests.

Heritage Stewardship

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; this chapter, however, should be finalized by the end of this fiscal year. The process of drafting the Heritage Overview has been prolonged due to other priority projects, causing the GIS data originally analyzed for the Heritage Overview to be somewhat dated. The final draft is expected to be available by the end of the calendar year 2012.

Review of Trends Revealed Through Monitoring

The Heritage Management Plan (now Heritage Program Plan) was scheduled to be completed by FY 2010. Components of the Heritage Program Plan have been drafted for the Caddo/Womble and Mena/Oden Districts and will be completed for the Forest as a whole once the Heritage Overview is complete, reviewed by the State Historic Preservation Officers and Tribal Historic Preservation Officers, the Heritage Program 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; for the current year, the Ouachita has 182 archeological and historic sites on the PHA list. 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. Other important eligible or unevaluated sites are monitored as time permits.

Archeological collections are Priority Heritage Assets. Additional effort will be required to 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. All archeological collections curated by the Ouachita National Forest in the Supervisor's Office have been examined for faunal materials, the faunal materials pulled and submitted to an analyst for identification of possible human remains. This analysis is ongoing. At the same time, complete faunal identification will be completed for eleven archeological sites tested on the Oklahoma District, Tiak, and Kiamichi Units. The 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.

Tribal and Native American Interests

For additional information, contact Meeks Etchieson at (501) 321-5252 or metchieson@fs.fed.us .

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.

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 2013, 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, 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 2013.

Performance History

Contribution to Social & Economic Sustainability

For additional information, contact Alett Little at (501) 321-5327 or alittle@fs.fed.us.

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 2011, ONF

State/County	Acres	Ouachita NF Acres 2011 (Change from previous year)	Ouachita NF Acres 2010	Ouachita NF Percent of State/County 2011
Arkansas	34,034,560	1,434,718 (-181)	1,434,899	4.22
Ashley	589,440	1,675	1,675	0.28
Garland	433,280	120,573	120,573	27.83
Hot Spring	393,600	320	320	0.08
Howard	375,680	1,531	1,531	0.41
Logan	454,400	18,586	18,586	4.09
Montgomery	499,840	336,839 (-1)	336,840	67.39
Perry	352,640	99,170	99,170	28.12
Pike	385,920	13,427	13,427	3.48
Polk	549,760	206,261 (-180)	206,441	37.50
Saline	462,720	58,959	58,959	12.74
Scott	572,160	369,587	369,587	64.59
Sebastian	343,040	18,956	18,956	5.53
Yell	593,920	188,834	188,834	31.79
Oklahoma	43,946,880	354,954	354,954	0.81
LeFlore	1,015,040	221,949	221,949	21.87
McCurtain	1,185,280	133,005	133,005	11.22

Source: Ouachita National Forest

By the end of Sept 2011, the Forest Service conveyed out 221 acres and acquired 40 acres in an exchange for an overall decrease of 181 acres. The 40 acres that were acquired were on the Mena Oden Ranger District and 220 acres conveyed out were on the Caddo Womble Ranger District both in Polk County. A nearly one acre tract was conveyed to a church in Montgomery County.

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

For additional information, contact Bill Pell at (501) 321-5320 or bpell@fs.fed.us.

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 this page shows payments to counties under the Secure Rural Schools and Community Self-Determination Act. Hot Spring County, with only 320 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, FY 2006 - present

AR County	2006	2007	2008	2009	2010	2011
Ashley	3,539	2,869	6,633	6,235	4,970	4,233
Garland	454,370	453,437	321,2963	291,494	276,302	211,103
Hot Spring	676	548	5713	568	549	561
Howard	3,235	2,622	5,8201	5,200	5,085	4,956
Logan	42,505	42,418	70,754	50,287	45,922	43,652
Montgomery	1,243,580	1,241,027	1,467,711	1,325,823	1,290,494	1,158,828
Perry	387,420	328,632	324,278	260,347	237,031	219,113
Pike	21,847	22,957	31,344	29,111	25,179	23,132
Polk	648,426	687,539	876,424	832,968	890,615	759,411
Saline	184,787	216,951	146,405	124,858	112,788	95,534
Scott	1,456,962	1,165,618	1,614,725	1,456,841	1,577,973	1,500,621
Sebastian	64,570	64,438	38,467	35,477	34,226	31,424
Yell	695,433	694,006	801,940	733,059	666,927	614,500
OK County	2006	2007	2008	2009	2010	2011
LeFlore	974,175	972,176	956,344	842,016	773,112	674,238
McCurtain	264,770	264,226	383,889	350,417	347,835	309,374

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. The Secure Rural Schools and Community Self-Determination Act was set to expire September 30, 2011. [On July 6, 2012, the Secure Rural Schools and Community Self-Determination Act of 2000 was reauthorized for federal fiscal year (FY) 2012 as part of Public Law 112-141. This one-year

reauthorization of the Secure Rural Schools Act made some significant changes to the previous reauthorization in Public Law 110-343.] (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5103009.pdf)

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

For additional information, contact Diane Lowder at (501) 321-5249 or dlowder@fs.fed.us.

The Forest Plan management areas, management prescriptions, and standards 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 2011 are shown in the following tabulation.

Allocated Funding 2006-2010, ONF

Year	2006	2007	2008	2009	2010	2011
Dollars (in Millions)	8.5	6.8	8.8	11.7	10.5	9.8

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 from those timber sales on those areas.

Resource Management Accomplishments

The following table summarizes resource management accomplishments for the Ouachita NF from 2003 to present.

Resource Management Accomplishments

Objective or Activity	Unit of Measure	FISCAL YEAR								
		2003	2004	2005	2006	2007	2008	2009	2010	2011
Trail Construction	Miles	6	6	0	5	5	4	5	24	24
Trail Maintenance	Miles	293	288	293	299.8	300	245	244	150	150
Heritage Resource Survey	Acres	6,490	22,930	20,046	16,176	22,460	10,444	21,965	6,597	6,211
Waterhole Development	Structures	107	142	220	57	212	99	85	51	101
Midstory Reduction	Acres	3,014	353	1,350	7,715	4,935	2,410	5,965	5,159	5,362
Prescribed Fire	Acres	128,319	134,386	96,376	43,093	145,354	120,748	120,125	142,817	96,720
Lime, Fertilize and/or Stock Lakes/Ponds	Acres	647	670	828.5	970	1,281	558	474	548.5	696
Livestock	Number	1,179	903	715	530	300	154	142	133	116
Active Range Allotments	Number	20	17	16	16	16	6	4	3	3
Watershed Improvement & Maintenance	Acres	35	56	73	87	45	41	75	64	118
Minerals Administration	Cases	191	577	860	403	640	894	837	N/A	N/A
Timber Offered	Million cubic feet	13.11	17.77	20.02	7.57	19.86	21.52	16.17	20.47	19.88
Timber Sold	Million cubic feet	11.16	14.24	16.68	19.93	20.64	20.18	17.54	18.93	20.05
Land Line Location Or Maintenance	Miles	39.5	77.0	80.0	52.6	65.0	135.4	136.5	114.02	105
Rights-of-way	Cases	2	1	1	0	1	0	2	3	0
Arterial/Collector Roads Reconstructed	Miles	33	4	14	15.56	6.44	10.54	1.94	7.96	112.35
Local Roads Constructed	Miles	5	5	5	15.99	4.28	8.54	21.00	3.29	11.13
Soil Inventory	Acres	50,000	0	9,090	3,240	0	0	26,165	0	24,800
Stream Inventory	Miles	N/A	N/A	N/A	46	10	10	10	10	46
Stream Inventory For Leopard Darter	Miles	N/A	N/A	N/A	8	8	8	8	7	7
Stream Inventory For Ouachita Darter	Miles	N/A	N/A	N/A	6	6	0	6	10	10
Total Stream Inventory	Miles	N/A	N/A	N/A	60	26	18	24	27	63

Objective or Activity	Unit of Measure	FISCAL YEAR								
		2003	2004	2005	2006	2007	2008	2009	2010	2011
5 Yr. Basin Area Stream Survey (Water Resource Inventory)	Acres	N/A	N/A	N/A	48,237	N/A*	N/A*	N/A*	N/A*	**
Fish Attractors	Sites	45	26	6	16	65	48	73	40	44
Streams Monitored for Offsite Herbicide Movement	Sites	11	11	11	6	3	4	0	0	4

* Basin Area Stream Survey occurs approximately one time every five years.
**Analysis of results is underway, but were unavailable for this report.
N/A – Not Available

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Appendix A – Contributors to the 2011 M&E Report

Robert Bastarache—Biologist
Bubba Brewster—Forest Engineer
Lisa Cline – Forest NEPA Coordinator
Alan Clingenpeel—Forest Hydrologist
Steve Cole—Staff Officer, Integrated Resources
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Tim Fincham—Law Enforcement
Gary Griffin—Facilities Engineer
Chris Ham —Recreation Program Manager
Susan Hooks—Forest Botanist and Range Program Manager
Alissa Land—Law Enforcement
Mary Lane—Forest Wildlife Biologist
Tom Ledbetter—Forest Trails Coordinator
Alett Little—Forest Planner
Judith Logan—Forest Air Specialist
Diane Lowder—Budget Officer
Warren Montague—District Wildlife Biologist
Lea Moore—Civil Engineer
Jeff Olson—Forest Soil Scientist
Bill Pell—Staff Officer
Melanie Pitrolo—Air Specialist
Elaine Sharp—Forester Lands/Special Uses
Jerry Soard—Assistant Fire Team Leader
Jessica Soroka—Realty Specialist
James D. Smith—Forest Health Protection
JoAnn Smith—Forest Silviculturist
Richard Standage—Forest Fisheries Biologist
Charlie Storey—Forest Land Surveyor
Debbie Ugbade—Public Affairs Staff
Norman Wagoner—Forest Supervisor
Mike White—Technical Services Team Leader
Ray Yelverton—Sales Forester

Appendix B – Ouachita NF Project Decisions Signed in FY 2011

Management Unit	Project Name	Decision Type	Project Purpose
Caddo-Womble	Efird Road Authorization	DM	Special use management
Caddo-Womble	Entergy High Peak Permit	DM	Special use management
Caddo-Womble	Entergy -Kilgore Right of Way Easement	DM	Special use management
Caddo-Womble	Forest Health Restoration	DN	Forest products Vegetation management
Caddo-Womble	Jewell Patent Access Road	DM	Special use management
Caddo-Womble	LOViT Trail construction Segment 6-7	DM	Recreation management Special use management
Caddo-Womble	Manual Release Treatments of Shortleaf Pine Saplings	DM	Forest products Vegetation management
Caddo-Womble	Montgomery County Clark Lane Easement	DM	Special use management Road management
Caddo-Womble	Montgomery County Regional Public Water Authority Radio Repeater	DM	Special use management
Caddo-Womble	NOAA Generator and Propane Tank at High Peak	DM	Special use management
Caddo-Womble	Seed Orchard EA	DN	Special area management Vegetation management Fuels management Research and Development
Caddo-Womble	Wilson Special Use Road Permit	DM	Special use management
Cold Springs-Poteau	FY 2011 PCT and Release Treatments	DM	Vegetation management
Cold Springs-Poteau	FY11 Prescribed Burn - East Newman Burn Unit	DM	Wildlife, Fish, Rare plants Vegetation management Fuels management
Cold Springs-Poteau	FY11 Prescribed Burn DM	DM	Wildlife, Fish, Rare plants Vegetation management Fuels management
Cold Springs-Poteau	Jones Creek	DN	Land Management Planning Recreation management Heritage resource mgt Wildlife, Fish, Rare plants Vegetation management Fuels management Watershed management Road management

Appendix B – Ouachita NF Project Decisions Signed in FY 2011

Management Unit	Project Name	Decision Type	Project Purpose
Cold Springs-Poteau	Lick Creek	DN	Recreation management Heritage resource mgt Wildlife, Fish, Rare plants Forest products Vegetation management Fuels management Watershed management Road management
Cold Springs-Poteau	Ouachita Trail Relocation	DM	Recreation management
Cold Springs-Poteau	Reforestation and Rx Burning in Compartment 257, Stand 21	DM	Vegetation management
Cold Springs-Poteau	Special Uses Reauthorization - Alltell Communications, LLC and Entergy Services, Inc./Alltell d/b/a/ Verizon Wireless Communication Facilities Poteau Mountain	DM	Special use management
Cold Springs-Poteau	Special Uses Reauthorization - Alltell Communications, LLC and Entergy Services, Inc./Entergy Services, Inc. Communication Facilities White Oak Mountain	DM	Special use management
Cold Springs-Poteau	Special Uses Reauthorization - AR Game & Fish Commission.	DM	Special use management
Jessieville-Winona-Fourche	Commercial Thinning and Stand Improvement, Crossett Experimental Forest (SRS-4159)	DM	Forest products Vegetation management Research & Development
Jessieville-Winona-Fourche	Crossett Experimental Forest (SRS 4159) Prescribed Burning 2011	DM	Vegetation management Fuels management Research & Development
Jessieville-Winona-Fourche	Dutch Creek Mountain Tower - Entergy Special Use Extension	DM	Special use management
Jessieville-Winona-Fourche	First Electric Utility Corridor Perry County Road 14 East - Special Use	DM	Special use management
Jessieville-Winona-Fourche	Perry Co., AR Road 14 Improvement - Special Use	DM	Special use management
Jessieville-Winona-Fourche	Special Uses Reauthorization - Ouachita NF	DM	Special use management
Jessieville-Winona-Fourche	TSI Stand 32 C-1410 Lower South Fourche WS	DM	Vegetation management
Jessieville-Winona-Fourche	Wildlife Ponds 2011	DM	Wildlife, Fish, Rare plants
Jessieville-Winona-Fourche	Windstream Fiber Optic Upgrade Highway 9/10 Special Use	DM	Special use management
Jessieville-Winona-Fourche	Windstream Underground Cable - Perry County Road 14	DM	Special use management

Appendix B – Ouachita NF Project Decisions Signed in FY 2011

Management Unit	Project Name	Decision Type	Project Purpose
Mena-Oden	Lower Irons Fork/Johnson Creek Watersheds	DN	Recreation management Heritage resource mgt Wildlife, Fish, Rare plants Forest products Vegetation management Fuels management Watershed management Road management
Oklahoma	Access Road for The Roy Reed LLC	DM	Special use management Road management
Oklahoma	American Burying Beetle Area Habitat Improvement Project	DM	Land management planning Wildlife, Fish, Rare plants Vegetation management
Oklahoma	Blackjack Site Prep	DM	Vegetation management
Oklahoma	Buck Hunt Access Road	DM	Special use management
Oklahoma	Buffalo Creek Two Project	DN	Forest products Vegetation management Fuels management
Oklahoma	Carter Creek - NWTF Prescribed Burn	DM	Wildlife, Fish, Rare plants Vegetation management Fuels management Watershed management
Oklahoma	Choctaw Nation Trail Relocation	DM	Recreation management
Oklahoma	Cooper Creek Blowdown Salvage Sale	DM	Forest products Fuels management
Oklahoma	FBI Communications Permit Re-issue	DM	Special use management
Oklahoma	Long Branch Prescribed Burn	DM	Fuels management
Oklahoma	Lower Cedar Creek Crossing Removals	DM	Road management
Oklahoma	McCurtain RWD #1 Permit Re-issue	DM	Special use management
Oklahoma	McCurtain RWD #6 Permit Amendment	DM	Special use management
Oklahoma	Morrison Road Permit	DM	Special use management Road management

Appendix B – Ouachita NF Project Decisions Signed in FY 2011

Management Unit	Project Name	Decision Type	Project Purpose
Oklahoma	Oklahoma Regents Communications Tower	DM	Special use management
Oklahoma	Panther Creek 2 - Prescribed Burn	DM	Wildlife, Fish, Rare plants Vegetation management Fuels management Watershed management
Oklahoma	Rock Shop Fire Salvage Sale	DM	Forest products Vegetation management
Oklahoma	Walker and Harvey Mountain West Prescribed Burn	DM	Fuels management

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Appendix C – Approved Communication Sites

Approved Communication Sites and sites for which plans are under development:

Bee Mountain Electronic Site Mena RD, Polk County, AR NW1/4 of SE1/4 Section 13, T3S R31W This site is unoccupied and may be abandoned.	**Buck Knob** Oden RD, Scott County AR T1S. R28W, Sec. 1
Cove Mountain Fourche RD. Perry, Co. AR T3N, R21W, Sec. 14	**Crystal Mountain** Winona RD, Saline County, AR T2N, R18W, Sec. 8 This site is unoccupied and may be abandoned.
Danville Electronic Site Fourche RD, Yell Co. AR T4N, R23W, Sec. 12	**Dutch Creek** Fourche RD, Yell County, AR, 2.3 Ac. T4N, R23W, Sec. 12 Microwave, mobile radio
Eagle Mountain Mena RD, Polk Co. AR SW1/4 Sec. 30 T3S, R29W	**High Peak** Caddo RD. Montgomery Co. AR T3S, R24W, Sec. 19
Kiamichi Mountain (Three Sticks Historical Monument) Kiamichi RD, LeFlore Co. OK T2N, R25E, Sec. 29	**Federal Aviation Agency, VORTAC Site** Choctaw RD, LeFlore Co. OK Sect. 6, T2N, R26E
Ouachita Pinnacle Jessieville RD, Garland Co. AR T1N, R21W, Sec. 15	**Paron Elec. Site** Winona RD, Saline Co, AR T2N, R18W, Sec. 11
Poteau Mtn. (Bates) Poteau RD. Sebastian Co. AR T4N, R32W, Sec. 34	**Rich Mtn. #1** Mena RD, Polk Co. AR NW1/4 Sec. 17, T1S, R31W
Rich Mtn. #2 Mena RD, Polk Co. AR NW1/4 Sec. 6, T2S, R30W	**Tall Peak** Mena RD, Polk Co. AR SE1/4 SE1/4, Sec. 24, T4S, R28W
White Oak Mtn. Cold Springs RD., Scott Co. AR T4N, R28W, Part of the NE NW, Sec. 26	**Sycamore** Choctaw RD, LeFlore Co. OK T3N, R23E, Sec. 33
Slatington Peak Caddo RD. Montgomery Co. AR NW1/4 NW1/4 Sec. 4, and NE1/4 NE1/4 Sec. 5, T4S, R27W Currently unoccupied, retain for future development.	**Hodgen** Choctaw RD, Leflore Co. OK T3N, R25E, Sec. 2

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Appendix D – FY 2011 Air Quality

For additional information, contact Melanie Pitrolo at (828) 257-4213 or mpitrolo@fs.fed.us

Air Quality in the National Forest

Air pollution often has a subtle but critical impact on ecosystems and vistas, and can alter ecosystems by harming plants and animals, or changing soil or water chemistry. Ecosystems then become more vulnerable to damage from insects and diseases, drought, or invasive species. Additionally since many visitors to National Forests value pristine areas with magnificent vistas, air pollution can spoil their experience and lessen their enjoyment of National Forests.

Ozone and Fine Particulate Matter. Air pollutants of most concern on the Ouachita National Forest are ozone and fine particulate matter. Levels of these two pollutants are measured at air monitoring sites within or near the National Forest. Fine particulate matter is the leading cause of regional haze (also known as visibility impairment), while ozone can harm sensitive vegetation within the forest. Additionally, at elevated concentrations these two pollutants can impair the health of both employees of and visitors to the National Forests. The U.S. Environmental Protection Agency (EPA) has been directed by Congress to set national ambient air quality standards (NAAQS) for these and other pollutants, and state air regulators monitor ozone and fine particulate matter at several sites near the National Forest as shown in Figure 1. The lack of grey shaded areas indicates that no areas near the National Forest are exceeding the air quality standards.

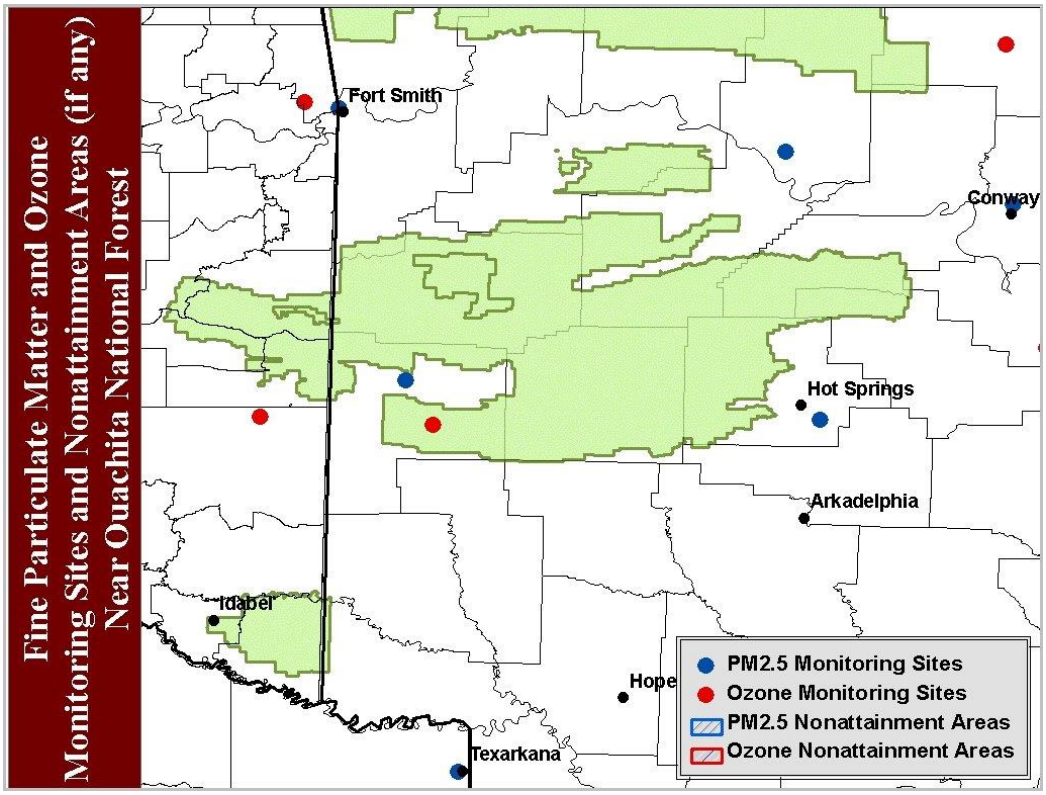


Figure 1: Ambient Monitoring Sites Near the Ouachita National Forest. Note that there are no nonattainment areas within the immediate vicinity of the Forest.

Visibility. One of the most noticeable forms of air pollution is haze, a veil of smog that blurs the view of many urban and rural areas. As part of the Clean Air Act, Congress has established a goal to prevent future and remedy existing visibility impairment in 156 protected national parks and wildernesses, known as Class I Areas. Federal rules require state and federal agencies to work together to improve visibility in these areas so that natural background conditions are achieved by the year 2064. Within a wilderness area such as Caney Creek, visitors expect to find pristine conditions and magnificent views unobscured by manmade air pollution. The IMPROVE (Interagency Monitoring of Protected Visual Environments) monitoring network collect aerosol samples at monitors throughout the country, including at Caney Creek, which are then analyzed to establish baseline visibility conditions and track changes over time.

Regional haze comes from a variety of anthropogenic (man-made) and natural sources. Typical visibility-impairing pollutants such as sulfates, nitrates, organic carbon, and particulate matter are identified in the IMPROVE data and can help pinpoint nearby sources that are contributing to regional haze at a particular location. Table 1 shows the most common pollutants and their sources.

Table 1: Sources of Regional Haze Pollutants

Regional Haze Pollutant	***Anthropogenic Sources of Pollutant***	***Natural Sources of Pollutant***
Sulfates	Coal-Fired Power Plants, Diesel Engines, Industrial Boilers	Volcanoes
Organic Carbon	Incineration, Household Heating	Fire, Vegetation
Nitrates	Cars & Trucks, Off-Road Vehicles, Industrial Boilers, Agriculture	Soils, Lightning, Fire
Fine Soil	Off-Road Vehicles, Agriculture	Wind-Blown Dust
Elemental Carbon	Soot, Diesel Engines	Fire
Fine Particulate Matter	Combustion Processes, Roads	Fire
Coarse Particulate Matter	Construction, Roads, Woodstoves, Fireplaces	Wind-Blown Dust, Fire

Protecting Air Quality Related Values within the Forest. One of the highest priorities within the Ouachita National Forest's Revised Forest Plan is protecting air quality. Specifically, the plan sets forth the objective to protect and improve the air quality related values (AQRVs) at the Class I area (Caney Creek). To meet this objective, the plan asks seven different questions. These questions and the FY 2011 answers are listed below.

What monitoring of the AQRV of the Class I Area occurred this year?
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, fine particulate matter and visibility as well as ambient ozone concentrations are monitored near the Class I area as shown in Figure 1 above. The measured fine particulate matter concentrations as compared to the daily and annual NAAQS at these monitoring sites for the years 2006 through 2011 are shown in the chart below.

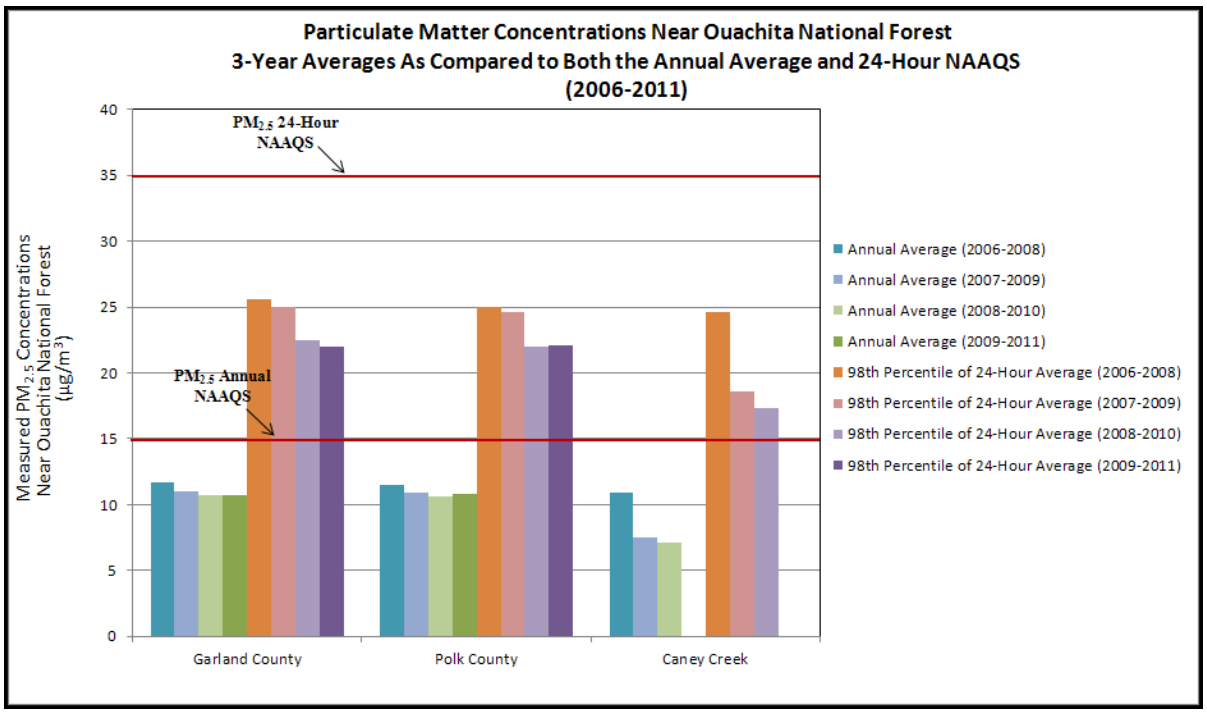


Figure 2: Fine Particulate Matter Concentrations Measured Near Ouachita National Forest

As shown, neither the daily or annual NAAQS for $PM_{2.5}$ is being exceeded at any of the monitoring sites located on or near the Forest. Although 2011 data is not yet available for the Caney Creek IMPROVE monitoring site, trends indicate that no exceedances will be noted.

Because of the complicated nature of the IMPROVE monitoring, there is a significant lag time between when data are collected and when it is analyzed and becomes available. Thus, 2011 data are not yet available, and the graphs presented during the previous Monitoring and Evaluation Report for FY 2010 are still current.

Exposure to elevated ozone levels can cause human health concerns as well as negative impacts to vegetation. US EPA has established the ozone NAAQS as 0.075 ppm, as measured by taking the three-year average of the fourth-highest daily maximum eight-hour average ozone concentrations measured at each monitoring site. There is one ozone monitor located near Caney Creek Wilderness Area, in Polk County. There is another monitor near the western edge of the Forest in Sequoyah County, Oklahoma. The graph below shows the measured ozone concentrations at both of these sites for the years 2006 through 2011. As shown, concentrations in 2011 were higher than in prior years at both sites. If this trend continues, the area may be designated nonattainment. Additionally ozone-susceptible vegetation may experience effects due to elevated concentrations.

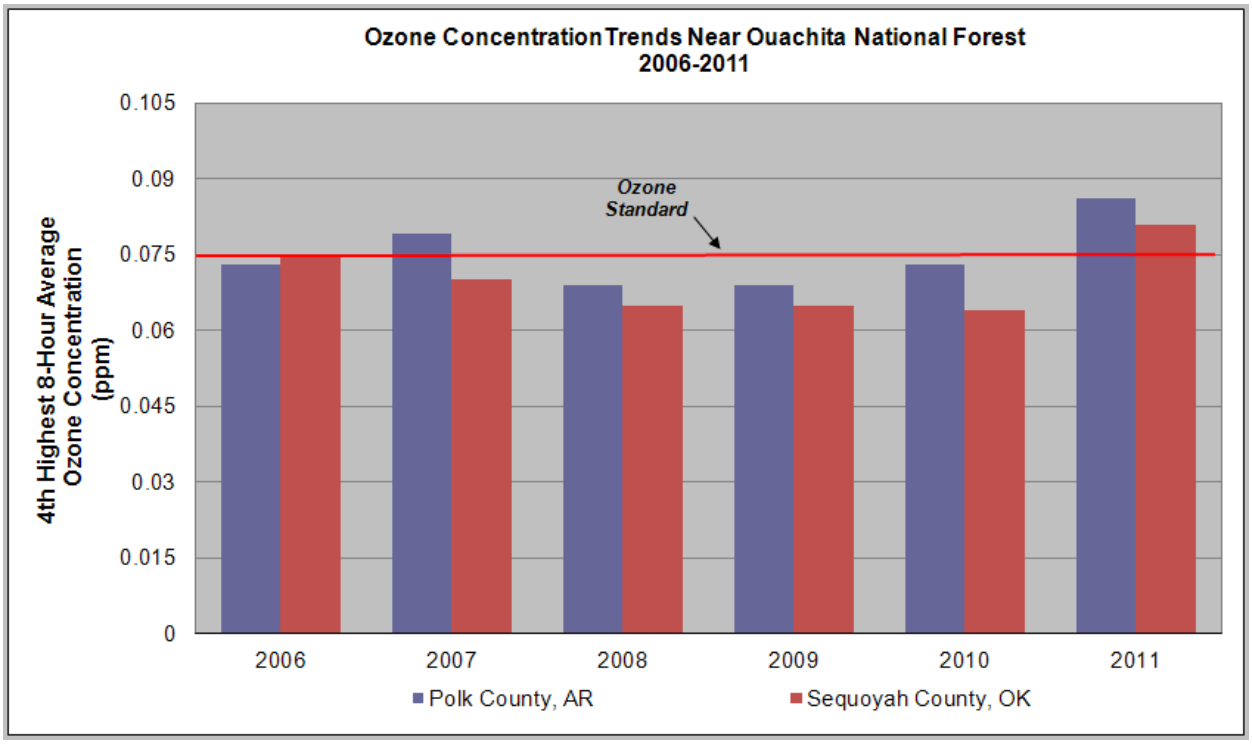


Figure 3: Ozone Concentrations Measured Near Ouachita National Forest

How many PSD permits were reviewed?
Two applications were reviewed in 2011, and neither of these proposed facilities was shown to cause an adverse impact to 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).

Was any data gathered on the potential influence from acid rain on water quality?
There is one Clean Air Status and Trends Network (CASTNET) site measuring deposition rates located 30 kilometers southeast of the Forest in Clark County, Arkansas. Because of the lag time between when data are collected and when it is analyzed and becomes available, 2011 data are not yet posted. The graph in the previous Monitoring and Evaluation Report is still current.

What are the results of the air visibility monitoring efforts at Caney Creek Wilderness?
As discussed above, data for 2011 are not yet posted, and the graphics presented in the previous Monitoring and Evaluation Report are still current.

What were the findings (and trends) in comparison to previous monitoring efforts?
As shown above, fine particulate matter and ozone concentrations near the Forest have been measured for several years. Fine particulate matter concentrations and visibility appear to be improving, but increase in ozone concentrations measured near the Forest in 2011 is noted.

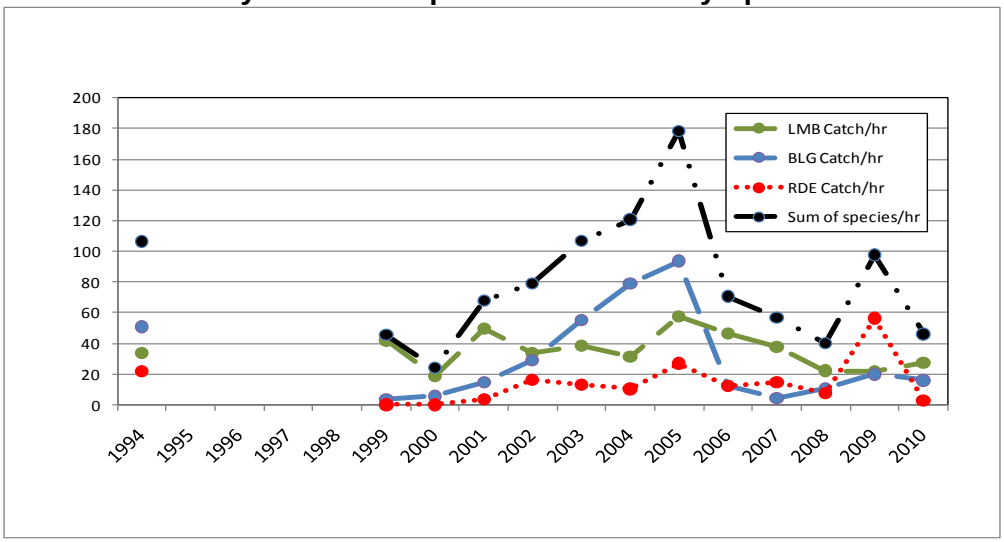
How many twice weekly air filter checks were documented on the IMPROVE Monitoring Network?
The Caney Creek IMPROVE monitoring site collected 113 days of data during 2011. Eight (8) sampling days were missed due to equipment problems. That is a data capture rate of 93 percent. The average data capture rate across all IMPROVE sites around the country is 82.5 percent.

Appendix E - Other Pond, Lake, and Waterhole Fisheries

For additional information, contact Richard Standage at (501) 321-5247 or rstandage@fs.fed.us.

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 twenty 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. Were it not for the catch of a small number of spawning redear sunfish in 2009, the data shows a leveling off of the fish population in 2008 at a very low level. 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 was to be halted and operations will revert to the Operations and Maintenance procedure as 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 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-lowering events.

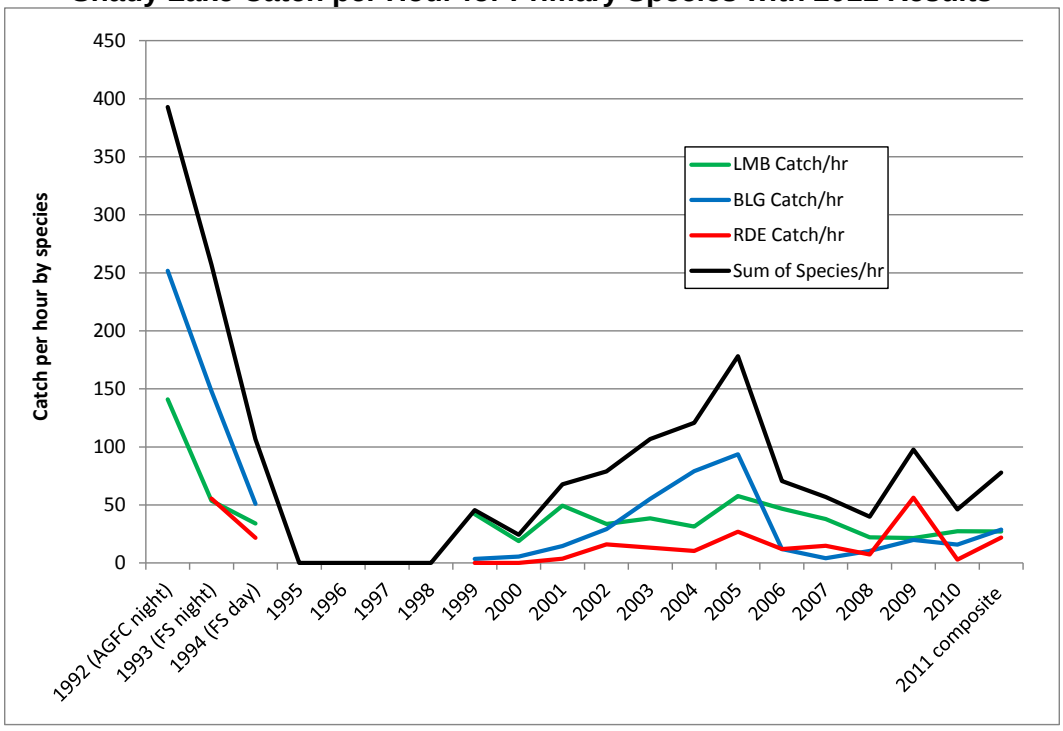
Events at Shady Lake and Clearfork Lake resulted in two fisheries at recreation facilities being lost or severely impacted in just two years. The Arkansas Game and Fish

Commission expressed concern with 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.

Clearfork was not lowered or drained in 2011. Shady Lake swimming beach maintenance was planned in 2011 but was not completed so there was no lake level fluctuation either place. Shady Lake was sampled three times in 2011, the first time during flooding conditions and then three weeks later, which was really outside the normal sampling window, and then in the fall with the latter sample containing lots of young-of-year bluegill and redear sunfish plus a large number of fingerling bass likely from the stocking of bass by the AGFC.

Shady Lake Catch per Hour for Primary Species with 2011 Results



Appendix F – FY 2011 Water Quality

*For additional information, contact Alan Clingenpeel at (*501*)* 321-5246 *or* aclingenpeel@fs.fed.us .

Water quality

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."*

Basin Area Stream Survey (BASS)

Every 5 years, through the paired-stream Basin Area Stream Survey (BASS), watershed condition is evaluated to determine if the progress in condition ratings has occurred. A Forest-wide BASS was completed in FY 2011: during FY 2012, data entry has been completed and is currently being reviewed for quality assurance and quality control. Once the data is correctly recorded, it will be placed into the database. Analysis of the data will begin once the data is correct and in the database.

Also, during FY 2012, at the request of the Mena/Oden District Ranger the BASS data was reviewed in a statistical manner to determine differences between reference streams (Caney and Brushy creeks) and streams within the Wolf Pen Gap OHV Complex using data from 1996 through 2006. Using stream data from the Basin Area Stream Surveys (BASS) inventories, the stream channels within the Wolf Pen Gap Off-Highway Vehicle (WPG OHV) complex (Board Camp and Gap creeks) were compared, by year, to reference (Caney Creek) and managed (Brushy Creek) streams, to determine conditions and trends in water quality.

The results found that road and trail densities for the WPG OHV complex exceed forest plan design criteria by a factor of four. Poor design, absence of maintenance, and high use levels on the road and trail network in the complex, raise questions about whether current management of the WPG OHV complex results in adverse effects on physical and biological parameters of associated streams.

Seventeen physical and biological measures were used to compare OHV streams from reference and managed streams. Using a summary scorecard, the streams in the WPG OHV complex consistently had a worse score for many of these 17 variables than the reference and managed streams over the time periods studied in this analysis.

In 1998, physical stream data for Board Camp and Gap creeks (OHV complex) suggested degraded conditions relative to the reference and managed creeks outside the OHV area. These data showed some improvement between 1998 and 2001, but reverted to degraded condition by 2006.

Biological values found that Board Camp Creek conditions have worsened over time when compared to Brushy Creek (managed), while Gap Creek values were equal to Brushy Creek in 1998 and 2006, but declined in 2001. Biological values for Board Camp and Gap creeks, when compared to Caney Creek, declined from 1998 to 2001, and showed a slight recovery in 2006.

Overall, the stream conditions for Gap and Board Camp creeks were worse when compared to Caney Creek (reference) than Brushy Creek (managed). Board Camp and Gap creeks' worst year was 2006 when compared to Caney or Brushy creeks.

Looking at trends over time, a number of worsening trends were found for Board Camp Creek and to a lesser degree, Gap Creek.

The recovery of Board Camp and Gap creeks is possible only with; 1) an aggressive maintenance program that brings roads and trails up to standard, 2) a maintenance program that works in a timely manner, 3) the limitation of OHV use, and 4) a wet weather management protocol that eliminates use during adverse conditions.

Climate change

The Ouachita NF participated in a national pilot study to determine the effect of climate change on water quality and aquatic biota. 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) is demonstrated. The model was also calculated with proper road maintenance. If funding allowed for proper road maintenance, the model demonstrated a decreased of watershed risk even with elevated CO2 emissions. Unfortunately, funding levels for road maintenance are declining.

Subwatersheds and Associated Risk for Aquatic Biota and Climate Change

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
Risk										
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

A General Technical Review publication on the success of the pilot studies and results is currently in draft.

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 on three districts (Jessieville/Winona/ Fourche – 2, Caddo/Womble – 1, and Mena/Oden – 1). Lab results indicated that the presence of herbicides was insignificant for all sites. No changes to the monitoring protocols are recommended.

Other research

Jonathan D. Phillips and Daniel A. Marion investigated geomorphic effects of stream crossings in the Wolf Pen Gap OHV Complex. Using upstream and downstream conditions

at unimproved ford-type crossings they found that effects attributable to OHV crossings were observed on all active trails. Impacts included bank and bed erosion, increased mud coatings on coarse channel clasts, increased fine sediment accumulations in channels, changes in size distributions of coarse particles, and large-channel-filling sediment plugs.

However, no single site exhibited all impacts, and the degree and relative importance of impacts was highly variable. Individual effects are strongly contingent on local details of channel and valley geomorphology. This suggests that few generalizations about OHV impacts are likely to be applicable at all sites. However, a menu of potential impacts was identified that can be applied to specific cases with the knowledge that local geomorphic controls may describe condition, amplify, or mask associated impacts.

In FY 2012, the following paper was published:

> Marion, Daniel A.; Clingenpeel, J. Alan 2012. Methods used for analyzing the cumulative watershed effects of fuel management on sediment in the Eastern United States. In: LaFayette, Russell; Brooks, Maureen T.; Potyondy, John P.; Audin, Lisa; Krieger, Suzanne L.; Trettin, Carl C. Eds. 2012. Cumulative watershed effects of fuel management in the Eastern United States. Gen. Tech. Rep. SRS-161. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 308-326.

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. This adds to the 'impaired function' of all watersheds. The results of inadequate road/trail maintenance and increases in OHV use are: 1. non-compliance with design criteria of the Forest Plan, and 2. adverse effects of increasing sedimentation on watershed health (water quality and aquatic biota).

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References

40 CFR Part 51. Vol. 64 No. 126. Regional Haze Regulations – Final Rule. July 1, 1999.

Burbrink, F.T., D.B. Shepard, and K.J. Irwin. 2009. Reassessment of species boundaries in the endemic Arkansas salamanders of the Plethdon ouachitae complex using molecular phylogeographic techniques. Final Report to the Arkansas Game & Fish Commission SWG Program. 12 pages.

Clean Air Act, 1990. 42 U.S.C. 7401-7671q

Clingenpeel, J. Alan. and Crump, Michael A. 2005. A manual for the Aquatic Cumulative Effects model. Unpublished paper on file at: Ouachita National Forest, Supervisors Office, Hot Springs. AR. 42 pages.

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological Systems of the United States: A Working Classification of U.S. Terrestrial Systems. NatureServe, Arlington, Virginia.

Cox, J. and B. Widener. 2008. Lightning-season burning: friend or foe of breeding birds? Miscellaneous Publication 17, Tall Timbers Research Station, Tallahassee, FL. USA.

Final Environmental Impact Statement (FEIS), Revised Land and Resource Management Plan, Ouachita National Forest, Arkansas and Oklahoma, 2005 (USDA Forest Service, 2005b).

Foti, Thomas L.; Glenn, Susan M. 1991. The Ouachita Mountain landscape at the time of settlement. In: Henderson, Douglas; Hedrick, L.D., eds. Proceedings of the conference on restoration of old growth forests in the Interior Highlands of Arkansas and Oklahoma; 1991 September 19–20; Morrilton, AR. Hot Springs, AR: U.S. Department of Agriculture, Forest Service, Ouachita National Forest; Morrilton, AR: Winrock Institute for Agricultural Development: pages 49–65

Inlander, Ethan; Clingenpeel, Alan; Crump, Michael A.; Van Epps, Matthew; Formica, Sandi. "Inventory and Sediment Modeling of Unpaved Roads for Stream Conservation Planning." In Proceedings of the 2007 International Conference on Ecology and Transportation, edited by C. Leroy Irwin, Debra Nelson, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, 2007. pages 156-165.

James, Douglas A. and Neal, Joseph C. 1986. Arkansas birds: their distribution and abundance. University of Arkansas Press. 403 pages.

Marion, D. A. and Clingenpeel, J. A. 2009. "Methods Used For Analyzing the Cumulative Watershed Effects of Fuel Management on Sediment in the Eastern United States" in Audin, L.J., (Ed.). (2008, October 6--last update). DRAFT Cumulative Watershed Effects of Fuels Management in the Eastern United States. [Online]. Available: http://www.na.fs.fed.us/fire/cwe.shtm [2009, June 15--access date].

Mattoon, W.R. 1915. Life history of shortleaf pine. USDA Bull. No. 244. Government Printing Office, Washington, D.C. 46 pages.

Peterson, Roger Tory, 1980. A Field Guide to the Birds. Houghton Mifflin Co. 384 pages.

Sargent, C.S. 1884. Report on the forests of North America exclusive of Mexico [including map of Arkansas showing the distribution of forest and prairie cover]. Tenth Annual U.S. Census 9: 543-544. Washington, D.C.

Smith, Kenneth L. 1986. Sawmill: the story of cutting the last great virgin forest east of the Rockies. The University of Arkansas Press, Fayetteville, AR. 246 pages.

Urbston, D. F., D. L. Adams and O. M. Stewart, 1987. Censusing - deer by plot removal using Spotlight. Abstract. Presented at the 10th Annul. S.E. Deer Study Group Meeting. 12 pages.

U.S. Department of Agriculture, Forest Service. 2010. Final American Burying Beetle Conservation Plan for Ouachita and Ozark-St Francis National Forests, April 2010. 76 pages.

U.S. Department of Interior Fish and Wildlife Service (USFWS). 2007. Draft Arkansas Fatmucket (*Lampsilis powellii* I. Lea, 1852) 5-year review: Summary and Evaluation. U.S. Fish and Wildlife Service Arkansas Ecological Services Field Office Southeast Region. 30 pages.

U.S. Department of Interior Fish and Wildlife Service (USFWS). 2009. Indiana Bat. 5-year review: summary and evaluation. U.S. Fish and Wildlife Service, Bloomington, Indiana, Ecological Services Field Office, Bloomington, Indiana. Also http://ecos.fws.gov/docs/five_year_review/doc2627.pdf

U.S. Department of Interior Fish and Wildlife Service. 2003. Recovery plan for the red-cockaded woodpecker (Picoides borealis): second revision. U.S. Fish and Wildlife Service, Atlanta, GA. 296 pages.

Williams, L.R., C.M. Taylor, M.L. Warren, Jr., and J.A. Clingenpeel. 2002. Large-scale effects of timber harvesting on stream systems in the Ouachita Mountains, Arkansas, USA. Environmental Management 29:76-87.

Williams, L.R., C.M. Taylor, M.L. Warren, Jr., and J.A. Clingenpeel. 2003. Environmental variability, historical contingency, and the structure of regional fish and macroinvertebrate faunas in Ouachita Mountain stream systems. Environmental Biology of Fishes 67:203-216.

Williams, L.R., C.M. Taylor, M.L. Warren, Jr., and J.A. Clingenpeel. 2004. The role of regional factors in structuring Ouachita Mountain stream assemblages. Pages 231-238 In: Ouachita and Ozark Mountains symposium: ecosystem management research. Edited by J.M. Guldin. USDA Forest Service, Southern Research Station. Gen Tech Rep. SRS-74. Asheville, North Carolina.

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